



Ad Luminare

A Compilation of Essays

Ian Weinberg

Ian Weinberg is a practicing neurosurgeon and a pioneer in the application of psychoneuro-immunology, PNI - the scientific study of the influences of mind states on immune function. Passionate about human consciousness and its enhancement, Ian developed a comprehensive coaching program in 1992 which has evolved to the present time. Based on the integration of the neurosciences with PNI, the program is designed to enhance wellness, performance and leadership in the personal, clinical and corporate environments. A further unique component is the online diagnostic (psychometric) which provides an accurate quantification of the user.

Ian continues to practice neurosurgery in his private practice as well as providing personal neurocoaching (neuromodulation) in the clinical and corporate environments. Additionally, Ian facilitates workshops for the training of coaches seeking accreditation in the use of the program as well as corporate-based workshops.

The essays included in this compilation were written by Ian Weinberg and shared on the **Producer** platform of **beBee.com**

Copyright reserved – Ian Weinberg 2017

Contents

Origins and Consciousness	Page 3
Mindfulness	Page 23
Brain – mind	Page 32
Neurocoaching and PNI	Page 48
The clinical space	Page 87
The extended environment	Page 110
The ‘experts’	Page 126
The NeuroSurge Program	Page 137

Origins and Consciousness

A personal view of consciousness

Introduction

Contributors to the understanding of the concept of human consciousness represent a broad spectrum of individuals, each unique in their subjectivity. And while a diversity of subjectivity adds to the richness of the concept of consciousness, the inflexibility of some individuals to respect, consider and evaluate the authentic views of others on the subject, impedes the evolution towards a collective understanding of the concept. At the outset we need to respect that we are, each one of us, subjective beings such that all our sensory experiences, internal thoughts and emotions are channeled through our unique subjective filters. Therefore awe is in the eyes of the beholder and what is awesome to some may not be awesome to others. So as not to be bogged down in semantics, certain concepts need to be defined and bedded down at the outset.

Consciousness: The presence of cognitive function sufficient to register sensory information and/or internal memory-based activity. This may not necessarily be limited to the functioning physical brain. Documented evidence exists which has demonstrated the existence of cognitive function unsupported by measurable neurophysiology.

Awareness: A subjective 'knowing' of a concept or entity. This develops from a sensory experience and becomes established through unique, subjective cognitive processing. Integrated with awareness is usually an emotional association.

Belief: A reflection of the subjective understanding of the way of things at any given moment. Belief should be flexible, changing with new information and reasoning. Limiting beliefs are beliefs relating to an earlier life situation (context-based) which are inappropriately applied to later life circumstances. They are inappropriate because flexibility through reasoning has not occurred in respect of a changing environment (context).

Dogma: Blind faith in limiting beliefs which become prescriptive.

Consciousness in a physical dimension

Irrespective of whether physicality is an energy artefact which is converted by our sensory apparatus and cognitive function into mass, time and distance, we live (in this dimension) in very much a physical world. If you jump in front of a moving train you will meet a very physical end, no matter how psychically evolved you are!

In a physical world, consciousness is seated in the brain. We sense (perceive), label entities, integrate their associations and develop our subjective world view (understanding). Our subjective bias in turn, influences and filters perceived (sensed) information. The process continues to evolve based on our ability to reason. An emotional tag is added to all components of our subjective world view. Emotional tags emerge from an interplay between our physiological needs and their appeasement in the early nurture years. Simply, if needs are promptly met the physiology of fear is allayed through reward. Conversely if needs are delayed or essentially absent as a result of deprivation, fear and anxiety prevail. Fear and anxiety impede reasoning which results in a compromised world view incorporating a higher incidence of limiting beliefs. Genetic and nurture influences are strongly deterministic insofar as our subjective world view is concerned. In mitigation is our ability to reason which is underpinned by *neuroplasticity* – the process whereby new neuronal connections are made and redundant ones removed. However the potential for neuroplasticity varies depending on the biases and limiting beliefs incorporated within our subjective world view, also referred to as our *personal narrative*.

Consciousness and the energy dimension

All physical entities have an energy equivalent ($E=mc^2$). The energy dimension has been referred to by various names including *singularity*, *nonlocality* and *implicate order*. In this dimension there is no separation of energy-represented entities in time or space. It is a place of unlimited potential in terms of materializing into physical entities. This is referred to as *superposition* of entities when in the energy space. When in the physical space, entities are referred to as being in their *base state*. Human consciousness influences the conversion of energy entities in superposition into physicality by engaging with the entity and defining it (referred to as ‘collapsing the wave of superposition’). This function was definitively validated in two pivotal

physics studies in 2015 and 2016. Human consciousness therefore has an intrinsic **co-creatorship potential**.

Whose thoughts are these?

Intrinsic neural activity is driven by sensory input, intrinsically stored information, the generated neuro-electric field as well as by probable resonance with other entities within the energy dimension/singularity (timeless and spaceless). Volition or cognitive motivation is therefore a result and not a cause of this busy neural activity. Our cognitive function is therefore determined by the configuration created by our nature/nurture heritage (our narrative or subjective world view) and the subsequent interaction of this configuration with the changing physical environments of our life path, together with influences originating within the the singularity. Neuro-electrical activity has been shown experimentally to precede a conscious decision by several milliseconds!

Some thoughts on the meaning and purpose of consciousness

If indeed the universe is 13.9 billion years old, it is remarkable that the basic elements have retained their properties unchanged though this enormous passage of time. This flies in the face of the second law of thermodynamics which states that all physical entities decay into states of disorder over time (increasing entropy). And it is also these same elements which have ultimately given rise to human consciousness and its intrinsic ability to convert the energy equivalent of matter into physicality. Clearly then, human consciousness and its co-creatorship function is incorporated in the source files of some deterministic intelligence. We co-create in physicality, based on the configuration of our personal narratives, a unique segment of superposition which then goes back into energy superposition as substrate for subsequent co-creation. Random events inevitably occur, however strong heritage determinants and the timeless-spaceless influences of the singularity damp down radical departures from an essentially ordained life path. We will dance our part in the Great Dance, with all that we are and within all that it is!

Approaching this extended reality

As unique entities, we will play our part as determined by these comprehensive determinants. We will co-create that which is resonant with our configurations. We don't seem to have that much absolute free will independent of these all-pervading influences. There are however definitive mind states which allow us to transcend our unique, heritage-determined corner and potential limiting beliefs. These include:

- Developing a **conscious awareness** of ourselves and the extended environment
- Incorporating a degree of **sensitivity** to the subjective space of others
- Applying the function of **reason** to establish clarity before arriving at an opinion/belief
- **Contributing value** (*making something better than it was before you engaged with it*) – to self and the greater environment. In this way we become pro-evolutionary.

References

www.pninet.com/articles/Memory.pdf

[www.pninet.com/articles/Oscillate\(A\)v2.pdf](http://www.pninet.com/articles/Oscillate(A)v2.pdf)

United in consciousness

Something of great significance occurred in January. I'm referring to the de-classification of CIA documents. Among the documents de-classified were those relating to the controlled studies of the mind-reading and mind-bending feats of a certain Uri Geller. And would you believe it, his powers were validated in strict laboratory conditions. And so it is prudent to review this subject again, that of extra-sensory perception (ESP) and psychokinesis (PK) which denote the ability to read minds and perceive things at a distance (remotely) and effect minds and things at a distance, respectively.

Fast forward to 2016 when a talented physicist named Dean Radin convincingly showed that human consciousness can shift matter from its energy equivalent (wave state) into physicality – the stuff that you and I can see, feel and touch. This was achieved by individual subjects remotely (at a distance) influencing a classical quantum double-slit experiment. In other words, human consciousness has co-creatorship properties – we create physicality from energy!

This should be seen in conjunction with research performed in 2015 when co-operating physics laboratories in Australia and Japan demonstrated conclusively that an entangled pair of photons (two entities connected in accordance with quantum physics principles) manifest evidence of being connected to each other, independent of time and space. Manipulating one of them resulted in an instantaneous change in the parameters of the partner, several thousand kilometres away! Add to this Radin's remote influence of human consciousness and we begin to appreciate a whole new dimension of energy-matter interaction bridged by human consciousness.

Let's get back to Uri Geller. To move an object remotely or to bend it requires energy. Additionally therefore, we have to conclude that human consciousness has the intrinsic potential for converting some undefined source of energy into a usable form. The next challenge is to define what state of mind/consciousness is optimal for success in this remote physical influence.

EEG studies as well as fMRI observations indicate that success in ESP and PK activity occurs in the Alpha frequency range of the EEG. This frequency is associated with a chilled state of mind or a meditative state. When subjects were

taught through biofeedback to establish more Alpha activity they became more successful with ESP and PK outcomes. Individuals with increased frequencies in the Beta range are usually anxious and have lower levels of ESP and PK success.

fMRI studies indicate that the right hemisphere is the area of the brain that has more success in ESP and PK. The right hemisphere is the place of big picture sensitivity, intuition, trust, creativity, emotional connectivity and out-of-the-box thinking. The right hemisphere is suppressed by the dominant left hemisphere. The left hemisphere is all about linear function - planning, calculating, categorizing, speech and so forth. Interestingly if there is damage to the left hemisphere (fronto-temporal lobes) the right hemisphere is 'released' from left hemisphere dominance and the individual gains big picture sensitivity, creativity and enhanced intuition as well as greater success with ESP and PK. This can be done artificially by temporarily suppressing left hemisphere function, using trans-cranial stimulation.

If we translate this all into some practicality we can conclude that those individuals who are too amygdala-based – fearful (fear of failure, fear of loss, fear of not being adored and recognized), anxious and angry and who have raised adrenaline levels, are predominantly left hemispherical and have the lowest levels of intuition, creativity, sensitivity and emotional connection. They also have the lowest success in ESP and PK activity. Conversely, those who are chilled, calm, sensitively connected to the bigger picture and are creative (oxytocin types), are the ones that have the greater success in ESP and PK.

I would propose therefore that in place of an array of mirrors focussing the sun on a central tower for heat energy generation and in place of an array of photo-electric cells, we rather recruit an army of intuitives to focus heat energy on a central tower at a given location. And since the influence of consciousness is remote (non-localized) our intuitives can contribute from anywhere in the universe.

A final word

The stream of human knowledge is heading toward a non-physical reality. The universe begins to look more like a great thought than a great machine. - Sir James Jeans

The inescapable truth is that we and all other physical entities, span the physical-energy divide. In this way we are all connected and have been, since the beginning of time. And as we evolve and develop ourselves, we are contributing to the evolving, connected, energy collective and at the same time are influenced by its eternal flux. We are, each one of us, unique co-creators and at the same time, holograms of all that is. We and our entire collective environment are manifestations of the *zeitgeist* of the moment!

References

Radin, D., Michel, L., & Delorme, A. (2016). *Psychophysical modulation of fringe visibility in a distant double-slit optical system*, Physics Essays, Vol. 29, No.1, pp14-22.

<https://www.cia.gov/library/readingroom/docs/CIA-RDP96-00791R000100480003-3.pdf>

The inconvenient truth about consciousness

Human consciousness is universally recognized as a function of the organ referred to as the brain. And while mental and emotional function has been correlated with some components of neuro-anatomy and neuro-physiology, the phenomenon of cognitive consciousness has not been neatly bedded down insofar as the model of the human brain is concerned.

This is illustrated by two seemingly unrelated scientific observations which throw a spanner in the works of conventional neuro-science.

The first case is that of Pam Reynolds who underwent the clipping of a cerebral aneurysm. Due to the nature and position of the aneurysm, the following measures were implemented to facilitate the procedure:

1. Deep general anaesthesia
2. Eyes taped shut
3. Induced hypothermia
4. EEG monitoring to confirm flat line (devoid of cerebral activity) throughout the procedure
5. Continuous auditory evoked potential with ear plugs in place – confirmed zero neuro-electric activity throughout the procedure
6. Cessation of cerebral blood flow just prior to and during the clipping phase

Despite this, the patient was later able to describe the instruments used and repeated the conversation that took place between the surgeons just prior to the clipping, when all the above measures were fully implemented. The timeline of the patient's subjective experience referenced to actual events indicated clarity of consciousness when the records show zero neurophysiological activity.

The second observation relates to the phenomenon of terminal lucidity. Nahm et al describe a large sample of patients with advanced neuro-degenerative conditions, most of whom had documented involitional tissue loss (atrophy and/or multiple infarct pathology) and chronically compromised cognitive function but who regained near normal cognitive function just prior to death.

Clearly there is more to consciousness than merely a mechanistic, organ-based function. Perhaps these observations are too inconvenient to incorporate into our

neat neuro-scientific package. However if we are to remain authentic as scientists then at some stage we will have to engage these inconvenient truths. And the inconvenience gets a whole lot worse.... because if consciousness is not localized to the brain, then does it persist after physical brain death? And so the plot thickens ... As neuro-scientists we may well have to take a course in quantum physics to find the missing parts of our model!

References

www.near-death.com/experiences/evidence01.html

Nahm, M., Greyson, B., Kelly, E.W. & Haraldsson, E. (2011). Terminal Lucidity: A Review and a Case Collection. Archives of Gerontology and Geriatrics

Post-script: The merits of the Reynold's case have been debated in the medical and other scientific literature for several years. The battle lines have been drawn, as expected, between those who are prepared to extend the neuro-scientific model and those for whom the implications of the case are just too inconvenient to integrate.

Just to illustrate the intensity of the ongoing 'conflict' see -
http://michaelprescott.typepad.com/michael_prescotts_blog/2012/05/click-on-this.html

Perhaps we ought to read the stars

The intrinsic fear of insecurity has pervaded the human condition ever since the beginning of recorded time. This fear manifests in the collective defense of the familiar and of the status quo – the comfort zone. Those that have presented radically new ideas and concepts and have challenged the status quo have invariably been quickly silenced. It's just too inconvenient to entertain radically new ideas and their implications unless they offer an immediate benefit to the existing comfort zone.

Sadly, this bias has been carried over into the realm of science. This is most unfortunate because the scientific environment aspires to the highest ethics of human endeavor where anything and everything of us and our environments ought to be studied with healthy curiosity, logic and integrity so as to further our collective understanding. As a result, the gatekeepers of scientific research and their high priests have ordained what is 'true science' as opposed to what is 'pseudo-science'. Pseudo-science incorporates subjects which are regarded as undesirable and if research is pursued in these areas, serious threats to existing tenure and standing will inevitably occur. 'Undesirable' subjects include astrology, parapsychology and all 'fringe' health-enhancing modalities. Undesirable topics are inconvenient for the scientific establishment to engage with and integrate and so through the considerable muscle of the scientific community, are quickly suppressed. An illustration of this was the discrediting and excommunication of Rupert Sheldrake, an eminent cell biologist, who dared to postulate a radically new biological theory (Theory of Formative Causation), components of which he additionally validated through original research. In fact, *Ted Talks* removed his lecture under pressure from their own scientific advisors!

And so it is with some amusement that I note the publication recently of hard scientific evidence showing the significant effects that planetary configurations have on the sun's electromagnetic field. Why am I amused? Because in addition to its self-defeating bias, the scientific world is an unintegrated place with a short collective memory. Specifically as regards astrology, through the inconvenience caused at the time of its publication the science world forgot about the thesis of a highly respected astrophysicist, Percy Seymour. Percy Seymour studied the work of psychologist and

statistician, Michel Gauquelin who showed significant relationships between planetary alignment of five planets and success in specific vocations. Percy Seymour showed that it wasn't the direct effect of planetary configuration on humans on earth that was the operative influence. Rather, through resonance, the planets modulated the sun's electromagnetic field which in turn had a direct influence upon the earth's magnetic field. The earth's magnetic field has been shown to have significant effects on animal (including humans) physiology and behavior as catalogued in the science of magneto-biology.

Well, well full circle. We're not alone. And we seem to control less and less of our extended environment and our behavior as we discover more influences which come to bear upon our small little corner in this vast cosmos - octaves of electromagnetic influences! Best to remain humble and respectful.

