



Three Brains & Three Disciplines: A Brief Overview

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Abstract

Our spiritual character is assessed with respect to emotional patterns of an archetypal nature associated with our ancient limbic brain. These emotional patterns are reflected in both hemispheres of our neocortex or new brain. Our mute right brain tailors them according to timeless holistic themes that we entertain as frameworks of understanding essential to making sense of our sensory experience, often along religious, ethnic, or cultural lines. Our rational left brain employs language to develop techniques of behavioural response to sensory input accordingly. Our three brains thus have very different functions yet are constrained to live in the same house together, accounting for the schizophrenic streak so evident in our tragic history. The antidote for this is the practice of three distinct but mutually related disciplines, namely a left brain physical discipline, a limbic brain moral discipline, and a timeless right brain spiritual discipline that seeks accord with the cosmic order. Only in this way can we hope to bring our three brains into a sustainable balance with the cosmic order by which we have evolved.

Keywords: Brain; Neocortex; Cosmic order

Our Spiritual Nature

Despite claims by some scientists that human consciousness is an emergent property of physics; all human experience has a spiritual character. Most of us do not think of it as such. We tend to take our experience of the world we live in for granted and we believe that the things that we see and sense around us constitute physical reality shared by us all in what may be called the public domain. Some of us may engage in spiritual practices of various kinds, meditation, prayer, and so on, and some of us are members of formal religious institutions. In fact most of the world believes that there is a transcending holistic reality of some kind that is timeless or eternal.

Nevertheless some of us believe that it is all a fortuitous accident without meaning or purpose. Some believe Darwin's hypothesis that we have evolved solely by a long series of random mutations, a few of which are favoured by natural selection. Even so, few of these same believers or disbelievers would deny that we have spirit. We know that we are animated by energy patterns of an emotional nature that we can consciously observe. Despite differing interpretations it is hard to deny that we are indebted to historically integrated animating patterns of behaviour that are archetypal in nature and that derive from our cultural and natural heritage reaching back millions of years. It is in this context that our personal experiences evolve according to how we place our values.

Values and Our Three Brains

Values such as truth, love, mercy, compassion and justice are not physical things that exist out there in a world of form made of atoms and molecules. Personal values do not belong to the public domain, although they may seek and find a cultural consensus in many cases. Values belong to the private domain. They are mercurial context dependent emotional perceptions of our ancient limbic brain. Our emotional experience is extremely complex and diverse. These emotional patterns fuel both the right and left hemispheres of our neo-cortex or new brain. These three brains are mutually independent in the way they function, yet they are mutually related.

The most ancient reptilian part of our limbic cortex, the hippocampal gyrus, is primary to memory or recall consistent with sensory input. Our right brain intuitively integrates emotionally patterned memories that are recalled relevant to sensory input. We have an intuitive sense of what kind of general response may be appropriate to circumstance. A repertoire may intuitively present itself as fitting in with a holistic framework of understanding that we entertain. This comes as an intuitive right brain theme that guides our rational left brain in determining a specific behavioural response. The right brain in right handed people is holistic. It intuitively integrates sensory experience. The left brain is linear. It perceives the linear flux of ongoing circumstance and develops

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behavioural responses accordingly.

If the sensory circumstance is familiar the response may be spontaneous. If it is unfamiliar we may need time to reason out a response consistent with the theme that tailors the emotional pattern evoked by the sensory input. Using left brain language we may thus reason out a plan of action that is energized or fueled by intuitively tailored emotion. For example an insult may arouse emotions to retaliate in kind, but we may intuitively sense that it would make things worse. The initial emotional impulse is intuitively modified by the right brain to a more positive theme. Our left brain thus works out a technique of response that attempts to defuse the situation amicably.

If the sensory input is unfamiliar and also contrary to the theme of our integrating framework of understanding we may respond spontaneously in socially inappropriate ways. These are crimes of passion. We all seek a feeling of unity, a feeling of being whole. We have to bridge this Rift in Wholeness between self and other than self. In extreme cases a quest for that seductive feeling of unity can resolve itself in emotionally identifying with a common theme expressed in language to the exclusion of the rest of humanity.