References

<https://www.amazon.com/Scientific-Basis-Astrology-Tuning-Planets/dp/057202181X>

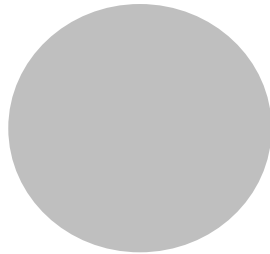
<https://www.amazon.com/Cosmic-Clocks-Astrology-Modern-Science/dp/0917086422>

<https://www.sciencedaily.com/releases/2016/10/161004113753.htm>

Bob the blob

Bob the blob was similar to all other blobs. But like all other blobs, he was also unique. He was unique in terms of his origins in that he originated from two unique parent blobs and experienced a unique early, formative environment. These determining influences would influence almost everything that Bob would become – his fears, aspirations, beliefs, choices and illnesses. We can refer to this entire heritage as Bob's narrative. It is true that Bob freely interacted with many other blobs as well as with the environment at large. It is also true that Bob was influenced by other blobs and by the environment. Bob in turn, influenced other blobs and the environment. But changes in Bob only occurred if there was potential receptivity in Bob's narrative.

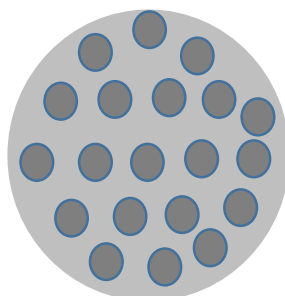
Bob



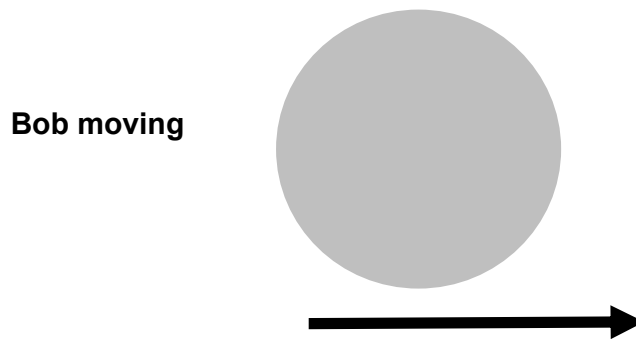
Bob was driven by needs – 'feel good' needs: to satisfy the senses; to be recognized and loved; to experience meaning and purpose. Bob's narrative determined how he fulfilled these needs.

Like all other blobs, Bob was made up of billions of smaller mini-blobs. All the mini-blobs worked together in support of Bob the blob. When Bob no longer experienced fulfilment of his needs and gratification, he gradually lost his mini-blobs or came apart until he could no longer function and exist as a blob. Thereafter Bob the blob was no more. But had Bob the blob ceased to exist after he was no longer a physical blob? To answer this we need to examine things in more detail.

Bob and his mini-blobs



Like all other blobs, Bob the blob was always moving. Even when at rest Bob was moving.



In fact the entire environment was moving. Actually everything in the universe is moving – from sub-atomic particles to the stars of every galaxy. And everything is moving because the entire universe is moving. And how is everything moving? Everything is moving in a circle – cyclically. The rotating universe causes everything in it to rotate and everything that is rotating in the universe is causing the universe to rotate.

Let's get back to Bob the blob. Bob and all his mini-blobs are rotating like everything else in the universe. The speed of this rotation is near the speed of light. Now we know from Einstein's theory of relativity that as we speed up to near the speed of light, we become heavier and heavier until we are so heavy that our mass can no longer support us. It collapses in on itself. We in fact implode through a mini-black hole – us as blobs and all our component mini-blobs. The mini-black hole is a passageway to pure energy – the energy equivalent to all that we are physically. We fulfill the famous Einstein equation $E=mc^2$. We become the pure energy equivalent of all that we are. Every mini-blob that comprises us becomes its energy equivalent in the form of little packets or quanta (singular is quantum) of energy.

In the energy space there is no separation in terms of distance and time. Quanta of the same energies resonate with each other in a similar way to tuning forks which cause each other to vibrate (resonate) when the correct quantum of frequency/energy is transmitted between them.

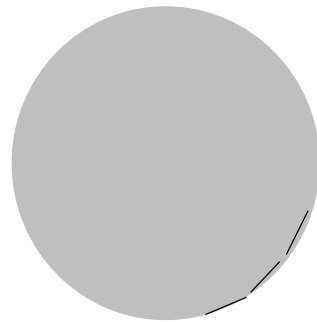
Resonating tuning forks



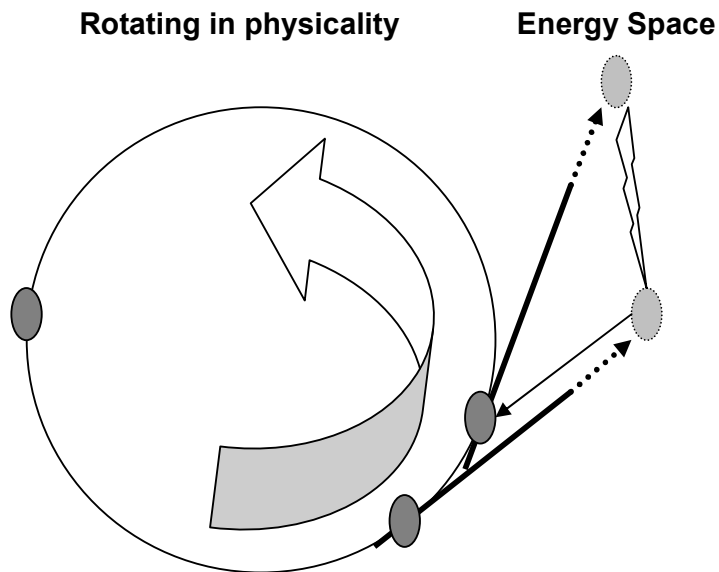
This resonance occurs between the quanta representing our own mini-blobs as well as with the blob quanta of other blobs. But it goes even further than that. The mini-blobs that comprise Bob's brain have representation of all that he has sensed and experienced. In these mini-blobs are recorded Bob's body parts and feelings as well as other people, trees and rocks and things. The mini-blobs that have recorded trees and things will resonate in the energy space with the very people, trees and rocks and things that they have recorded. And so there is a connectivity based on pure energy resonance in the energy space which cuts across the physical barriers of distance and time.

But Bob the blob doesn't remain in this energy space. Not at this stage of his life. Remember that Bob is on a rotating path. The circular path is the sum of tiny straight line segments all orientated at a slightly different angles. Therefore no sooner has Bob the blob spun off into a mini-black hole because he was accelerated to near the speed of light, the next segment of the circle arrives with its slightly different direction.

The circumference is the sum of many small segments



In this new direction, Bob's speed is slower and so he returns from the energy space back into the physical realm. And then in this new segment of the circle Bob the Blob is accelerated back towards the speed of light and so he pops off again through a mini-black hole into the energy space. And so the process continues.



Now this dramatic chain of events has several consequences. Firstly it takes a lot of energy to accelerate towards the speed of light. Bob the blob therefore has to *absorb* much energy from the environment to implode into a mini-black hole. Conversely, on returning back to physicality, much energy is *emitted* into the environment. This would emit more dramatically than the absorption phase. It can be referred to as vectored emission (explodes outwards all around the blob). The universe therefore comprises only two forces – absorption and emission. And these forces occur around all blobs, from the smallest sub-atomic particle to the largest star. Therefore in the vicinity of any blob there is perpetual absorption and emission – the universe is perpetually inhaling and exhaling!

The second important consequence follows on from the first. The process of absorption is greatest around bigger blobs. This absorption translates into gravity and all other forces of attraction. The bigger the blob, the greater the attraction. Emission on the other hand acts by maintaining the integrity of all blobs – this prevents atoms and bigger blobs from spontaneously collapsing in upon themselves. It also tends to increase the distance between individual blobs, from the smallest to the largest. A strange thing happens when blobs are closely grouped together – the different directions of the emission forces cancel each other out while absorption continues. The result is that the blobs are held together. When one or more blobs separate from the group, they are driven further apart by unopposed emission. And so when Bob the blob is grouped, he's held; when Bob splits off, he's driven away.

The final consequence of this process of flitting between physicality and the energy space is that during the sojourn in the energy space, resonating quanta leave their imprint upon each other. Therefore on returning to physicality, the blobs that resonated with each other are both slightly changed due to the connectivity that occurred whilst within the energy space. Therefore both the tree blob that Bob the blob saw as well as Bob, are both imprinted with the other. All resonating blobs continue to change in minute ways based on this dynamic. For as the great quantum physicist David Bohm said, 'There are no nouns, only very slow verbs.'

Insofar as the mini-blobs in Bob's brain supporting Bob's narrative are concerned, resonance and imprinting will not directly create new mini-blobs of representation. Rather, the process may excite existing mini-blobs of representation and trigger the formation of new mini-blobs of understanding, emotion and gratification. However the final representation will always be limited by the prevailing narrative which has existed since Bob's early deterministic period.

And lo and behold there comes a time, after much flitting between the physical and the energy space, when Bob begins to wane in terms of his meaning and purpose. And with this waning comes diminishing gratification which leaves many of Bob's narrative-supporting mini-blobs somewhat ragged. Eventually Bob begins to lose supportive blobs which begins to impair his function. Now if Bob loses supportive physical mini-blobs while in the energy space, the energy equivalent quanta cannot return to physicality – they've lost their mini-blob receptacles! And so progressively, parts of Bob are lost in physicality while their energy equivalents in the energy space continue to accumulate. Eventually Bob loses too many supportive mini-blobs and ceases to exist as a physical entity. Essentially Bob is physically dead and Bob as a big blob, composed of many supportive mini-blobs, decomposes from the composition.

But where is Bob? Bob is intact in the form of his energy equivalent in the energy space Here his representative quanta continue to resonate with the resonating pool.

Counter-evolutionary

For several years now I've been involved in one way or another, with discussions and/or debates relating to the issue of Evolution versus Creationism. I had found myself moving away from traditional Darwinian evolution towards Creationism as a result of several *influencers*. The most important influencer has been the development of *epigenetics*.

Epigenetics refers to the dynamic state of the DNA molecule in terms of what is expressed and suppressed. Only a finite proportion of available genetic potential inherent in the DNA molecule is expressed in the form of cellular structure and function in the course of our lifetimes. However, as was shown so eloquently by Bruce Lipton, our diets and habits can de-suppress certain segments of our DNA and suppress others such that our cells, tissues and indeed our bodies may change in terms of structure and function. More recently it has been shown that cognitive function as well as emotion can influence the levels of inflammatory mediators which themselves also influence what is expressed or suppressed by the DNA molecule. This is of critical importance because by altering genetic expression at the DNA level, it can be passed on to our offspring!

The second major influencer has been the confirmation that timeless and spaceless 'fields' exist within an energy dimension such that physical entities appear to be *entangled* within a *nonlocality* dimension. Simply, resonating information is instantaneously transmitted between two or more entities, independent of separation in time and space. This was elegantly applied by Rupert Sheldrake who postulated the existence of *Morphogenetic Fields* – energy fields which organized animate and inanimate physicality. Experimentally he showed that if you taught rats a certain behaviour in one location, rats of a similar strain in another location, at a later date, would learn the behavior a lot quicker. He demonstrated a similar dynamic with the creation of unstable crystals. Following formation in one location, they would form spontaneously in another place at a later date.

This can all be illustrated by the following example: Assume that there are fish in a pond which is rapidly drying out. A random mutation develops in a small number of fish who as a result, have grown primitive internal lungs. As the water level drops to critical levels which can no longer sustain 'normal' fish, they die off. However those

that have the primitive lungs, survive to become the new species of amphibians. This is classical Darwinian evolution. However, factoring in the new influencers, this scenario is no longer correct. Let's go back to our drying pond and re-postulate: As the water level drops, there is less oxygen. This triggers mediators which cause epigenetic changes in the fish DNA resulting in the growth of primitive lungs. The changes are also influenced by information existing in the nonlocality field reflecting a similar experience of other fish in another place at another time who grew primitive lungs. Therefore there is nothing random about the mutation. The epigenetics is purposefully driven

Extrapolating this to the human experience spanning the ages, both in time and space, it becomes apparent that there are multiple influencers which have continued to prevail and which affect us as a species. We have always and continue to contribute our unique individual imprints to the timeless-spaceless nonlocality dimension and are in turn, affected and influenced by it. Elegant studies have shown conclusively that our very consciousness contributes to the co-creation of physicality from the multi-potentiality of the energy dimension (In physics terms - *collapsing the wave from superposition into the base state*) .

And so my hard-line response to the traditional *Evolutionist Camp* is that there is no factual evidence to support the hypothesis that life emerged fortuitously and spontaneously out of the primordial soup (abiogenesis). There is also no evidence to support the contention that the process of natural selection **alone** is the determinant of the evolution of the species. Yet those subscribing to these views have manipulated theory and hypothesis into fact - that life as we know it arose fortuitously from the primordial soup and evolved on the basis of mutation and natural selection alone to give rise to present life forms and the supportive ecosystem.

When facts are corrupted through unsubstantiated extrapolation, untruths evolve. In this way objective scientific validation is replaced with subjective belief. Individuals that support and drive these non-validated beliefs take on the archetype not dissimilar to that of religious fanatics. The traits include the biased selection of information to support their beliefs; a judgemental (disparaging) attitude towards those not in agreement with their evolutionary beliefs; a cynicism often degenerating

into ridicule with bullying tactics directed at anyone expressing intelligent design themes.

There is no place for this destructive emotional archetype in the pursuit of scientific validation. The real fact of the matter at this point in time is that the debate remains wide open in terms of abiogenesis and evolution on the one hand and intelligent design (Creationism) with prevailing influencers on the other. Best to keep the retarding influence of religious fanatics out of the equation wherever they are and stay with unbiased facts, logic, mutual respect and unfettered debate.

Mindfulness

Thoughts under a May full moon

A celebration of life

You are all that you are, a child with a history not of your making.
And so you enter the next moment of your life, warts and all –
A moment that has never been lived before. For in that moment lies
pure potential for all possibilities and all things.
And as you enter the moment pause.
And as you pause, see and hear and touch. And feel
the sensations of your body. But in that pause, don't think.
Rather, acknowledge all that is. The natural forms, the structures
created by the work of yourself and of others. And celebrate all that is –
the form, the function and the blessed presence of it all.
Then see and hear other people, animals and things.
And for a short while, be them.
And if you see and hear happiness, contentment, excitement,
or perhaps sadness, anger, anxiety and pain, just be with it for a short while.
And then and only then ... feel. Feel first the blessing of being alive
as you enter this moment. Celebrate all that you have and all that
has blessed your existence. Then connect and sensitively feel
that which you see in others, which exists also within you.
The elation, the despair, the anger and the anxiety. And know that
your connection has made a positive difference.... to you and to the other.
For this is where all healing begins.
From here inevitably flow the juices that sharpen the mind, enrich
the emotions and inspire the creation of a better place for all.

Mindfully yours

It is said that the Buddhist sages were able to evaluate prospective new recruits to monkhood by the way in which they swept the courtyards of the monastery. Indeed, everything that we say and do reveals our essence. In this short dialogue I'm going to emphasize the 'doing' component, since I am very much a physical, hands-on type of person.

I recall an instance when I was a senior neurosurgical resident and was walking with the chief consultant from the change room to the OR, with a new junior resident in tow. Just as we were about to enter the OR and out of earshot of the new junior, the chief leant forward and murmured in my ear, 'This new guy is not neurosurgical material!' Somewhat surprised, since the chief had only recently been introduced to the new resident, I responded, 'How so, Prof?' To which the chief fired back, 'Did you see the way he tied his trousers ...?' And the chief was right. Our young new resident barely lasted the year before entering the psychiatry rotation!