The screams of Hitler captured a nation in global conflict. The Islamic State movement is a brutal interpretation of Islam as the only true religion, all others being infidels, including Islamic sects that may not comply. Christianity has also had some tragic periods of violence based on spurious interpretations of the Bible that are completely contrary to the teachings of Jesus. By finding that seductive feeling of unity in an exclusive nationalist, social, or religious cause we effectively exclude ourselves from the rest of humanity. There is a tragic paranoid streak evident throughout the history of human civilization.

Developing Frameworks of Understanding

We are born with a certain orientation and talents and we evolve them from childhood. We absorb them from our elders and peers: parents, teachers, religious leaders, playmates, associates, friends and enemies. From many sources we gradually develop integrating frameworks of understanding consistent with right brain themes that appeal to us at an intuitive level as a human being. We hardly notice it happening because this semi-subliminal process is mute.

We are also subject to overriding cultural frameworks that are culturally imposed in various ways. These may take the form of nationalist or ethnic themes, political themes, religious themes, and so on. As pointed out above these too often become exclusive themes employing that seductive pursuit of unity by emotionally identifying with the theme to experience the supremacy of Self over Others. "I'm the King of the Castle and you're the dirty rascal," is the same old game we played as young children. The Rift between Self and Other is bridged within the group. But sadly our common humanity is subverted to exclusive ideals implicit in the theme. Too often we believe that we are special. We tend to contrive two sets of thematic rules, one set for ourselves and another set for others. Too many claims they are self made men and worship their maker, as the saying goes. Or my country or religion or race or creed is better than yours.

Whatever their nature we assume archetypal frameworks of understanding that we expect experience to conform to. Our holistic right brain demands that we must have these integrating themes. Everyone has them. They are subject to change only with great difficulty precisely because we need them to make sense of our

experience. They have boundless and timeless characteristics that predetermine the character of our responses to various circumstances that we encounter. We may switch between different integrating frameworks in different circumstances without noticing the inconsistencies between them, as evidenced by the deeply embedded schizophrenic streak in human history.

If we reflect carefully on this we must acknowledge that we implicitly believe that there are Universal Values that apply to us all whether we can access them or not. We claim our perception of them to be true whether they are true or not because our perception of values depends on anciently rooted patterns that is essential to our integrating frameworks of understanding. Even if we believe that there are no universal values we must believe that this is true for every sentient creature in the universe, precisely because our right brain integrating framework is holistic. We do not see the contradiction in claiming that there is no universal truth to be universally true. And we cannot reasonably believe that we are the only ones to whom universal values do not apply.

Our limbic brain has a capacity to reflect on itself. The brain of the lower mammals in humans is associated with the cingulate gyrus that overrides the hippocampal gyrus associated with the reptiles thus imparting a capacity for emotional reflection. The horse can reflect on the more primal appetites of the crocodile, so to speak. Both constitute the limbic cortex that is intimately connected to the autonomic nervous system. The latter is generally taken to include the enteric nervous system that has invertebrate origins that predate the vertebrates. Thus dependent on our animal ancestry over the sweep of our evolutionary history, we have been invested with three brains that allow us to create our own essential character in our journey through life. This triadic arrangement of two newer brains overriding our ancient brain determines how we are able to tailor archetypal emotional patterns of behaviour in the public domain.

The Public Domain

The public domain consists of what all of us implicitly agree on that exists out there in the world around us. This external objective reality is not really "out there" however. Our sense perceptions of the objective world are integrated by our nervous systems into a subjectively perceived virtual reality that mirrors the external surfaces that we see and sense as things and people and that we believe to be "out there." In fact all we can ever know is active interface processes between a universal inside and a universal outside, neither of which can be known to the exclusion of the other. Reflected light from physical objects enters the retina of our eyes and interface processes between neurons in our brain reconstruct our virtual reality. It is distinct for each of us.

This virtual reconstruction of the objective world that we each subjectively perceive from our own unique perspective allows us to independently navigate and behave in relation to it. We each live in our own virtual reality that we interpret according to how we each place our values. We are more than flesh and blood. We are also spiritual beings, albeit anchored to the flesh as long as we walk on solid Earth. It is in this way that we are enabled to learn from experience and determine our own evolution.

We also have a capacity to sense the emotional intentions of others in the way they behave. This includes other animals, because we share ordered archetypal patterns of behaviour throughout the quadruped vertebrate lineage reaching back some 370 million years. In fact our

enteric nervous system that lines our ten meter gut from mouth to anus has origins predating the vertebrates. Although it is usually considered part of the autonomic nervous system it has been called a second brain because it can function independently. It has some 100 million neurons, more than in the spinal column or the peripheral nervous system. Over 90% of the vagus nerve, the parasympathetic supply to most of the visceral organs is devoted to enteric nerves that inform the brain. They can make us feel squeamish, deeply repulsed, nauseous, or fulfilled. Within these constraints of integrating values and tailored emotional patterns, we determine the character of our behaviour and our destiny. In doing so we are indebted to our animal ancestors throughout the history of the biosphere. This deserves more comment.

Our Ancient Limbic Brain

The instrument that we all use to meaningfully integrate and make sense of our phenomenal experience is our Central Nervous System which includes our spinal cord and head brain. Although both cerebral hemispheres receive symmetrical sensory input there are fundamentally important functional distinctions. The limb or edge of both hemispheres is similar in cytological structure to the ancient brains of the reptiles and lower mammals. In humans the huge expansion of the new part of the cortex over the old brain has curled it inward around the top of the brain stem at the top of the spinal cord. Together with related structures, especially the hypothalamus, this ancient limbic cortex constitutes the Limbic System that is intimately associated with our emotional apparatus, the autonomic nervous system.

As pointed out above this functionally integrated ancient brain has origins dating back to the appearance of the first quadruped amphibians about 370 million years ago. Overriding this ancient emotional brain, the new brain or neo-cortex, which was undeveloped in the amphibians, has expanded over it in stages with the reptiles, lower mammals, and higher mammals, to provide humans with a vastly superior intellectual capacity that is not itself emotionally colored. Our new brain nevertheless reflects emotional patterns in conscious awareness and yet it has no significant biological controls over the old emotional brain. Dr. MacLean [1] who did much of the research on the physiology of this arrangement called it a built-in "Schizophysiology" [2]. Our intellectual capacity to send rockets to the Moon and build atomic bombs is harnessed to the emotional capacity of a crocodile and a horse. Human history attests to our paranoid streak that is still so evident today.

Our New Brain-the Neocortex

Our new brains are further divided into four major functional quadrants. The rear half of the neocortex integrates sensory input for both sides of the body. The front half accommodates the assimilation of motor responses to sensory input. The right hemisphere intuitively integrates meaning holistically. We need an integrating framework of understanding that is intuitively perceived and mute. The intuitive perception of structural wholeness has a timeless character. It concerns the Ontological Structure of Being. This right brain has no capacity to speak in right handed people. It cannot initiate actions apart from repetitive actions symmetrical with the left brain, such as in walking or running, and this is largely automated in our formative years by delegation to the spinal cord brain.

This division of function between right and left hemispheres of the neocortex was confirmed by Roger Sperry, which won him a

shared Nobel Prize in 1981, for testing patients who had undergone surgical separation of their hemispheres for the treatment of epilepsy. His apparatus consisted of a split screen on which images could be projected from behind. When the test subject looks at the centre line between the two screens a picture flashed quickly on the left screen only registers on the right hemisphere and vice versa. The other hemisphere cannot see it if the image lasts for a tenth of a second or less [3].

In this way Sperry confirmed that the left hemisphere employs language to assimilate behaviour by drawing on knowledge gained from phenomenal experience. It employs epistemological Knowledge of Phenomenal Behaviour as distinct from right brain intuitive perception of the timeless Ontological Structure of Being. So the four quadrants are related to Sensory input with respect to Motor output, back to front respectively, and Intuitive Insight with respect to the language and behaviour, right half to left half respectively [4].

The electrical stimulation studies in Montreal by Penfield [5], to avoid removing areas critical to basic behaviour for the treatment of epilepsy, together with later ones in the US by C.N. Woolsey on many species, including humans [6], established that both hemispheres have major sensory and motor areas and minor sensory and motor areas [7]. This provides two polar relationships in each that allow each hemisphere to function independently of the other hemisphere, in relation to the common emotional limbic brain polarity which can also function independently, as MacLean showed. The three polar relationships essential to mental activity are structurally evident at a subsumed level within each hemisphere, just as they are evident at a subsuming level when the brain as a whole employs the primary Sensory and Motor Areas in each hemisphere in relation to the common limbic polarity. Our three brains can function as separate right and left halves both anchored to common emotional patterns, and also function together in a mutually interdependent way. Being constrained to live in the same house together, however, our three brains often do not get along [8].