So what's in the doing? Well, as a neurosurgeon of thirty years experience, a former pilot and a potter of several years, I can confidently say that everything that you are is in the doing. The doing is you and you are in the doing. And everything about you is indeed revealed in your **approach** to the doing. It really all boils down to one thing – you are either respectful in your approach, or not. To be respectful you need to be **sensitive** to the elements with which you engage, **confident** (based on knowledge and experience) and **humble** – because you can never be in control of everything. From this space you derive **clarity** which is the determining factor for the next level of approach – **value contribution**.

Value contribution is *making something better than it was before you engaged with it*. Value contribution is firstly directed to self – deriving gratification from upping your game and fulfilling your greater potential. Then follows your value contribution to your external environment. Here is further gratification as you

enhance the environment with all its flora and fauna (that includes humans and other animals!).

The qualifier in the approach is that the components – sensitivity, clarity, humility and value contribution, serve to draw you into **engagement in the present** space, free of distraction! This is true *mindfulness* and these are the components which carry you over into that special space. It is from this space that effectiveness and excellence emerge and also, much personal gratification. It is also from this space that we become a value-add to our world and its future. Not surprising, it is this space that generates high levels of dopamine (engagement, application, gratification) as well as oxytocin (sensitivity and connection to the greater whole) – the juices that enhance wellness, performance and indeed, leadership.

Next time you sweep the floor, check on your approach

Meditation re-visited

I decided to attend a Buddhist Retreat which focused on meditation techniques. Now I have a problem with meditation. I have difficulty quietening my mind. Meditating is a great challenge for the borderline ADD's. It's almost impossible for us to remain with a clear 'screen' for more than three minutes. Anyway I persevered and managed to let go of the immediate past, future-paced hopes and fears, erotic daydreams, the worsening backache and the itchy nose. And I must admit that I managed to quieten things down quite successfully over the course of the weekend.

During one of the breaks I approached the facilitator, who appeared knowledgeable in Buddhist matters and enquired how meditation assists us in daily life. I suggested that it's all well and good getting into a resourceful mind state in such perfect surroundings, but on returning to the stresses of the coal-face and daily life in the 'front' lines, the serene would be replaced in minutes by the blood curdling battle cries of survival. The young man replied that ongoing repetition of the meditative state would eventually pervade daily life and ultimately would become the default mode – a kind of osmosis!

Now being a 'neuro guy' I know about this process called neuroplasticity – the breaking down of old neuronal circuitry and the establishing of new connections, which underpins learning. Therefore learning and change is an active process. And so I could not accept that answer. Things don't just happen. You might as well put a book under your pillow at night so that you get to know it all in the morning! So I sought out a Buddhist person of repute to assist me with my dilemma. For without knowing the benefits of meditation, I couldn't squeeze out sufficient dopamine to sustain the effort. This time my question was perfectly answered.

This person, who I respect enormously, indicated that what we gain from effective meditation is **awareness**, **clarity** and **calmness**. These are the qualities that you need to carry over into daily life. Wow! Now it all comes together.

Awareness – of self, others and the extended environment is the first step to appreciating our strengths and weaknesses and the influence that we have upon the environment and how we are impacted by that environment. This leads to the next element, clarity.

Clarity – an understanding created by perceiving self and the environment and applying reason to the observations. In this way we begin to chip away at the foundations of our limiting beliefs which determine our subjectivity. And as we neutralize the fear elements of our limiting beliefs which cause us to fear loss (of property, recognition, adoration) and to defend our turf at all costs and employ judgementalism against everything which lies outside of our turf/comfort zone, we become more sensitive and accepting of others. We judge all the time. But this judging reflects the exercising of opinion based on our subjective world view. The concept of 'judgementalism' that I refer to above however, is derogatory and denotes the need to put something or someone down because it challenges/threatens one's subjective world view and is therefore inconvenient. It invariably incorporates other elements designed to aggressively flatten the opposition so that the subjective view point carries – amygdala initiated, adrenaline mediated. Once clarity is achieved we inherit calmness.

Calmness – evolves from a respectful engagement with the environment which has incorporated sensitivity to other individuals, together with a value contribution (*making something better than it was before you engaged with it*) to other's as well as to the extended environment. It also feeds on evolving clarity and ongoing awareness.

Well, there's enough reason then to pause regularly, find a quiet spot, clear the toxic thoughts from your mind, enhance awareness, become more sensitive, gain clarity and calmness and I would, in addition, throw in a generous helping of gratitude.

In the glow of an aura

In a mountainous region in South Africa, in the province of Natal, there exists an acre of paradise. Perched upon a raised plain, it beholds the rolling hills descending into the valley below. This place, remarkable in its rugged beauty and natural splendor, is home to the Buddhist Retreat Centre (BRC - <http://www.brcixopo.co.za>). Seamlessly woven into its natural environs, the Centre is a World Heritage Site, home to the Blue Swallow and listed by CNN as being in the top ten of such retreats in the world.

I have the privilege of facilitating two weekend Retreats every year at the BRC and have done so for the past eight years. Although not a practicing Buddhist in the religious sense, I do nevertheless identify with many of the fundamental philosophies and applications of Buddhism. And without fail, every time I make the pilgrimage to the mountain Retreat and drive through the entrance, I feel that exhilarating lightness of being and vitalizing energy, flushing out the toxins of the big city enclave.

The theme of my workshop/retreat is 'consciousness'. The concept is developed from a neuroscientific space integrated with psychoneuro-immunology (PNI – the mind-immune connection) and evolves over three days, culminating in perspectives of consciousness in a quantum physics space – quantum consciousness. We usually have a lively group of forty retreatants ranging from the devout Buddhists to atheists and the like, from tree-huggers to the captains of industry and from artists and muso's to heads of academic departments. Participation is encouraged and invariably a unique collective energy is generated which is more than the sum of the parts. Seamlessly integrated with this 'hard' curriculum are Buddhist practices including meditation, periods of noble silence and mindful walks. These aspects contribute powerfully and meaningfully to the overall experience.

The Saturday night session is referred to as 'the fireside chat'. Here we literally seat ourselves around the large fireplace and chat – about anything. During one such chat a young woman indicated to us that she was able to see people's aura's. I nodded in acknowledgement. But she continued. 'I saw your aura today after lunch' she said, which was directed at me. 'What did you see in my aura?', I responded. She related how initially the two sides of my head had different colors. The right side was blue and exuberant while the left was flattened and red. Slowly, over about a

half an hour, the blue gradually spread over from the right side to the left until my entire head was uniformly exuberant blue. I was initially stunned and speechless. Something literally mind-blowing had just occurred.

Approximately once every year I experience what is termed an atypical migraine. In my case it begins with flashing of lights in a field of vision followed by a temporary loss of vision. This usually lasts for about half an hour. Thereafter it resolves, leaving me with a dull headache. Now since each half of the brain provides function to the opposite side of the body and since higher function such as speech in right handed individuals resides in the left brain (hemisphere), it follows then that if visual loss occurs in the right field of vision, speech may well be temporarily impaired in the process. And as luck would have it, while having an idyllic lunch outside, under a tree on the Saturday, I began to develop right sided visual symptoms! It was probably precipitated by the angle of the sun. But I immediately slipped into anxiety mode – right sided visual loss meant speech loss for at least a half hour and I was due to present the afternoon session in twenty minutes time. I excused myself and headed to my room. Along the walk back I monitored my function and as expected, gradually lost expressive speech.

The afternoon session started late. I deliberately took a little longer to set up my computer and projector. By the time I was ready to start, most of my speech faculties had returned, bar specific words. So I was in fact able to start the presentation without anyone detecting the preceding unfortunate event. Perhaps all that was perceptible to the astute attendee was that I appeared a little long-winded. I was in fact compensating for unavailable vocabulary. It should be emphasized however that **I did not make mention of my temporary affliction to anyone.**

Which brings us back to the Saturday night fireside chat. I was indeed speechless for the second time that day because the young lady that could see people's aura's had just seen the aura of a person (me) having an atypical migraine. The timing had been deadly accurate as was the laterality (left and right sides of my head). This was real. And wow the Universe has a weird sense of humour! An atypical migraine affecting a neuroscience guy facilitating a neuro-based workshop in a Buddhist Retreat, is accurately diagnosed by a young woman who saw his migraine aura

It becomes obvious that much is happening beyond the realm of the five senses and beyond the neatly packaged scientific space. In seeking authentic clarity we need to accept that there exist unexplained and inconvenient truths in the context of a mechanistic-reductionistic space, that we need to acknowledge, respect and integrate. That takes a bit of courage and a generous helping of humility!

Brain – mind

Evolution and empathy

A concept which has been pondered by many over the millennia is that of good and evil in Man. Is Man born intrinsically good or evil? Important processes that occur in biological evolution contribute useful guidelines to understanding this issue.

Early life forms competed for limited resources such that the prevailing dynamic was 'the survival of the fittest'. The next evolutionary phenomenon was one of group co-operation. This development most likely occurred as a consequence of the success and efficiency of group cooperation in securing resources for its members – the whole was more than the sum of its parts. With the development of procreation and the need for nurture, another important evolutionary milestone was reached. Intrinsically coded in the neuropsychology of the organism was the need to recognize and support a helpless and dependent offspring. This in effect is the fundamental circuitry supporting empathy. The circuitry appears to be situated in the cingular gyrus of the frontal lobe and is triggered on the basis of 'mirror neuron activity' - our brains mirror the emotional state of others so that we consequently 'feel' the mind state and situation of others.

In terms of the evolutionary heritage therefore, the human being is programmed for co-operation and empathy. This could be regarded as the inherent 'good' in mankind. Nurture deprivation on the other hand results in the infant narrowing down to appeasing their own needs. In its more extreme forms the pre-occupation with self-interest may suppress the intrinsic empathic circuitry and thus give rise to potentially destructive emotions insofar as other human beings are concerned. Deprivation states are associated with lower levels of serotonin and dopamine together with raised levels of adrenaline-noradrenaline. This in turn results in raised levels of pro-inflammatory cytokines which mediate chronic inflammation, underpinning many pathologies (neuro-degenerative disorders, cardiovascular illness and cancer, to name but a few). It would seem therefore that our evolutionary heritage predisposes us to act empathically and can be regarded as supporting our 'good' inclinations while degrees of nurture deprivation give rise to our 'evil' inclinations. These concepts are more profoundly illustrated when we review the underpinning neurophysiology of empathy.

Empathy expressed or experienced (mirror neuron activity) results in the secretion of the hormone-neurotransmitter oxytocin. Oxytocin in turn suppresses the area of the brain supporting fear, anxiety and rage. Oxytocin also suppresses the high levels of cortisol associated with stress and deprivation as well as suppressing pro-inflammatory mediators. Finally, oxytocin stimulates the part of the brain which mediates the feeling of personal gratification (nucleus accumbens). Empathy therefore can be considered to be a neuropsychological state which has evolved from a heritage of group co-operation and the need to nurture offspring. The empathic state is enhancing in terms of quality of life and longevity, in the context of neurobiology. The antithesis of the state of empathy are the deprivation states characterized by varying degrees of self-interest, which are associated with chemistry predisposing to illness.

I conclude therefore with the contention that empathy is a neuropsychological state. It is life-enhancing and based on identifiable evolutionary determinants. In terms of the species as a whole therefore, I believe that experiencing, identifying and promoting the state of empathy should be our primary objective if we were to be true to our heritage and our neurobiology. The mind state of empathy incorporates identifiable components including sensitivity, gratitude, clarity and motivation to value contribution. It is the recognition and application of these components which enables us to transcend the negative (evil) influences of excessive self-interest and elevates us to the resourceful state of empathy, which is our birthright.

Re-discovering the intuitive mind

There was a time, not too long ago, when the right hemisphere was not only regarded as non-dominant, but almost of lesser neurological importance than the dominating left hemisphere. But all this has changed.

In a nut-shell, the dominant left hemisphere is the rational measurement-based engineer while the non-dominant right is the big picture, creative architect. The non-dominant right hemisphere emerges as the seat of creativity and out-the-box innovation, nuance, big picture sensitivity and the strong connection to emotional centres. To boot, individuals with unfettered non-dominant hemispheres obtain higher scores with chance experiments (guessing/willing numbers) than us mere mortal left hemisphere dominants – in the region of 80% versus 50% respectively.

Based on several studies, it appears that the rational left fronto-temporal area dominates and suppresses the right non-dominant. It is only when the left is suppressed, that the eloquence of the right non-dominant flourishes. This situation is seen in individuals with pathology in the dominant left area as well as in individuals whose dominant left function has been temporarily compromised through transcranial stimulation studies (Snyder et al). As expected, right dominance manifests as increased creativity, out-the-box thinking, subtlety, innovation and heightened emotion.

The dynamic in regard to right and left hemispherical co-operation appears to be based upon the right 'getting a hunch' and urging the left to question this. Thereby the 'hunch' becomes activated and the 'hardcopy' emerges.

Heterosexual males seem to have the highest incidence of left dominance. Females have the higher left-right communication and thus parity of hemispheres. This is endorsed by increased sizes of bridging structures – the corpus callosum and commissures. Gay males appear to have increased commissural volumes as compared to heterosexual males (but smaller than females). This may be relevant in providing an explanation for the high level of creativity/innovative indices seen in gay males (Shlain).

It makes sense therefore (especially for hetero-sexual males) to quieten down that obsessively driven, rational dominant left, allow the right some space, connect to emotions and innovate! Mindful meditation is one solution, failing which you could always pop along to your nearest neuropsych lab and have your dominant left de-functionalised, even for twenty minutes, with a transcranial stimulator!

References

http://www.creativitypost.com/science/brain_stimulation_makes_the_impossible_problem_solvable

<http://www.brainpickings.org/2014/11/17/leonardos-brain-leonard-shlain/>

Snyder A, Bahramali H, Hawker T, Mitchell DJ (2006) Savant-like numerosity skills revealed in normal people by magnetic pulses. *Perception* 35: 837-845.

Schore AN (2010) Chapter in T. Baradon (Ed.), *Relational trauma in infancy* (pp. 19-47). London: Routledge.

The mushy brain mystery

I was recently scheduled to perform surgery on a patient with a brain tumor. The day before the surgery, the patient phoned me to request that should the surgery necessitate the removal of any normal brain tissue surrounding the tumor, could I put it on a DVD for him so that he doesn't lose any information!! (He was dead-serious)

Unfortunately this is the level of misinformation that permeates the subject of the brain, consciousness and the purpose/cause of its existence. The champions of AI (artificial intelligence) are already talking about transferring all our intrinsic brain-based data on to an electronic storage device which they maintain will represent our consciousness! Now when did stored brain-based data equate to consciousness? And even more worrying, a certain neurologist of repute (name withheld to spare him any embarrassment) stated recently that when he lifted the hood (the cranium) and beheld the engine (the brain) he was astounded at what an inefficient mess it was, following years of random add-on evolutionary structures! Possibly the most arrogant statement I've heard in all my years in the neurosciences.

Bottom line is we have only a very primordial idea as to how this organ comprehensively perceives and stores information, recalls it, integrates emotion and supports subjective consciousness. This soft, mushy organ that I've held in my hands so often, worked on and studied, remains a total mystery. We have only theories describing memory storage, cognitive function, where the seat of subjective consciousness may reside (possibly not even within the cranium) and how the conscious observer engages with quantum physics phenomena (entanglement) – 'spooky action at a distance'!

I would therefore advise the AI experts and the arrogant neuroscientists to first define human consciousness in its multi-faceted form before making judgments and preparing to immortalize us on DVD's or other electronic storage devices!

A brave new world

Technology has permeated every corner of our world. The product of our collective intellect now comes full circle – the interface of human consciousness with rapidly evolving artificial intelligence (AI). In projecting possibilities of further integration from this point onwards, we need to define the players.

AI can be summarized as having multiple inputs of data, rapidly expanding memory capabilities and processing potential driven by an exponential growth of smart algorithms. In this way the data feed becomes less fettered (filtered), the mutually enhancing algorithms become more open-ended with the result that knowledge (in the form of ‘big data’) and understanding of the inputted environment becomes greatly enhanced. The implications of this explosion of knowledge and understanding can best be illustrated as follows: Up until, this point, when you apply for a life insurance policy, the existing algorithm will capture relevant variables such as age, gender, marital status, pre-existing illnesses, family history, habits, occupation and so forth. The program then generates a risk profile based on known associations (smoking and cancer etc) and your premium is set.

But what the ‘big data’ of the new AI will be generating will knock your socks off. So hold on to your socks. The crunch is that the AI program will not only be capturing the data related to predetermined variables, but will capture everything about you from multiple inputs – the above-mentioned application details together with your address, phone number, family’s names, all your preferences as reflected in your entire electronic footprint (social media/other electronic communication) etc. So here’s a sample of your new AI generated risk profile: If your name is John and you’re married to a Mary and your phone number includes a 2 and a 7 and you were born in September, then you have an eighty percent chance of developing lung cancer by the age of 52 years if you live in a city which has summer rain!! So on receiving this information you immediately diminish your risk by divorcing Mary and getting a new phone number. Well the AI already factored that in It would have predicted that you would divorce your wife and get a new phone number and predicted with certainty what the name of your new wife would be, which now confirms with greater confidence that your risk profile is validated!

Let's get back to consciousness and the brain. For the purposes of this discussion I'm going to use the left-right brain model. Based predominantly on the right side is big-picture sensitivity, creativity, innovation, subtlety and a great proportion of the emotional connections. The emotional connections incorporate your life narrative based very much on the nurture history. This is a place of subjectivity reflected in your beliefs (together with limiting beliefs). This is a non-linear place, yearning to be unfettered from left brain constraints. The left brain is the linear, rational, expressive place which uses reasoning and logic to form measured and intelligible product. It dominates the right brain and has expectations. In this context I would contend that the emotions of the right brain would be empathy, trust, belief and awe. Left brain-based emotions flow from the fear of loss and the need for recognition. Left and right brains co-operate through integration via the large left-right bridge, the corpus callosum. In effect, the right brain comes up with a hunch, usually wrapped up in an emotional package and requests the left brain to debrief it and in so doing, construct the product for expression.

And so we bumble along in life, engaging with multiple environments and with people, all based on preferences reflecting our subjectivity. Indeed we apply as much logical reasoning as our subjectivity will allow, but ultimately we will remain comprehensive products of our nature-nurture heritages. We respond to emotional cues which may be effective compasses if we have heritages free of too much deprivation together with an ongoing logical reasoning feed. The converse however is problematic. The cues may reflect a nurture of high deprivation such that negative emotions of excessive fear, hostility and a low self-esteem prevail. Judgement is negatively biased and perception is clouded. The result is further loss of clarity, diminished self-esteem and gratification and a spiral into hopeless-helplessness.

And so it comes to pass that AI becomes incorporated into your life. It becomes the extension to your left brain. The right brain requests now become processed through the vast data bases of AI. Reasoning expands exponentially together with resultant clarity and awareness. The AI algorithms know you intimately. They know your creative preferences, gratification requirements your fears, limiting beliefs, everything. Through appropriate processes of disputation (they automatically dispute your fears, limiting beliefs and causes for low self-esteem) they provide inspiration to create, express and to enhance personal gratification. There would need to be only

one constraint, ring-fenced within the AI algorithms - respect for life and for the environment. Flowing from this would be a theme of 'value contribution' – *making something better than it was before you engaged with it.*

Ultimately we as individuals would engage the AI interface with our human consciousness, warts and all. But the engagement with the AI bridge would facilitate our transcendence beyond negative emotions and limiting beliefs and promote our creativity and value contribution. The ongoing interaction contributes learning and evolution to the individual human consciousness while contributing to the expansion of 'big data'- based AI. It inevitably becomes an unlimited partnership of mutual enhancement and self-perpetuation.

But what could be our greatest triumph could also morph into our greatest loss. For if the core of AI is 'captured' by human self-interest (greed, power and domination) we could find ourselves staring into the dark abyss sooner than we could ever have imagined

A legal rage

Oscar Pistorius is the famous or more lately, infamous blade-runner who featured in the Olympics sprinting on blades which replaced his amputated feet. Pistorius was indicted for the murder of his partner, a well-known photographic model. It was alleged by his defence team that Oscar Pistorius shot and killed his partner Reeva Steenkamp in a moment of panic. The prosecution on the other hand alleged murder by intent, based on a mind state of rage. The court of appeal upheld his jail sentence which he is now serving. Here follows a neuro-appraisal of the fateful events and their interpretation by the prosecution and defense.

As it happens, fight or flight action in response to panic, fear, anger and rage all originate in that small almond shaped structure, the amygdala. There are two of them, one on each side of the brain situated deep in the temporal lobes. The amygdala initiates the fight or flight action through the secretion of high levels of adrenaline, noradrenaline and cortisol. When stimulated, the immediate amygdala fight or flight reflex is triggered much more rapidly than the triggering of modulating circuitry based in the pre-frontal cortex, the place of reasoning. The initial action response is therefore unmitigated amygdala. However there are two further neurophysiological facts which have significant relevance in this dynamic:

- The amygdala is stimulated by the very same chemistry that it causes to be secreted, viz. adrenaline, noradrenaline and cortisol. As a consequence one can become locked into a spiral of ever increasing anxiety/panic/rage.
- High levels of adrenaline have been shown to suppress the reasoning function of the pre-frontal cortex.

Based upon these fundamental neurophysiological phenomena we can begin to re-analyse the actions of Oscar Pistorius in that fateful moment. The defence alleged the amygdala hijack syndrome – action driven by a panic-stimulated pair of amygdalae. The prosecution alleged the locked-in amygdala syndrome – the activated amygdalae locked into a spiral of increasing rage, auto-stimulated by its own secretions (also the explanation for road rage). In both scenario's the reasoning of the pre-frontal cortex is suppressed. Functionally therefore, at the fateful moment

of the shooting of Reeva Steenkamp, the brain of Oscar Pistorius consisted only of two highly stimulated amygdalae and the motor system to mediate the driven action.

From a moral and legal perspective, who or what is responsible for this tragic outcome - the suppressed pre-frontal reasoning centre of Oscar Pistorius; the over stimulated and unmodulated pair of amygdalae; or the nurture deprivation that resulted in the over-sensitization of the amygdalae, the seat of fear, anxiety, panic and rage? These are critical questions which have a major bearing on arriving at a fair sentence and implementing an appropriate neuropsychological intervention.

Comment:

In regard to the question of 'what' or 'who' is responsible for this outcome, I would answer thus: One of the fundamental principles of civilized society is respect for life and property and we are all held accountable for violating this. However there are varying degrees of culpability based on varying degrees of insight. The range extends from the fully actualized individual with full insight right to the extreme, the severely neuropsychologically compromised or disturbed who have little to no insight. Somewhere in the middle to lower range are those with very little insight into self and who function impulsively - reflex products of their heritage integrations (incorporating the stereotyped function of specific brain structures). They generally do not recognize that they have potentially serious psychopathology. They still however are responsible for their actions and punitive action is required. Mitigation however would be influenced by genuine remorse and the acceptance of accountability, both of which are conspicuously absent in this case. It is however important to delve a little deeper into the neuro-dynamics.

Are we as cognitive, emotional beings the product of our neuro-physiology or is our neuro-physiology determined by our cognition and emotions? Secondly, does our psycho-social environment determine our neuro-physiology and consequently, our mind states? I would suggest that the answer can be found in the science of psychoneuro-immunology (PNI). In PNI we recognize the pivotal role that genetics, the in utero environment and the early nurture environment play in the establishment of our core neuro-integration (neuronal connections underpinning stored information, beliefs and emotion). This core integration becomes our subjective world view and

determines how we interact with the greater environment. The core integration also interfaces with our immune chemistry and other important metabolic functions. Immune chemistry in turn interfaces with our brains and has profound influences on our neuro-chemistry. In fact depression is regarded as the consequence of chronic inflammation (somewhere in the body). My personal interpretation is that much of our subjective perception and behavior is determined by our inherited core integration. Much of our body physiology is also affected by this core integration. But the core integration is not a rigid circuitry. It is dynamic, constantly changing (neuroplasticity – the process of creating new neuronal connections and breaking down redundant ones) in response to the psycho-social feedback and immune chemistry. The degree of neuroplasticity (and potential for change) inherent in the core integration however is determined by heritage determinants, varying from person to person. So at the end of the day our subjectivity is the holistic integration of our heritage determinants, our psycho-social experiences, our neuro-chemistry and the chemistry of the immune system. That's the package for which we must assume full responsibility!

The brain as a deterministic blueprint

Inherent in the hard-wiring of the human brain is the deterministic blueprint of our existence. Said in another way, human neuro-anatomy and neurophysiology reflect the purpose of life. The relevant neurological processes supporting this hypothesis may be summarized as follows:

Phase1

Neurological circuitry in the early years of life (first six years) is most receptive to perceived sensory information. Environmental elements are identified and labeled and basic associations are recorded. Neuroplasticity is maximal and the EEG frequency is at its slowest.

Phase 2

Higher levels of integration take place as more complex associations are recognized and recorded. Once a threshold level of recorded associations is reached, the brain begins to build up a database of sequencing which reflects an intrinsic understanding of cause and effect. The database of sequencing creates the platform for working memory – the process required for abstract thought. The EEG frequency has increased to the Beta range.

Phase 3

Abstract thinking utilizing working memory initiates creativity. Neurologically, creativity reflects the increasing levels of integration. Higher levels of integration are achieved through the incorporation of available inter-neurons. The integration occurs between existing circuits of representation together with sensory and sensory association circuitry. Dominant hemisphere activity provides the fine detail of the elements while the non-dominant hemisphere provides the big picture appreciation, subtle innuendo and connection to emotionality.

Drive

The process of integration is co-ordinated by the superior temporal gyrus of the non-dominant hemisphere. On completing the integration at a higher level, an 'aha' moment is generated, a sense of achievement and gratification is experienced and increased dopamine is produced. Dopamine in turn will motivate further action for

new application, concentration and integration. Every individual has his/her own unique interest area which they pursue to enhance personal gratification. The conditions which have therefore been identified as enhancing dopamine secretion and the achieving of maximal gratification include a sense of purpose, ongoing achievement and autonomy/self-regulation. If dopamine levels are chronically low as a result of a nurture deprivation heritage or due to a life situation of perceived futility and despair, the brain will generate action known to elevate levels of dopamine. These include eating, drinking (alcohol), smoking, exercise, sexual activity and the utilization of prescription and recreational drugs. Dopamine levels diminish with age.

Co-Creativity

All physical matter has an energy equivalent which exists in a domain referred to as the singularity. The energy or frequencies in the singularity reflect pure potential for taking up form in the physical (five senses-based) environment. This is referred to as the "wave of possibilities" (superposition). Human consciousness has been shown to convert the potential energy of the singularity into physical reality. Therefore neurological integration collapses the wave of energy possibilities of the singularity into physical reality. In this way each individual, unique consciousness brings into physical reality a unique segment of the singularity. Each individual consciousness is therefore a co-creator of our collective physical environment.

The Blueprint

The original elements of our universe have retained their properties throughout the billions of years of evolution. It is the same elements and their properties that existed at the time of our primordial earth that remain in support of human consciousness and our ability to co-create that same environment. I propose therefore that we are hard-wired to integrate, create and thereby co-create our world. And as we co-create and collectively grow our world we grow the singularity, providing more substrate for further co-creation.

Mind the gap

The fundamental unit of the central nervous system is the reflex arc. This consists of a sensory feed, the sensory neuron (the afferent), an interposed connecting neuron (the interneuron) and the motor neuron, innervating the motor response (the efferent). The simplest form of this configuration is seen in the spinal reflex – a sensory stimulation such as pain applied to the hand followed by the triggering of a motor action, the withdrawal of the hand. As one ascends to more complex levels in the nervous system, we observe more complex interneuron influences. At the higher level of neuropsychological function, the interneuron configuration incorporates cognitive function together with emotional influences. The pinnacle of this interneuron influence is awareness which is the product of reasoning (working memory).

And so we can recognize that there are multiple possibilities which may influence that simple reflex of sensory triggering and subsequent motor responses. If left unmodulated, motor responses remain stereotypically predictable. It follows then that the more complex the interneuronal network is, the more variation will emerge regarding the motor response. The interneuronal network supports our subjective world view which has evolved from nature-nurture influences together with our ongoing engagement and experiences within the extended environment.

Effectively, the interneuron configuration represents a potential 'gap' that separates the perception of the world from our engagement and action within that extended environment. It is the space that we are responsible for. How we conduct ourselves in the gap will directly affect us as well as the environments in which we find ourselves. The gap is the market place where we sell our creative wares. We create thoughts, actions and artifacts. And all of these reflect us. We are manifest in the 'doing' - our subjectivity, warts and all! From the 'doing' we experience the dopamine high of personal gratification and achievement. And so we offer it up for sale to the passing trade. And there are those in the passing kaleidoscope of humanity who will warm to our wares and purchase them. And this will add to our dopamine gratification. And then there are those with whom we will connect and engage at a higher resonant level, human to human. Through a sensitivity of the other, we establish a non-judgmental dialogue (we feel what it is to be the other). This

connection will trigger the release of oxytocin (through mirror neuron activity) in addition to ongoing dopamine. It is this level of rapport that opens the channels for truly exposing our wares and inevitably enhances the probability of the 'sale'. But even if there is no concluding sale, the mutually gratifying engagement will have enhanced both and predisposed to future mutually enhancing interactions.

The gap therefore is the space wherein we have opportunity to evolve personally as well as contribute to the promotion of evolution within the greater environment. It is also the space for which we will be held accountable. To evolve personally implies to ensure that we perceive the broadest spectrum of the environment and thereby develop a greater awareness through reasoning and understanding. We need to become aware of our limiting beliefs and then transcend them. In this way we become more authentic in regard to the 'universal' territory and are no longer limited by our subjective map. Indeed we become the best that we can be. It follows also that if we apply the principles of engagement with the extended environment incorporating non-judgmental sensitivity and real dialogue, we contribute an evolutionary component to the collective which reflects back positively upon us in that it becomes an extension of our motor creation and achievement. The converse of this approach reflects the stark reality and consequences of aggressively and destructively challenging the environment. The fight-flight-freeze response of the resulting amygdaloid hyperactivity stifles reason and gratification and invariably triggers reactionary behavior. The consequences are a loss-loss situation in which both agonist and responder are diminished.

And so I put this out there as my subjective contribution, for better or for worse. I would however remind you to 'mind the gap' for ye shall be held accountable....

Neurocoaching and PNI

The lethal cocktail of fear with an existential crisis

There is the long story and the short story. Out of respect for the lay-readership I'm going with the short version. (The reference at the end is a link to the long version for the so-inclined.)

The paradigm has shifted – your thoughts and feelings impact comprehensively on your immune system and other fundamental physiological functions. Your immune system in turn engages with your neurochemistry and profoundly influences your thoughts and feelings.

And so we recognize that fear and/or anger is associated with raised levels of adrenaline and noradrenaline which is useful if we're being chased by a lion and we need to jump over a six foot wall! But if we're not being chased by a lion, that persistently raised adrenaline-noradrenaline mix is going to increase the levels of our inflammatory mediators (pro-inflammatory cytokines) resulting in chronic inflammation. This is somewhat worrisome when one reviews the literature and notes that chronic inflammation is the precursor of cardiovascular disease (heart attacks, strokes and the like), neurodegenerative conditions such as Alzheimer's disease, Parkinson's disease (as well as Lewy Body Dementia), Motor Neuron Disease and cancer.

Unfortunately the raised adrenaline-noradrenaline mix also suppresses our reasoning ability (pre-frontal cortex) as well as the stuff that mediates our reward centre (dopamine). That's a bit of a bind since we need to reason our way out of this fight/flight victim zone, needing in addition the reward gratification to sustain the effort. One final little thorn in the side is that the reward centre and the fear-anger centre work in opposition to each other. So when the reward centre is compromised in terms of function, the fear-anger centre (amygdala) rages unchecked, producing copious amounts of the adrenaline-noradrenaline brew! And so the cycle is perpetuated.