The Human Dilemma

Herein lies the crux of the human dilemma. Our right brain insight into the timeless Ontological Structure of Being is seriously deficient. In fact it has deteriorated since ancient spirit cultures sought harmony with nature. The Ontological Structure of All Being is the Cosmic Order sought by humans throughout our history. With the emergence of complex civilizations came empire building and conflict which has reached global proportions with the cultural meltdown that began a few centuries ago, culminating in two world wars with many lesser wars and insurrections evident today.

But whether it has been called Rta in the ancient Vedic tradition of the Indus valley, Maat in Ancient Egypt, Me in Mesopotamia, the Dharma in India, or the Tao in China, all these words refer to the cosmic order as a timeless moral order transcending our short sojourn on planet Earth. The cosmic order was historically conceived as a living manifestation of Universal Values which since ancient times has been associated with One Supreme Source of All Being transcending the whole of physical existence.

Universal Values do not exist as mere intellectual abstractions. That would make them arbitrary creations of the human mind subject to change. To be universal they must timelessly transcend this physical existence. To be timeless, universal truth, mercy, compassion, love, justice must be mutually harmonious unto themselves. As such they

are the living manifestation of ultimate reality. The ultimate reality must be one in order for us to integrate experience holistically. In other words they are manifest in One Supreme Being that subsumes All Being [9]. Otherwise values could have no universal meaning. Universal truth is synonymous with God.

Three Disciplines

In summary the world we each live in is a virtual reconstruction in our mind of the objective world we perceive with our senses from our own unique subjective perspective. It is to this world that our left brain develops explicit techniques of physical behaviour. Our subjective world is colored by our history, by how our values evolve and find emotional expression via our limbic brain. Our subjective world is also holistically determined by intuitively perceived right brain integrating themes that we entertain. Each of our three brains, although mutually related, is involved in a distinct separate endeavor. This brings us to three distinct disciplines that are necessarily involved.

Of primary importance is the physical discipline. We must look after the needs of this physical body that we find ourselves the proprietor of. We must feed clothe and house it and attend to the needs of our family. This requires that we work to make a responsible contribution of value to our collective benefit in the market place. If we seek to do this in an honest sustainable way we must find employment that enables it. We must also regulate our activities, avoid socially inappropriate practices, make reasonable efforts to get along with others, eat properly, maintain healthy habits, and so on. The physical discipline is primary to our survival. It concerns how we explicitly behave and make our social commitments. We must find a constructive vocation and carefully practice it with good intension. "Success" is not a criterion. A garbage collector may be much better placed than a bank executive drawing huge bonuses.

The moral discipline is an emotional concern with how we place our values. We must moderate our animal appetites by training our horse to manage our crocodile. As the rider of the horse this requires careful observation of the spirit in which we undertake actions. It is not just what we do that matters. It is also the intension behind our behaviour. We tend to react in anger, hate, spite, disdain and so on. We tend to practice deceit and self gratification with malicious intent. Unmonitored and unchecked our emotional brain claims dominion of our mind and erodes our character, like a runaway horse. We have to work at recognizing the countless faces of moral erosion. We can redeem anger with tolerance, hate with compassion, spite with forgiveness, disdain with respect, and so on. Because our emotions are reflected in conscious awareness we can observe their subtle nuances and modify their expression. We must be especially careful to recognize and curtail every tendency to emotionally identify with ethnic, national, political, social, and religious ideals that claim ascendancy of Self over Others. Our common humanity subsumes the evolution of life in the biosphere. Human organizations of all kinds are properly vehicles to make a constructive contribution to our common humanity.

The physical and moral disciplines, practiced with diligence, provide an essential foundation for the spiritual disciple. The spiritual discipline is a persistent quest for Universal Truth transcending creation. Rational belief systems based on language must be set aside. The quest must be open. It cannot be preconditioned by language. It is an intensive right brain intuitive search for the roots of meaning. This requires that the left brain dialogue that normally goes on

incessantly in our minds must be stilled. The sympathetic division of our autonomic nervous system normally feeds our language hemisphere, keeping it busy incessantly. One technique to stall this process is to count one's breaths, since breathing is an autonomic function that we have conscious access to. By focusing language on each breath this helps us to stall the mental dialogue, thus stilling the sympathetic division that fuels immediate thought and action. This allows the parasympathetic division that works in accord with right brain intuition to respond to the mute quest. More fundamental archetypal energy patterns can be accessed in this way, simply by an intensive wordless quest into the nature of truth. One can try to see one's personal archetype, to see the archetype of the human species, and ultimately to see God as Universal Truth transcending creation. An intensive and persistent quest of this kind into the nature of All Being takes a very strong mind with a firm moral and physical discipline. We each have an independent relationship to God.