But then comes the second whammy! Those multiple existential crises, or periods of hopeless-helplessness that we all experience at some points in life are associated with decreasing dopamine and serotonin levels which once again give rise to raised levels of inflammatory mediators. This is not a good thing because not only does it

predispose to the ills mentioned above, but also because the inflammatory mediators diminish the availability of dopamine and serotonin resulting in you guessed it, an aggravation of the mind state of hopeless-helplessness! The lowered dopamine of course allows the fear-anger centre to rage unchecked with its own consequences.

Now when you're in the thick of it, you can't see the wood for the trees! You're lost in neurochemical subjectivity. So what to do? Some suggestions:

1. Chill, breathe deeply and confirm that you are still alive and functional
2. Remind yourself of your blessings, achievements, talents and gratifying moments
3. Engage in a gratifying activity and then add 'purposeful' to the mix (pushes up dopamine)
4. Add regular exercise to the mix (pushes up dopamine and serotonin)
5. Connect with another person or people – talk, have coffee, hug, have sex. It all pushes up oxytocin levels which increase dopamine, decrease inflammatory mediators and calm the amygdala (lowers the adrenaline-noradrenaline brew)

If that doesn't restore the balance, you may need to consult the professionals – psychiatrists (generally for a chemical fix unless you're fortunate enough to come across one that will actually counsel you!), therapists – to get a handle on who you are, where you've come from and where you're probably headed (change will be your prerogative), life-coaching – to strategize an action plan to take you to a better place.

If all else fails, eat chocolate!

Buzzing with emotion

For years the treatment of choice for managing depression and most mood disorders has been anti-depressant serotonin-enhancing agents, more recently the SSRI's (selective serotonin re-uptake inhibitors). Increasing serotonin has been the common chemical route for improving depression. Some worrying newer evidence however suggests that increasing serotonin may decrease dopamine levels, where dopamine is the mediating neurotransmitter for the brain's seat of pleasure and gratification. Unfortunately 'depression' as an entity remains undefined. At best it is an amorphous collection of symptoms which has been coded in the psychiatric bible, the DSM. It is a debilitating condition and only partially responds to the SSRI's. In fact they're not that much more effective than the placebo effect, although the anxiety component is effectively dealt with. Fortunately we are making great strides in understanding the core dynamics underpinning emotion.

Emerging out of the mist appears to be two main players determining our emotional function. The two defined emotional centres of the brain are the amygdala and the nucleus accumbens. The amygdala is the seat of anxiety, panic and, when it is activated sufficiently, anger/rage. It also plays a major role in emotional memory. The nucleus accumbens is the seat of gratification, pleasure and motivation and is dopamine-driven. Studies have shown that the amygdala and the nucleus accumbens mutually oppose each other in terms of function. Thus when anxiety or anger prevail, the nucleus accumbens is suppressed. Conversely when the nucleus accumbens is activated and gratification and purposeful motivation are maintained, the anxiety and anger of the amygdala is diminished. I would further propose that most of the other emotions are derived from the interplay of these two defined emotional centres. The activation of the nucleus accumbens and thereby the enhancement of gratification and purposeful motivation is vital, because lack of gratification and purpose may be the core components of depression. I have defined this state as 'hopeless-helpless'.

The amygdala and nucleus accumbens are integrated in the nurture period. In situations of deprivation, which notably includes delay in appeasing needs such as hunger, the amygdala will become highly activated. This establishes the fear foundation. On appeasing needs, the nucleus accumbens becomes activated, a

dopamine spurt occurs with gratification and importantly, the amygdala is suppressed. The degree of delay in getting needs met and the effectiveness that needs are indeed met will establish the unique individual belief configuration in regard to fear and reward. This forms the intrinsic bias for the duration of life unless mediated through intervention.

The dynamic interaction of the amygdala and the nucleus accumbens was illustrated in a co-operative study undertaken by a group of neurosurgeons and psychiatrists in Germany and in the US. Eight severely depressed (terminally hopeless-helpless) people who were nonresponsive to medication and even electroconvulsive therapy, and who were essentially pre-suicidal, underwent prolonged deep-brain stimulation of their nucleus accumbens. Over a period of three to six months there were significant increases in gratification levels. The result was that medication dosages could be significantly reduced. Interestingly, anxiety levels were also noted to be significantly diminished and this was shown to correlate with 'quiet' amygdalae as seen on PET scanning (The PET scanner measures active brain function). In a later study, the stimulation of the amygdala resulted in the quietening of the nucleus accumbens. This manifested as anxious individuals with compromised levels of gratification and motivation.

The quietening of the amygdala has come to be recognized as a critical objective. The chronically activated amygdala spews out adrenaline, noradrenaline and cortisol. Unfortunately for us, the amygdala is in turn stimulated by the very chemicals that it secretes. This therefore has the effect of keeping us 'locked-in' to an anxiety-panic-rage state. From here, really nasty things happen:

- The raised adrenaline-noradrenaline mix, stimulates inflammatory mediators in the whole body (Lowered levels of serotonin and dopamine are also associated with raised levels of inflammatory mediators). This sets us up for cardiac disease, neuro-degenerative conditions (Alzheimer's, motor neuron disease, Parkinson's disease) and cancer
- The raised cortisol suppresses our immunity, setting us up for infections and tumors
- Raised cortisol in pregnant women crosses the placenta and compromises pre-frontal cortical neuron maturation and subsequent IQ of the newborn. It

also sensitizes the amygdalae of the unborn child giving rise to the birth of fearful infants (compromised EQ)

- Raised cortisol together with raised inflammatory mediators wreak damage upon our hippocampi – the structures which mediate short-term memory. Hence short-term memory becomes compromised
- Raised adrenaline-noradrenaline compromises the function of the pre-frontal cortex in the adult which is the seat of our sense of reason – the very function that we need to neutralize this destructive chemical wrecking-ball.
- Raised levels of inflammatory mediators permeate the brain and further compromise the levels of serotonin and dopamine in the brain thus locking us into a self-perpetuating cycle of hopeless-helpless

Fortunately all is not lost. For twenty five years I have been researching this complicated dynamic and developing a comprehensive program designed to empower the user to transcend this compromised state and to attain and sustain a productive and gratifying space. The result is *neuromodulation* – a cognitive application engaging directly with the underpinning neurophysiology.

A Case Study Illustrating the Effectiveness of Neurosurgery for a Brain Tumour Followed by Intense Neuro-Coaching

Jenny presented to me several years ago with the main complaints of headaches and vertigo. The symptoms had been present for a period of three months and were deteriorating. An MRI scan was performed which revealed a large posterior tumor which was infiltrating the transverse sinus. There was significant compression of the cerebellum. The diagnosis was particularly devastating for Jenny. She was a high level executive and at the age of fifty one had very rarely been ill. The diagnosis as well as the planned surgery necessitated an in-depth discussion to prepare the way for formidable surgery.

During the discussion, Jenny enquired as to what the cause was for the growth of the tumour. I indicated that in the context of the conventional biomedical model there was no specific cause that could be identified. However I indicated that in the sphere of psychoneuro-immunology (PNI) negative neuropsychological influences had been identified which resulted in chronic inflammation in the body together with immune suppression, mediated by a group of chemicals referred to as the pro-inflammatory cytokines. The immune suppression compromised the body's defences against infections and tumours. The chronic inflammation had also been shown to be the initiating factor in coronary artery disease, diabetes, cancer and some neurodegenerative conditions such as Alzheimer's Disease and Motor Neuron Disease. The pro-inflammatory cytokines however not only mediated the chronic inflammation and immune suppression but also interfaced with the neurophysiology of the brain, further aggravating a negative neuropsychological state.

Jenny requested that I summarize the identified neuropsychological states which created the illness risk. I indicated that on the positive resourceful side was a mind state of meaning and purpose while on the negative side was a mind state of hopeless-helplessness which, if persistent for a year or more (in my experience), often gave rise to a medical diagnosis. The concept of hopeless-helpless implies a life situation with low meaning and purpose and the subjective belief that it cannot be changed - an entrapment situation.

Jenny indicated that she indeed devolved into a mind state of hopeless-helpless over the preceding one and a half years in her work environment. Enthusiasm had waned and she no longer derived adequate gratification from her work environment. I

enquired about her personal space and here emerged a very troubled picture dating back to her nurture period. At this point I indicated to Jenny that we would need to prioritize the intervention by initially directing our energies towards the planned surgery. Once she had fully recovered from the surgery we could initiate an intense coaching intervention to expose and deal with the negative neuropsychology which had most likely impaired her immunity and allowed the tumour to grow unchecked.

The surgery was difficult in that the tumour turned out to be an aggressive meningioma which had infiltrated the transverse sinus. It had also infiltrated the superficial layers of the cerebellum. The transverse sinus was incised and all tumour removed. The cerebellum was also cleared of all infiltrating tumour. Essentially a total removal was achieved. The surgery was uneventful and Jenny made a full recovery without neurological deficits.

After a period of six weeks we commenced the neuro-coaching intervention. This took the form of neuromodulation (NeuroSurge form of neuro-coaching). Jenny initially completed the online NeuroSurge diagnostic. This formed the basis for the planned intervention. The diagnostic indicated that although Jenny had the motivation and necessary attributes for her work environment, there was a distinct lack of gratification and fulfilment. In addition there were indications of a diminished self-worth. More importantly her personal space was almost devoid of gratification. There was also a strong suggestion that there was a deep seated issue relating to probable nurture deprivation. Jenny indicated that she had been divorced for two years. I responded that our statistics had shown that in a woman, the subjective feeling of hopeless-helplessness in the personal environment had a higher risk for the development of a medical diagnosis than hopeless-helplessness in the work situation. The opposite held true regarding the male of the species. In the male, hopeless-helplessness in the work environment posed the higher risk for the development of a medical diagnosis. I asked Jenny if she felt that her divorce had contributed to her negative mind state. She replied that if anything, her divorce had been a release from an oppressive and unfulfilling marriage. It became clear that we needed to penetrate a lot deeper into the personal space, all the way back to the nurture environment. And it was here that, after several sessions, we uncovered the critical determinants for her high risk mind state.

Her mother had been extremely cold and non-responsive to her emotional needs. Her father had been an alcoholic and very distant. In an attempt to gain maternal recognition she adopted compensatory behaviour such as serving the needs of her mother and later, taking care of younger siblings. However, all to no avail. Her subjective reality that was forged was one characterized by the need for driven compensatory activity. Appended to this however was sadness and distrust which resulted from never having experienced true recognition for her needs as a young child requiring love and nurture. In its essence, the evolving narrative incorporated the damaging theme that she believed she was born never to experience personal gratification. She also believed that she was born to serve the needs of others. This obviously resulted in a low self-esteem. Her compensatory behaviour drove her always to overcompensate in order to gain recognition. Ultimately this resulted in an extremely successful career but with the nurture baggage of her personal space. The bizarre situation emerged that in a compensatory, successful career she was confident and for the most part, highly fulfilled. But when she viewed her personal space she experienced the low self-esteem, worthlessness and hopeless-helplessness which was the subjective world of the little girl who had never experienced the love and warmth of nurture. Both worlds co-existed but were un-integrated. In fact when I brought them both into focus for the first time (integration) she felt guilt that she (the successful adult) had experienced gratification and recognition while the sad little girl continued to suffer. Consequently there followed sessions directed at establishing dialogue between the successful woman and the suffering little girl. This intervention however was unsuccessful. The breakthrough only came much later. Jenny in a sudden cathartic moment came to a realization that she did not need to carry the suffering little girl with her any longer. She had given herself permission to savour all that she had become and all her achievements. And so the toxicity of the nurture deprivation evaporated.

On reviewing the possible dynamic which had led to the hopeless-helplessness preceding the diagnosis, Jenny believed that losing meaning and purpose in her compensatory world was lethal in the face of the absence of gratification in her personal space. It became clear therefore that the definitive intervention would need to restore meaning and purpose in the work environment and thereafter apply the gratification derived from a restored work environment to creating a gratifying

personal space. Jenny therefore established a personal mission statement as well as strategies required to achieve the relevant goals using the **NeuroSurge** online self-coaching template (E-Modulate). It was important to ensure that the five core elements known to enhance change, were incorporated viz. meaning and purpose; self-esteem/self-efficacy; reward gratification; achievement; value contribution (to self and the environment). It was important also to maximize on areas of previous achievement and gratification as well as personal strengths and unique attributes. Working within this framework we re-structured her work environment and then transplanted the positive and resourceful attributes from this environment into her personal space. This necessitated expanding the personal mission statement and neutralizing previous limiting beliefs using a process of disputation. Finally, Jenny was coached to be empowered to apply this process to herself on a regular basis and to make changes as required in order to maintain optimal levels of gratification in both her work and personal environments.

Jenny has been followed up now for a period of four years since her surgery. She has effectively re-structured her work and personal environments which have now become integrated. She experiences ongoing gratification from these environments. Her follow up annual MRI scans have shown no recurrent growth of her original tumour.

Transcending emotions

I recently had the pleasure of facilitating a weekend Buddhist Retreat. And while I am the 'teacher' I invariably get taught many things by the 'students' (Retreatants). This recent Retreat was especially stimulating owing to the sustained engagement of the group. A discussion developed with two of the attendees relating to the question of emotions. And as we dialogued the subject we arrived at a unique conclusion which I wish to share.

Emotions are essentially physiological cues which prompt and guide us through the convoluted path of life. If we are stuck in limiting beliefs then we will experience the same sequence of emotions in response to similar circumstances. Much of our emotions reflect the hunger for reward and gratification and the fear of losing it. If on the other hand we respond to the emotional prompts with reflection and reasoning, we achieve clarity. This evolving clarity and associated awareness of ourselves and the environment at large incorporates a comprehensive integration of people, life situations and all the other elements which comprise the extended environment. It also necessarily incorporates an appreciation of the life cycle of all things together with logical philosophies relevant to the dynamic. The hunger for reward and gratification as well as the fear of loss is subsequently diminished as we embrace a greater context.

There comes a time therefore when clarity of understanding no longer requires or in fact, triggers emotional activity. The mind state associated with this level of integration is one of deep understanding of the nature of things with a non-judgmental sensitivity to elements of the extended environment. Allied to this is an acceptance of the way of things. In this way we complete the self-actualization process by transcending emotion.

The problem with Gus

This is the story of Gus. Gus like all of us was once a dependent infant. He required feeds, security and love. Unfortunately there were times when Gus's needs weren't promptly met. With the dropping of his blood sugar levels and the delay in maternal responsiveness, Gus's amygdala became activated and he experienced all the physiological signs of anxiety. Knowing that obtaining maternal responsiveness and his feed was essential, Gus worked at understanding and thus controlling his environment in order to manipulate things and have his needs appeased. This took the form of crying, screaming or throwing things. Invariably he was rewarded with the required response. On receiving the required response, Gus experienced a reward-mediated dopamine boost which switched off the activated amygdala and thus the anxiety physiology. Gus also experienced an oxytocin boost which enhanced a mind state of belief and trust.

And so Gus's life narrative began with the fundamental belief that the most important element in life was experiencing the recognition of his existence and thereby the appeasement of his own needs. The sub-narrative was that Gus became the centre of his own universe but was filled with fear of not experiencing recognition and having his needs met. Additionally, Gus believed that reward would eventually come his way but that he would need to work at it. In this way Gus and his narrative lived in a little box called Gus's comfort zone or Gus's Subjective World View (GSWV).

In time Gus matured into an adult. But Gus still lived in his little box called GSWV. From this space Gus ensured that his needs were appeased even at the expense of others. He would ensure that he was recognised and adored so as to experience his dopamine and oxytocin spurts. However, fear of not experiencing recognition and reward was also his constant companion. And so his amygdala invariably bubbled in the background resulting in a chronically raised adrenaline and cortisol. The consequence of this was to slightly impair his reasoning potential (pre-frontal cortex), push up his blood pressure and slightly increase his inflammatory index.

Flowing from GSWV was a need to rationalize the external world in the context of Gus's subjective beliefs. Therefore concepts which were too inconvenient to internalize were either deleted or distorted to fit into Gus's subjectivity. Gus's modus operandi in this regard was firstly to form an opinion or judgement based on his

subjective frame of reference, but this would progress to a state of judgementalism – defined as making a judgement but incorporating condemnatory and disparaging elements. The most noticeable sign of this behavior was the discrediting of others to enable Gus to disregard and thus delete the opposing person and the inconvenient aspects of their perspectives. Aggravating this already difficult situation was Gus's inability to accept criticism. In the context of his narrative Gus perceived this as a threat to being loved, adored and respected which increased the fear of not having his needs met. Since fear, anxiety, panic and anger/rage all reside in the amygdala, Gus's fear was notched up to anger in response to criticism.

Gus was driven by the **Five Finger Rule**: WHAT'S; IN; IT; FOR; ME ? Most of his efforts and actions were driven by the potential for secondary gain insofar as his subjective needs were concerned. As a result of this dynamic, Gus was not a team player. Gus did not listen much to what others had to say if it did not appease the Five Finger Rule. Gus's mode of engagement was judgementalism and his style of leadership was prescriptive.

In order to enhance his self-interest gratification Gus became adept at creating appropriate **facades of fairness and sensitivity**. Gus also controlled and manipulated his environment to ensure that he was safe from censure and that any fear of loss or failure was allayed.

While the Gus's of the world are effective (as long as the Five Finger Rule is appeased) they are not primarily value contributors to the greater collective. Their value contribution is secondary to the appeasement of their primary needs. As a result they do not honestly embrace people and the extended environment with respect and sensitivity in a mode of **dialogue**. Dialogue is a mode of communication which is non-judgmental and requires that you attempt to be, think and feel as the other, before forming a judgement or opinion. Dialogue establishes rapport which allows the best to emerge from interactions. This will lead to integration where the greater collective becomes enriched and evolves.

We all have some Gus in us. Some more so than others..... I would propose that we all become aware of the Gus within us and make the effort to transcend that destructive space when it occurs. Ultimately, by growing ourselves we will grow the greater collective.

Challenging limiting beliefs

Much is being said about seeking and embracing authenticity. Implicit in this authenticity is a mind state free of limiting subjective beliefs and the identification and adoption of a universal objectivity, a connection to a greater truth. Transcending the limiting subjectivity and evolving to universal objectivity appears to be a relatively simple task when viewed from the idealized, cozy armchair perspective. At the coal face however, much blood, sweat and tears complicate the transition. For here is where the deprivation heritage determinants and the resulting limiting beliefs conspire against our best intentions.

Many studies are emerging which indicate conclusively, the profound influences that early life experiences have on adult wellbeing and success. One of the most notable studies in this regard was published in 2013 by The Centre for Economic Performance which showed that emotional health in the child was far more important for later wellbeing, life satisfaction and success than even education. Other studies have convincingly shown that compromised early childhood emotional health is an important determinant of adult inflammation, heart disease, certain carcinomas as well as several other medical conditions. Clearly then, the formative period (which includes in utero influences) can be regarded as the definitive determinant for the rest of the life path of the individual.

Fortunately all is not lost in the face of this seemingly rigid deterministic heritage. For superimposed upon this heritage is our inherent potential for neuroplasticity – the process whereby redundant neural circuitry is cleared and new connections formed. In this way the brain continues to remould according to new experiences and thereby diminishes limiting beliefs. New connections support learning and ultimately, change. Neuroplasticity appears to be mediated at the neurochemical level by dopamine and noradrenaline. At the neuropsychological level this neurophysiology manifests as mind states of curiosity and awe. Add to this gratitude and respect and you're well on the way to establishing sustained neuroplasticity-based change. These are also the essential components required amongst others, for enhanced wellness, effective performance and inspiring leadership.

The potential for neuroplasticity would vary however depending upon the early life narrative . In regard to intervention, one assumes adequate intrinsic receptivity

in the narrative at the outset. In practice however, degrees of receptivity and potential for neuroplasticity become apparent, thus setting the limits for positive change. Positive change may also be impeded by the inertia created from being embedded in a comfort zone. By this I refer to default behaviours which arise out of a deprivation heritage but which in themselves generate levels of dopamine and adequate, albeit short-lasting, moments of gratification. Examples of these would be substance abuse and addiction, eating disorders and even aspects of schadenfreude – deriving gratification from the misfortune of others (shown to generate increased dopamine activity!). To shift such individuals, the intervention-based alternatives would need to offer higher levels of gratification (and dopamine activity) to be effective and sustaining. Based on our own research and experience we have identified five specific source elements which have been shown to enhance neuroplasticity and which have therefore been incorporated into our neuromodulation approach. These source elements include - meaning and purpose, self-efficacy, reward/recognition gratification, achievement and value contribution.

References

1. <http://www.pninet.com/articles/Surge-app.pdf>
2. <http://www.pninet.com/articles/Neurocoach.pdf>
3. <http://cep.lse.ac.uk/pubs/download/dp1245.pdf>
4. <http://www.ncbi.nlm.nih.gov/pubmed/19213918>

The neuroscience of change

The neurophysiology which underpins change is referred to as **neuroplasticity**. Neuroplasticity describes the inherent potential of brain cells to remove redundant connections and to establish new connections, reflecting newly acquired information. In this way the brain continues to remold according to new experiences. New connections support learning and ultimately, change. At the neurophysiological level, neuroplasticity is mediated predominantly by the neurotransmitter, dopamine.

The potential for neuroplasticity varies however depending upon the early life narrative. In regard to cognitive interventions designed to manage change, one assumes adequate intrinsic receptivity in the narrative at the outset. In practice however, degrees of receptivity and potential for neuroplasticity become apparent, thus setting the limits for positive change. Positive change may also be impeded by the inertia created from being embedded in a comfort zone. By this I refer to default behaviors which arise out of a deprivation heritage but which in themselves generate levels of gratification, albeit short-lasting. Examples of these would be substance abuse and addiction, eating disorders and even aspects of schadenfreude – deriving gratification from the misfortune of others. To shift such individuals, the intervention-based alternatives would need to offer higher levels of gratification to be effective and sustaining.

Based on our own (**NeuroSurge**) research and experience we have identified five specific source elements which are necessary requirements for neuroplasticity and change. These source elements include:

1. **Self-esteem/self-efficacy.** Self-esteem generally reflects influences which were operative in the formative nurture years. Low levels of self-esteem impede neuroplasticity and subsequent change. Interventions therefore need to identify limiting beliefs in the life narrative which compromise self-esteem/self-efficacy and neutralize or manage them to achieve success.
2. **Meaning and purpose.** Purposefulness equates to enhanced motivation, productivity, innovation and loyalty. In our research it also correlates with enhanced wellness. Chemically these individuals have higher levels of

dopamine and serotonin. The antithesis of this state is one of purposelessness or as we have defined in our research, hopeless-helplessness. This state is associated with impaired performance, decreased wellness and compromised leadership potential. These individuals have low dopamine and serotonin levels and are prone to states of chronic inflammation (the precursor for many serious illnesses such as heart disease, strokes, neuro-degenerative conditions and cancer.)

3. **Gratification** arising out of job engagement, job mastery and reward. These situations are also associated with raised dopamine levels. Recent research has shown that **states of curiosity enhance dopamine-mediated learning**, neuroplasticity and change.
4. **Achievement**. Anticipated achievement or achievement experienced, which is greater than that which was expected, result in raised levels of dopamine and subsequent neuroplasticity.
5. **Value contribution**. Value contribution can be defined as making something better than it was before you engaged with it. Value contribution occurs in three areas:
 - a) Towards self, thereby fulfilling one's full potential
 - b) Towards one's personal environment
 - c) Towards the extended environment

Finally, excessive anger and/or hostility negatively affect higher reasoning function which impairs neuroplasticity and the potential for change. Chemically, this mind state and its associated excessively raised adrenaline levels also predispose to states of hopeless-helplessness which further compromises the potential for change.

References

Floresco, S. B., Blaha, C. D., Yang, C.R., & Phillips, A. G. (2001). Dopamine D1 and NMDA Receptors Mediate Potentiation of Basolateral Amygdala-Evoked Firing of Nucleus Accumbens Neurons. *The Journal of Neuroscience*, August 21, 16, 6370–6376

Gruber, M.J., Gelman, B.D., & Ranganath, C. (2014). States of curiosity modulate hippocampus-dependent learning via the dopaminergic circuit. *Neuron*, October 22, 84, 2, 486–496

Hebb, D. O. (1949). *The Organization of Behavior: A Neuropsychological Theory*. New York: Wiley and Sons

Jung-Beeman, M., Bowden, E. M., Haberman, J., Frymiare, J. L., Arambel-Liu, S., Greenblatt, R., Reber, P. J., & Kounios, J. (2004). Neural activity when people solve verbal problems with insight. *PLoS Biology*, 2, 4, 500-11

Mundkur, N. (2005). Neuroplasticity in Children. *Indian Journal of Pediatrics*. 72, 10, 855-857

Rabideau, S. T. (2005). Effects of achievement motivation of behavior. *Personality Papers* <http://www.personalityresearch.org/papers.html>

Schultz, W. (1998). Predictive Reward Signal of Dopamine Neurons. *Journal of Neurophysiology* 80, 1–27

Don't be short-changed

In this day and age of instantaneous connections and a rapidly changing landscape, the lines of familiar frames of reference blur frequently and comprehensively. And so thoughts turn to our potential for accommodating and changing to meet these challenges. What in fact determines change, the potential for change and the necessity for change?

We are all, each one of us, the products of a nature-nurture heritage in which we had no say, arriving at adulthood as the finished products, warts and all! And it is with these origins that we engage with ourselves and with the extended environment. The heritage determinants together with our ongoing engagement with the extended environment gives rise to our personal life narratives. This narrative incorporates our subjective beliefs, fears, aspirations and preferences, indeed all the components which give rise to a subjective world view. The subjective world view becomes our 'map' of the external 'territory' and the way in which we make sense of things. If we have been blessed with a supportive and caring nurture history we will ultimately develop a subjective 'map' which approximates the 'territory'. In this situation we will see things as they really are, make appropriate decisions and experience achievement gratification, purposefulness and wellness. Conversely, if we are the products of a deprivation nurture heritage, our 'maps' will diverge from the 'territory', we will not see things as they really are due to intrinsic limiting beliefs and suppressed thoughts and emotions. The result is distorted perceptions of the territory, failure, emotions of despair, hopelessness and illness.

Fortunately Nature (alternatively, God, the singularity or whatever else you believe in) has bestowed upon us the intrinsic potential to re-wire our neuronal networks and thus our subjective world view together with the emotions thereto attached. This is the process of *neuroplasticity*. But the effectiveness of neuroplasticity is dependent upon elements which are intrinsic within our life narratives. These elements include an unfettered **sensitivity** to ourselves and to the external environment, calling upon our **reasoning** function (working memory in the pre-frontal cortex) and the **courage** and **determination** to engage the process until sustained positive change is achieved. The drivers of this process are either content-based or emotionally determined. Let me illustrate the content-based driver: I left 'A' to move

to 'B' but arrived at 'C' , what do I need to change to ensure that the next time I do indeed arrive at 'B'? The emotionally driven process is activated by an emotional prompt: I experience such negative emotions (often with physiological manifestations) when confronted with identified environmental entities that I need to either ensure that I steer clear of them (create a comfort zone through avoidance) or alternatively, re-appraise my perception of the entity (re-frame, disputation, psychoanalysis) and thereby change the emotional consequence.

To quote an existing 'truth', 'nothing is more constant than change' (I'm not sure who's quote this is but I think it was the Buddha himself). And so it becomes imperative that to ensure personal gratification we need to be prepared to change on an ongoing basis. This requires that we transcend our intrinsic limiting beliefs and subjectivity, to sensitively appraise ourselves and our environments before forming opinions, judgements and actions. The drivers for this are content-based and emotionally prompted as well as the need to move away from a space of failure, meaninglessness, low gratification and illness towards one of purposefulness, gratification and wellness. But you need to want it badly enough to make it a reality.

Finally we need to add into the mix the component of **value contribution** to ourselves – realizing our fullest potential, as well as the value contribution to the greater environment – *making it better than it was before engaging with it*. In this way we arrive at a far more viable and sustaining place of awareness where we as individuals become more authentic contributors as members of the Human Race.

Lighting up the abyss

It's in your home, it's in your family, it's in your city, it's everywhere. It afflicts and it compromises. It's discussed in many places, a lot of the time. It is said that it's reached epidemic proportions. It's confidently called **depression**, yet no one knows what it is.

It is said that it manifests in many guises. From unhappiness to obesity, from doom and gloom to insomnia, from exhaustion to undefined need and insatiable hunger. It pervades the home the office and beyond. Yet it defies definition. It is the 'dark cloud' that smothers all light. It is confidently described as an emotional affliction and yet much of its manifestations are physical. It is said to be caused by genetic anomalies, by a troubled childhood, by 'chemical imbalances' by aberrant flashes seen in the functional MRI, diet and even by the bugs that live in your bowel. And still it remains obscure.

And behold the great men and women of the psychiatry persuasion created a bible which they termed the DSM – the book which lists all mental and emotional maladies. And in the great book they inscribed 'depression' in all its possible manifestations and then gave it a **code**. And in this way it became real. It was a legitimate malady. And when they allegedly identified low levels of the neurotransmitter serotonin as being the cause of this affliction, the flood gates opened. Great pharma research into a legitimized illness which had a code gave rise to the medication for which the funders were forced to pay. From this space the afflicted inherited medical legitimacy for their illness. And their employers, family and friends supported them and complied with the needs of their affliction. And the psychiatrists and big pharma prospered as never before.

And yet ... what is depression? The research around serotonin is tenuous at best. The serotonin boosting anti-depressant medications (SSRI's) in many cases are not that much better than the placebo effect as regards 'happiness'. On the anxiolytic side however, they appear to have some benefit.

And so for twenty four years I read, observed and researched this melancholia which has accompanied mankind since the beginning of recorded time. And since I was not a psychiatrist but still trained in the neurosciences, and since I was not bound by any

institutional tenure and yet had access to all the technology that I needed, I had delicious freedom to say, write and do whatever I pleased. And when I arrived at a place of medical respectability, a consultant neurosurgeon, it was too late for the medical Establishment to excommunicate me – for behold the enemy was within!

My great inspiration, my inspirator, was Viktor Frankl. He nailed it from the outset. Frankl recognized that the symptoms of melancholia reflected a meaninglessness at a specific point along the life path. And if you believed that there was nothing that you could do to improve the situation, to make it more meaningful and gratifying, then you moved into a space which I subsequently defined as hopeless-helpless. And in the study of many life narratives I noted that those with more disadvantaged nurture histories in the form of deprivation, were more prone to hopeless-helplessness. They had less resilience to withstand the drift into the black abyss of extreme hopeless-helplessness. And so I concluded that we all have an *existential imperative* – we need to maintain purposeful business. Otherwise we slip into the *existential crisis* of hopeless-helplessness.

The hopeless-helpless mind state is associated with raised levels of inflammatory mediators. These mediators result in inflammatory conditions which underpin neurodegenerative conditions (Alzheimer's disease, Motor Neuron Disease, Parkinson's), cardiovascular disease, immune suppression and cancer. And yes, they also diminish serotonin but more specifically, dopamine while raising levels of adrenaline which collectively is associated with an increase in the inflammatory indices, thereby perpetuating the vicious circle that will spiral you down the plug hole into hopeless-helplessness.

The final clincher is in the research. When hopeless-helplessness was identified as a single variable apart from the obscure entity of depression, the correlation of cardiovascular illness and outcomes as well as those of cancer, correlated directly with degrees of hopeless-helplessness rather than with that amorphous entity called depression.