Our Personal Context

In summary the world we each live in is thus a virtual reconstruction of the objective world in our mind from our own unique subjective perspective. It is colored by our history and how we place our values. It is determined by our world view and how we make our commitments accordingly. We each have a story that relates to how we perceive the cosmic order to work. All we can really talk about with authority is the insights we have gained from our personal experience. Our religions and sciences may attempt to give an account of the cosmic order in language, however we have seen that language is confined to our left brain physical discipline.

Languages of all kinds have evolved to help us cope collectively with the flux of objective circumstance that we each find ourselves in. They are not suited to the timeless and boundless realm of the cosmic order. For example, despite many dissenters and evidence to the contrary, Big Bang cosmology is preached as gospel to a trusting public. Measurements of space and time derived from creation are raised to a priori status to explain their own creation, yet this implicit contradiction is ignored. And there are surely few among us today who believe with Isaac Newton that the world was created about 4,000 BC by adding up all the generations listed in the Bible [10]. Kepler had a similar estimate. Even geniuses entertain deficient world views.

Our Spiritual Destiny

In the spiritual realm all we have to depend upon is our mute intuitive perceptions of the Ontological Structure of Being. Primary to this perspective is the factual realization that all we can ever know is active interface processes between a Universal Inside and a Universal Outside, neither of which can be known to the exclusion of the other. The only things we can ever know are active interface processes. In all of our endeavors we seek to mutually reconcile inside and outside in some meaningful way, according to how we make our commitments.

This requires a bridge between self and other that may or may not have exclusive characteristics. The bridge or reconciliation between them is implicitly timeless and boundless with respect to our personal archetype, although it is subject to recall and refinement as we develop and evolve our character. To the extent that we make commitments of eternal value we can bring our three brains to a sustainable balance that determines our spiritual destiny. We have the cosmic potential to transcend our physical birth and death as eternal beings. We can actually come to see God. A personal account is given on my website [9].

The Shivapuri Baba

A testimony to this experience was given by an unusual Hindu named Sri Govindananda Bharati who became known as the Shivapuri Baba. He came to see God after 25 years meditating alone in the jungle, after which he undertook a forty year journey on foot around the world to fulfill a promise to his grandfather, completing the task at age 90 in 1915. He met Ramakrishna, Aurobindo, the first Agha Khan and the Shah of Persia. He somehow got permission to visit Mecca but did not find himself attracted to Islam as it was then. He also visited the Vatican. In Europe he met heads of state and famous people including Kaiser Wilhelm II, Queen Emma of the Netherlands, George Bernard Shaw, Lord Randolph Churchill and many others. At Queen Victoria's request he stayed in England for 4 years until she died and visited her many times. In North America he met President Theodore Roosevelt, the Mexican dictator Porfirio Diaz and various others. Places he visited in South America included Lake Titicaca at an elevation of 12,500 feet. He passed through New Zealand and Australia arriving in Japan in 1913. Continuing on foot through China he completed the journey he began in 1875 in 1915. He initially settled near Shivapuri Peak, whence his name, but for health reasons moved to a warmer location that was offered to him. He spent the remaining years of his life in a small hut in a tidy forest not far from the Kathmandu Airport, where a neighbouring family attended to his physical needs in exchange for spiritual instruction. The English author J.G. Bennett met him twice the last two years of his life and wrote a book about him entitled *Long Pilgrimage* [11]. He died in 1963 at the age of 137 according to testimony of his birth date and history. He was fully conscious until the moment of death. According to his neighbour he asked for a drink of water, then said goodbye and lay down in his usual custom and went to sleep. His last words were "Live right life. Worship God. That is all. Nothing more". On a trip to Kathmandu in 1981 to renew my Thai retirement visa I

visited the forest area where he spent the last years of his life. Some British followers of J.G. Bennett had erected a stone building over his grave with a number of written articles about him and a few photos posted on the walls. He summarized his teaching as three disciplines that are generally in accord with the description above, consistent with scientific findings and my personal experience.

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