And so I conclude that I have no idea what depression is. It is an obscure entity from which many have derived a lucrative profit while others have gained a legitimate malady. **It should be emphasized however that I am in no way minimizing the nature or the consequences of the affliction.** Rather, in the place of this

undefined amorphous entity I would propose that there are degrees of hopeless-helplessness. These are existential crises which may reflect a low deprivation-induced resilience to loss or alternatively, loss of a significant life entity and/or loss of meaning and purpose. The remedy I believe is not mega-doses of serotonin promoting drugs, or changing the diet or having colonic purges!! Rather, I would suggest that we seek meaning and purpose when it wanes (with professional help if necessary). Engage with the world and each other and seek to contribute value to ourselves and to our environments. And finally let us secrete much oxytocin (Nature's own antidote for inflammation and associated hopeless-helplessness) by striving to be sensitive, non-judgmental and caring. Thence shall we inherit clarity, calmness and trust and an end to hopeless-helplessness. Amen.

A stillness in the eye of eternity

The stream of human knowledge is heading toward a non-physical reality. The universe begins to look more like a great thought than a great machine. - Sir James Jeans

The inescapable truth is that we and all other physical entities, span the physical-energy divide. In this way we are all connected and have been, since the beginning of time. And as we evolve and develop ourselves, we are contributing to the evolving, connected, energy collective and at the same time are influenced by its eternal flux. We are, each one of us, unique co-creators and at the same time, holograms of all that is. We and our entire collective environment are manifestations of the **zeitgeist** of the moment!

In absolute terms therefore, we individually control very little of our environments and indeed, our lives. Most of our choices are determined by our unique individual history, our nature-nurture heritage. This incorporates the people, the places and the social dynamics of our formative beginnings. Thereafter we engage with people, places and circumstances, perceived through our subjective world view and exercise our choices, again determined by our subjectivity. From the experiences derived from these engagements we fine-tune our subjective world view. However the powerful influences of heritage still prevail, albeit minimally dampened. The whole process therefore conforms very much to *Lorenz Chaos Theory*: The life narrative is determined very much by its historical starting point but the final outcome is modified by the multiple influences that occur along the life path.

We also live in a psycho-social collective in which there are multiple inputs from many other subjective beings. Everyone gives voice and action to their subjective needs which reflect their individual origins in time and space. And so we encounter a pivotal mediator and dampener of our subjective needs prerogative – we all need to co-operate and conform to ensure that the viability of the system prevails in terms of appeasing the needs of the collective. If we were to apply the best of *Complexity Theory* to this dynamic, we would ring-fence central ‘sacred’ rules such as respect for life and property and allow the system to self-regulate. But that applies to an ideal world. We don’t live in that space.

Our collective is subject to the interference by others. In summary these influencers include regulating governments, individuals and organizations with material resources and the popular media which invariably become the mouthpiece of the resource-based organizations. In this way, the freedom of the collective to self-regulate is significantly compromised. But more importantly, the subjective world view of the individual members is influenced by the media who often disseminate partial truths or untruths and thereby manipulate an entire belief system.

The challenge for each one of us is to be able to transcend this common, collective homogeneity of functioning mediocrity as well as our personal heritage constraints (limiting beliefs) and contribute our unique co-creativity.

Our right hemisphere-based sensitivity, emotional integration and creativity are essentially cues which prompt and guide us through the convoluted path of life. Much of our emotions reflect the hunger for reward and gratification and the fear of losing it. If on the other hand we respond to the emotional prompts with **reflection** and **reasoning**, we achieve **clarity**. This evolving clarity and associated **awareness** of ourselves and the environment at large incorporates a comprehensive integration of people, life situations and all the other elements which comprise the extended environment. It also necessarily incorporates an appreciation of the life cycle of all things together with logical philosophies relevant to the dynamic. The hunger for reward and gratification as well as the fear of loss is subsequently diminished as we embrace a greater context.

The appropriate language required for this endeavour is **dialogue**. Dialogue was defined comprehensively by theoretical physicist David Bohm, as a non-judgemental communication incorporating sensitivity to the point of 'being the other'. Only then do we formulate an opinion and make our judgement which now more authentically portrays the landscape. This is the opposite of counter-productive judgementalism which is censorious, condemnatory and disparaging.

Once clarity is achieved we inherit **calmness**. Calmness evolves from a respectful engagement with the environment which has incorporated sensitivity to other individuals, together with a **value contribution** (*making something better than it was before you engaged with it*) to other's as well as to the extended environment. It also feeds on evolving clarity and ongoing awareness.

Well, there's enough reason to pause regularly, find a quiet spot, clear the toxic thoughts from your mind, enhance awareness, become more sensitive, gain clarity and calmness and I would, in addition, throw in a generous helping of **gratitude**. Then rise with **courage** and contribute the value of your unique co-creativity. And if indeed your subjective perception of yourself and the greater environment is synchronous with the zeitgeist, your contribution will be supported and gain increasing traction in accordance with Victor Hugo's dictum: *"Nothing is more powerful than an idea whose time has come."*

The driven

Jake felt great. It was a perfect Monday morning in early spring. A deep blue sky formed a canopy over the awakening life all around him. With great contentment and a generous helping of gratitude Jake surveyed his beautiful garden with the early greening carpet of lawn hugging his splendid home. He affectionately stroked Ginger, his dog, leaning up against his leg. This was bliss! And to top it all he felt a great sense of achievement with the presentation that he had prepared for the directors, due to be given later that morning. With a spring in his step he strode to his car with great optimistic anticipation, noting that even his chronic back pain was barely perceptible.

At this time, Jake's physiology was ticking over optimally. His sensitivity to the beauty of his surroundings, his feeling of gratitude and the affection that he experienced for his dog was paralleled by high levels of oxytocin. This stimulated dopamine production and the associated sense of achievement and anticipation of further success. The dopamine high was also the result of the sense of achievement derived from the finished presentation. The raised oxytocin had also reduced all residual inflammation relating to his spinal arthritis.

Humming, Jake drove through the suburb and onwards to the main feeding road to the freeway. Jake noted that the traffic on the freeway was particularly heavy that morning. The cars were barely moving. There was just a perceptible tightening of his jaw. He had stopped humming. He turned up the radio for the traffic report. There had been a major collision up ahead and traffic was being diverted. Cars were now moving at a crawling pace. Jake looked at his watch. It usually took him about forty five minutes to get to the office. His presentation was scheduled for ten that morning and it was now eight fifteen. Plenty of time he thought. But a subtle dis-ease had begun to manifest. The cars were now stationary. Unconsciously Jake was now rhythmically drumming on his steering wheel. The cars started to crawl again. It was now eight forty and Jake had barely covered a quarter of the distance to the office. He was now visibly clenching his jaw and gripping the steering wheel with excessive force. He felt tense. It was now after nine. Jake began to taste fear. The presentation was critical. If it went well it could set him up for serious promotion. Jake's entire

existence now narrowed down to him getting to the office in time to give his life-changing presentation. Nothing else had any relevance. Just then someone cut into Jake's lane causing him to suddenly brake. Jake erupted, 'YOU PRICK!'. He was raging now. His pulse was bounding in his temples. There were no longer people in cars around him, just obstacles preventing him from reaching his goal!

Jake's physiology had now changed radically. His perception that he may not make his presentation on time had triggered the fear centres of his brain, the amygdala (there are two of them, left and right). That caused the outpouring of adrenaline and cortisol which pushed up his blood pressure and pulse rate. These in turn further stimulated his amygdalae which now changed gear from fear to anxiety and then to rage. And finally, it shut down his reasoning centre (the pre-frontal cortex), the only circuitry that could quieten down the rage. Jake's entire brain was functionally reduced to only two amygdalae, each the size of an almond nut! Jake the nutter was now a raging, useless victim of fight or flight.

Meanwhile, on the freeway, cars were gridlocked. It was nine forty. Jake was yelling abuse at everyone, from the nearest driver to the President-Elect! He reached for his mobile phone and called the office. There was no reply. He called a colleague that was to attend his presentation. It switched to voice-mail. It was now nine fifty five. Everyone must already be in the boardroom AWAITING HIS PRESENTATION!! 'Shit, it's over', concluded Jake. And with this realization Jake began to lose muscle tone and posture. His jaw dropped, shoulders sagged and his mouth was cork-dry. His sense of loss was overwhelming. His world had come crashing down on him. There was no hope. He was sunk. He was a total loser. Even his back pain had returned with a vengeance. Jake had just entered the dark abyss of hopeless-helpless. It was now five past ten. Only two hours had passed since Jake, with a spring in his step and with great optimistic anticipation, had strode to his car!

Physiologically, the excessive levels of adrenaline and cortisol had triggered the secretion of inflammatory mediators (pro-inflammatory cytokines). These in turn had radically reduced the levels of dopamine and serotonin which underpinned the hopeless-helpless mind state. The inflammatory mediators had also kick-started the spinal inflammation. Unfortunately for Jake, the

lowered dopamine and serotonin would perpetuate the raised levels of inflammatory mediators, locking him into the dark abyss.

Now if Jake had only availed himself of my **neuromodulation** program, he would have been able to maintain a mind state of clarity. It would have empowered him to maintain his sense of reason and to acknowledge that he was much more than what he had reduced himself to. At the end of the day we can't control every element of our lives. But we can go a long way to managing our approach.

Profiling hatred and cruelty

The Hate and Cruelty Syndrome (HCS) is one of the more perplexing neuropathologies and one seemingly intractable to conventional modalities of intervention. Having a special interest in this condition, I undertook a case study analysis of a sample of HCS sufferers using my own **NeuroSurge** application.

Common to many HCS-afflicted individuals is a history of significant nurture deprivation, often with elements of abuse. The early narrative emerging from this environment incorporates elements of loneliness, low self-esteem, distrust, the belief that they are born to serve the needs of others as well as anhedonia –the inability to experience personal joy and gratification. This usually impacts negatively on the ability to form personal relationships and predisposes to a hopeless-helpless outlook on life in general. The chemical configuration that parallels this state is one of low dopamine (dopamine is associated with personal gratification, fulfilment and motivation), low serotonin and raised pro-inflammatory cytokines – the mediators of inflammation (which underpins many illnesses including cognitive deterioration and possible degeneration into Alzheimer’s Disease). However it is when the narrative includes an element of ‘why should I be the only one suffering’ that the foundation is laid for schadenfreude hostility. Schadenfreude is defined as deriving personal joy from the suffering of others. Studies have indicated that this individual derives a dopamine boost from schadenfreude thoughts and behavior! Thus the HCS condition is perpetuated chemically. It is in fact this element which makes the HCS so intractable to intervention – they are deriving high levels of dopamine (personal gratification) from schadenfreude behavior.

The second element which contributes to the intractability of intervention in the HCS situation, results from the compromised function of the pre-frontal cortex, the neurological place of reasoning. High levels of deprivation negatively affect cognitive development (in the pre-frontal cortex). High levels of deprivation also result in raised levels of cortisol which again, negatively affects the development (myelination) of the pre-frontal cortex. The overall result is a marked deficiency of cognitive integration required for effective reasoning.

Loneliness and distrust result in low levels of oxytocin. Conversely, becoming part of a group sharing a belief in the same values (hatred, racism, cruelty), boosts levels of

oxytocin which also results in raised dopamine levels and collective gratification. Add to this the collective deficiency of reasoning and you get a **schadenfreude-driven wrecking machine** which feeds on itself. It visits its hatred, terror and cruelty upon a vast spectrum of humans and animals. The terror and cruelty incorporates a need to control and dominate, probably originating from nurture deprivation and self-esteem issues. These traits further contribute to the driving momentum.

There is no current cure for this destructive neuro-degenerative condition other than radical psychosurgery. Ethical and logistical challenges however preclude this modality of intervention becoming a viable consideration at this time. However, the HCS condition is inevitably unstable and self-limiting. If contained and left to its own devices it would ultimately consume itself through its own hatred and cruelty.

About writers and their neurochemistry

Underlying who we are, what we do and how we do it, is our neurochemistry. It makes for interesting cogitation (a big word for 'reflection' which I only recently learned) to analyse writers and their writing, based on two neurochemicals, dopamine and oxytocin.

Dopamine is the stuff underlying motivation, reward gratification, working memory (thought) and achievement. So the dopamine writer is one that derives reward gratification from the motivation to create something of value, then experiences the sense of achievement in the finished text. Thereafter comes the bigger dopamine kicker – the acknowledgement and praise by others - the accolades. So what I've written so far is a dopamine-driven piece. The dopamine surge will be completed if and when it's 'liked' and appreciated. Thereafter the dopamine surge will drive me to repeat the process. Perhaps I'm adequately gratified just by creating the piece or perhaps I need the accolades. And if it's for the accolades then maybe I'll modify my style to suite the *zeitgeist* of the readership to get more accolades and gratification next time. But then there would be a potential threat to ultimate authenticity in this dopamine cycle.

And what of the oxytocin-driven writer? Oxytocin is secreted in association with empathy, sensitivity, gratitude, trust, belief and awe. And so the oxytocin writer produces a life narrative with the ingredients of these elements which we all share, but some writers are more versed in its expression than others. So the skilful oxytocin writer draws you into the narrative through resonance with the aforementioned elements. In so doing, your oxytocin levels rise through the triggering of your mirror neuron activity (don't worry about this. I just put it in for completeness-sake!) 'And there he was alone in the world. Around him, the devastation of what was. And it was at this low moment that' Gotcha! Your oxytocin levels are bubbling in sympathy with the narrative.

The oxytocin writer derives dopamine gratification from creating the text as well as from the accolades. In addition however, the genuine oxytocin writer derives an oxytocin high from creating the good feeling of empathy, sensitivity, gratitude and awe in the readership. But oxytocin secretion and its reflective traits are contagious – it has a knock on effect. We all want to hug each other! Empathy and gratitude flow.

It's a good thing - oxytocin promotes wellness. Maybe that's why I appreciate beBee. It created space for us dopamine guys who have difficulty preparing the oxytocin stuff but who relish the great human oxytocin-driven posts written by the skilled, that regularly appear. Hell, I think I just wrote an oxytocin-promoting bit! Where there's life there's hope.

Your world starts and ends with you

I met a friend for coffee earlier today. Let's call him Mike. I noted that Mike was drawn and somewhat anxious in his demeanor as we sat down. He proceeded to relate how stressed he was in his business. Revenue was down and the general morale in the work environment was compromised. Probably as a result, productivity had also been negatively affected.

At this point the waitress brought our coffees. It struck me that Mike never acknowledged nor thanked the waitress. But things were to get worse. After a few sips of his coffee, Mike's face contorted and thunder clouds gathered above him. 'I'm not accepting this shit for coffee', he growled! And with that he commanded the waitress back to the table and demanded that she 'take this crap away and bring me real coffee'!

Now I'm familiar with other people in a similar line of business who are ticking over quite happily in spite of tougher economic times. And I couldn't help but conclude that Mike with his malignant mind state must surely have compromised his own success. This is probably the way that Mike behaves at work and how he relates to his staff. And it probably gets a whole lot worse when things don't go his way. I would guess that Mike doesn't even know the names of his employees let alone their personal life situations. I would imagine that Mike also carries this demeanor over into the marketing of his business which is hardly an attractive lure for potential clients.

I contrasted this with one of my patients who owns a medium sized business, employing about fifty people. Let's call him John. John takes a personal interest in all the trials and tribulations of his staff. When individuals are in financial difficulty he helps them out. Once a month he sponsors a barbecue at the work premises for all the staff. He derives great personal gratification from mentoring new employees and in fact makes a point of employing individuals from disadvantaged backgrounds. And when there was a general strike recently in this particular industry, John's workers volunteered out of their own choice to work their shifts at night. The result was that all targets were met. John's business is thriving and has expanded into a lucrative export market.

Interestingly, John has never been coached in the work place. Merely his genuine interest in the well being of his employees has created a win-win situation. Sensitivity has translated into mutual trust with resulting success for all.

Mike on the other hand has lost his human connection. This is compromising the viability of his business and contagion will undoubtedly spread beyond, perhaps into his personal environment. Mike will need coaching just to re-engage with human decency and sensitivity. And only then, perhaps, will his business turn around.

Our respective worlds do indeed start and end with us. Did you acknowledge and thank your waitress today?

Time to blend the rules

What was alluded to in light discussion as recently as eighteen months ago has become harsh reality. AI and robotics have come of age and predictions are that somewhere between 25% and 40% of the corporate workforce will be made redundant as a consequence, over the next three years. This redundancy will target all ages and all levels within multiple organizations and industries. Compounding this will be the significant move towards online purchasing and the threatened redundancy of large retail stores.

In real terms we are witnessing a new Industrial Revolution which just happened to exclude humanity. Obsolescence now looms large for the 'middlemen' – the stock brokers, travel agents, estate agents and realtors, analysts (except those right at the top of the pile) and hands-on manufacturers. Soon to face obsolescence are the drivers of all nature of vehicles as well as a not too insignificant proportion of the education and healthcare industries.

The knock on effect of this loss of economically active people will further impact in a very negative way upon the greater economy – locally and globally. With this descent into survival mode there is an accompanying descent into hopeless-helplessness and the illnesses, both emotional and physical, that surely follow. And so we note with alarm, the increases in suicide rates in many parts of the world. Accompanying the wretchedness of this mind state has been the need for mind-numbing drugs in a desperate attempt to shut out the pain and squeeze out just a little bit of dopamine-mediated gratification.

Humanity has arrived at yet another nodal point in our evolution. We have successfully multiplied, pillaged our natural environments and painted ourselves out of the picture of existence. Unfortunately there will be much more pain and suffering and probably a lot of dying. We know only too well that when socio-economic conditions breach that threshold line, wars inevitably follow.

And so thoughts turn to how best to survive, and better still, to transcend and thrive. I would propose that we have moved beyond 'branding', whether it is applied to the individual or to a product. We have arrived at the **'blended'** human being! As in a good coffee or whisky blend, there are authentic components which together create an offering of value. By its very nature, the blend is more than the sum of its parts.

The value contribution of the blend is to fulfill a need, a desire and in this way enhance the qualities of the recipients and indeed, of the environment itself.

I would suggest that we all need to self-reflect and identify our essence in terms of talents, skills, gratifying activities and so on and thereby create our unique blend. This should be a value contribution to ourselves, to others and to the extended environment. This takes hard work and courage, but if the blend is authentic the rewards will follow.

When all is said and done, human beings are social animals right down to their biochemistry. This flesh and blood requires to be part of a bigger community. Not a community of robots and LED screens, but a community of humans who have sensitivity and empathy ingrained in the depths of their cerebral cortices. It is a fact of life that many situations suppress our sensitivities and the ability to bond. But I have taken heart from personal experiences where I have witnessed callousness and insensitivities evaporate in a moment of need.

My belief is that we will not only prevail and transcend the pain, but we will individually and collectively evolve, re-connect with our human heritage and ultimately thrive. The very destructiveness of the impersonalization of mankind will drive us to re-discover our essence and create our value-contributing blends. The hulking, soul-destroying megaliths of business and politics will give birth to a new entrepreneurial spirit in the form of small contractors and service providers with heart and soul and with respect for the collective and the extended environment.

An awe-full story

It came to me while in the shower this morning (a place where one is showered additionally with oxytocin and the resultant enhanced clarity of awareness). Life, of the human variety, is enhanced in both quality and quantity, by **curiosity** and the **narrative** which follows. It is curiosity in its many forms that incorporates purposeful seeking. To seek, is a continuum which extends all the way from a focused pursuit to a more passive narration of the flow of conscious awareness of cognitive and emotional associations. The result is a narrative which chronicles the passing kaleidoscope of conscious bytes - our **imagination**.

This process is reflected in the brain in a structure referred to as the *hippocampus*. Originating from the Greek ἵππόκαμπος or *seahorse*, the word is derived from a combination of *hippos* – horse and *campos* – sea monster. There are two hippocampi, left and right, situated deep in both cerebral hemispheres. They each form a reversed 'C' depicting the seahorse, facing forwards. The hippocampus is the seat of short-term memory and is connected to the entire cerebral cortex. In this way it records memory, stores it in the cortex and catalogues it for later recall. But here comes the rub – memory is stored in the context of narrative – you would have difficulty in retaining information that was not recorded in a narrative context. Additionally, this entire process is driven by a dopamine feed. Dopamine is the stuff of engagement, gratification, achievement as well as **curiosity**. So let's put that all together: We derive personal gratification from an active curiosity and the achievement of creating a narrative, the stuff of our imagination. Now if we take curiosity a step higher to awe, we are showered with oxytocin – the stuff of empathy, belief and a subjective sense of connection to something much bigger than ourselves.

But it doesn't end there folks. Through the process of mirror-neuron activity, we resonate with the imagination of others. We lock hippocampi with the the writer or communicator and thereby experience the full octave of cognitive emotion. And in turn we secrete the same configuration of neuro-chemicals as the producer – we flow with the dopamine in a well-formed narrative where curiosity is sustained. And we also flow with the oxytocin when awe, empathy and connectivity is expressed.

Bearing in mind that raised levels of dopamine and oxytocin diminish inflammation and are immune-stimulating, we have the added bonus of enhanced physical wellness. And so without getting too dramatic it could be said that curiosity is life, while a life devoid of curiosity is a pre-morbid state!

I invite you to share this story with me:

"He was someone that kept very much to himself, but always very pleasant. In fact I would go as far as saying that there was something very calming and inspiring in his demeanour. He would go about his daily activities in an unobtrusive way, politely greeting all who passed by him. I knew that there was something very special about him and this was to play itself out so dramatically one Saturday afternoon. I was feeling particularly down. Things were just not going my way. I was already beginning to question 'what's it all about'. I remember sitting in the park, alone on a bench. I suddenly became aware of someone standing next to me. I looked up and there he was, with that calm, understanding look in his eyes. He beckoned me to walk with him. There were no words spoken. I just went along and followed him. We walked to the far end of the park. There was a steep drop just beyond the edge. And there for the first time I noted some stairs cut into the rock which descended to a small ledge. We walked down the stairs And into pure magic! The sun was setting and standing on the ledge we were bathed in pure golden sunlight. He put his arm around my shoulder and smiled. I couldn't help myself. The tears just welled up

Were you with me? Did you feel it? We just covered the full octave. I derived a great dopamine and an oxytocin 'high' from my original tweaked curiosity and the flow of imagination that followed. I wanted to share it with you, both for the acknowledgement of my creation as well as to inspire your curiosity and imagination to create your own piece of narrated magic.

I guess that's why we write. We experience personal gratification in the 'doing' and in the recognition as well as in the inspiring of each other to contribute our unique imaginations and thereby enrich this space.

The clinical space

Inspire

A true story. Not for the faint-hearted!

I'm sitting here alone in my consulting suite. My back is aching as well as my hands, after a grueling ten hour surgical list. On my screen is the MRI scan of a patient whose brain tumor was successfully removed five years ago. It was a patient that I also coached. Her case study was described in a buzz which I recently uploaded . And now ... a small recurrence of the tumor! And once again her re-growth has been preceded by another significant life crisis. And as I sit here pondering how we're going to manage this new problem, another dangerous craniotomy (brain surgery) or Gamma-Knife (a specialized form of irradiation) a troubling feeling is descending upon me – am I really making a difference? Yes it's a fact that I have successfully treated many and believe that a not insignificant amount of people have experienced alleviation of pain and suffering over my thirty years of private practice, however it's in the patients that I've failed to effect a lasting cure or in the ones that have been left with some unavoidable post-operative neurological deficit, that have had the greater emotional effect upon me. Strange, but true. The successes are mostly vaguely recalled, but the failures – permanently etched in my mind to eternity! And this is what I recall and feel every time I experience a case that I haven't managed to effectively treat and cure.

But it doesn't end there. Twenty two years ago I developed and implemented a coaching program. This was designed to enhance wellness and performance based on the integration of the neurosciences and psychoneuro-immunology, PNI (the scientific study of the mind-immune connection). Initially it was only applied in the clinical environment but evolved, in addition, to a corporate wellness, performance and leadership program. As a result, many of my patients with medical diagnoses as well as many without medical diagnoses were coached by me (You can divide the world's population into those with a medical diagnosis and those yet to get a medical diagnosis!) And so my successes and failures don't just reflect the neurosurgical domain but also the coaching environment, especially since many of the neurosurgical patients have received coaching as part of their treatment plans. And therefore the medical successes incorporate often the successes of coaching as do the failures reflect that modality of treatment.

Since I'm now drifting into 'am I making a difference' mode. I can't help conjuring up my failures. I remember so vividly a patient ten years ago in his late forties, who presented with the most malignant of brain tumors, a glioblastoma multiforme – the

dreaded GBM! I have never had anyone survive more than two years with this tumor. In this particular patient's case, his diagnosis had been preceded by a major life crisis (nine months before diagnosis). His closest friend, who was also his business partner, defrauded him of a substantial amount of money. It was not just the fraud but the fact that it was a close friend, that resulted in uncontrollable reactive anger and hostility. I have noted through the years that it is often chronically harbored hostility that is associated with the development of subsequent 'organic' illness. And so I removed the tumor, arranged for post-operative radiation to be directed to the tumor site and then began working intensely at a coaching level to facilitate some dissipation of the anger and hostility. I even encouraged the patient to attend a workshop that I facilitate for coaches. Nine months later the patient presented with a recurrence of severe headaches and a grand mal seizure. I re-scanned him immediately and there was a massive re-growth of the tumor. Two months later my patient died. His last words to me on his deathbed were 'Sorry doc. Just couldn't let go of the anger!'.

And in the pure coaching environment there are two specific archetypes that I have found to be the most intractable to any amount of intervention and the least amenable to change. The first is the individual with a low self-esteem who is often the product of significant nurture deprivation. They are pessimistic and generally see and expect the most negative aspects in everything. They genuinely believe that they are not deserving of personal gratification. As a result of their low self-esteem, they are unable to assume responsibility for their own wretchedness and generally find someone or something to apportion blame for their situation. To make matters worse, they have often suppressed their emotions due to the associated pain. But the suppression is applied also to their cognitive function – they fail to acknowledge or even perceive many aspects of their environment which are painful or inconvenient. It is in this archetype that one discovers the 'schadenfreude complex' – This is the individual that derives gratification from other people's suffering possibly related to an early component which crept into their life narrative which goes something like 'Why should I be the only one that's suffering?' The prevailing low self-esteem, the inability to take responsibility for themselves and their general hopeless-helpless outlook on life, makes coaching for change a very frustrating exercise. My success rate has been very low with these individuals over the years which is regrettable since these individuals are the most prone to chronic inflammatory disorders.

The second archetype which is really a hard nut to crack is the 'Snarly'. These people are usually the products of moderate deprivation. They live in a space characterized by an obsession with self-interest. They need to be recognized, respected and adored. They suffer criticism badly, usually hitting back with a not so subtle reaction. They are typically judgmental (disparagingly so) of others. This archetype is too preoccupied with their own self-importance to the point that they are invariably insensitive to others and their subjective spaces. The Snarly is highly controlled and controlling and derives gratification from outsmarting others (providing a great source of personal gratification). They can be very warm and accommodating, which is the lure for gathering more adoring fans and holding on to existing ones. But deep at the core the Snarly is insecure and driven by the fear of failure, loss and abandonment. The Snarly will only consider accepting information that is authentic, validated and conforming to their subjective limiting beliefs. They will delete, distort or discredit any information which is inconvenient in regard to their subjective beliefs or threatens their existing world view. As a result, it is very difficult and tedious to attempt to bring about change in a Snarly. The only times that I was able to access a Snarly and make some headway towards change was when either they or their spouse was diagnosed with a serious illness – but then it was invariably too late to follow the coaching route for change.

And so my failures wash over me and I feel a subtle drift towards a mini-existential crisis. Am I making a difference? I decide to take a walk to the pharmacy to pick up some supplies for the practice. And it is here that the universe delivers an answer – a cathartic moment occurs. To provide the dramatic context for what happens at the pharmacy, I need to take you, the reader, back twenty eight years, to my second year of private practice.

I arrived at work one Monday morning. Parked the car, feeling generally fired up for the week, and walked up to my consulting suite. And then all hell broke loose. A referring neurologist was sprinting towards me and shouting my name (a very unusual occurrence, since neurologists generally don't sprint anywhere!). Breathlessly he screeched to a halt next to me and shouted ' Get to the scanner (MRI scanner) urgently, we're in big trouble!'. And so I hurried with him to the scanner. The situation was dire, even by neurosurgical standards. A young girl, ten years of age, was lying deeply comatose on the scanner table and was being resuscitated. On the screen I could see a massive brain hemorrhage. Knowing that there must be a vascular cause for this (there had been no head trauma) I insisted on an urgent angiogram (injecting of dye to outline the blood vessels in the brain).

And there it was. One of the ugliest AVM's I had ever seen (arterio-venous malformation). Literally a massive collection of primitive, thin walled blood vessels, a bag of worms, on and in the brain. One of the vessels had bled, which they tend to do in young people.

We were now in a desperate emergency situation. The child was dying. Got the OR (operating theatre) ready, anesthesiologist waiting and urgent blood for transfusion ordered. Patient on the table, head clamped into position, shaved, cleaned draped. Scrubbed, incision marked. Skin cut, flap turned. Pneumatic drill and saw, bone window made and removed (craniotomy). Anesthesiologist yelling 'BP dropping!' What more can I do? I'm going as fast as I can. Dura mater exposed (the membrane covering the brain). It's a horrible blue color, bulging out the head with the pressure of the hemorrhage. Incise the dura, blood explodes out. There's congealed blood and active hemorrhaging. I start suctioning and there comes into view the ugliest bag of slithering blood vessels. They're everywhere. Swing the operating microscope into place. One real fat bugger of a blood vessel is actively hemorrhaging. Zap it immediately with the coagulator and the bleeding stops. Now begins the real problem. I have to identify which are the feeding vessels, the arteries, and which are the draining vessels, the veins. They all look the same. The problem is that if you clamp off the draining veins before the feeding vessels, the whole thing will swell with pressurized blood and explode on the table (I saw this happen once before). That would be the end of the patient. We would never be able to control that kind of a hemorrhage. And so I systematically test each vessel, identify the feeders, clip them and cut them. And then to the next, and the next. Slowly I test, clip and cut and dissect the entire bag of worms out of the brain. Finally the last and deepest draining vein is identified, clipped and cut. The whole bag of worms is then rolled out of the brain. Now I explore the brain. Some superficial damage, but not too serious. Child is now stable. Swing the microscope out. Close dura with a graft, replace bone window and wire it in place. Insert drain, suture skin, apply dressing. Take the head out of the clamps, bandage. Transfer to Intensive Care for ventilation for a further twenty four hours.

Twenty four hours later we start waking the child up. She has a severe weakness over the left side of her body. Over a week there is some improvement. She is now cognitively almost back to normal. Once she is stable and the head wound healed, she is transferred to a neuro-rehabilitation facility for intensive rehab. At the three month follow up she has made excellent progress, still weak but now walking with the aid of a supportive walker.

Fast forward back to the present. I'm standing at the counter chatting with the pharmacist. I'm aware that standing next to me is a beautiful woman in her late thirties with two children. She turns to me and asks 'Are you Doctor Weinberg?'. 'Yes', I reply. 'I don't think you'll remember my name, but I was that ten year old little girl that had the brain hemorrhage and nearly died!'. I look at her totally transfixed. She continues, 'I'm thirty eight now, I have no neurological deficits. I graduated as a lawyer and these are my two children!' I am not able to articulate the emotion that I felt at that moment. Let's just say that it's the closest I came to a gush of tears in my own clinic

I'm back in my consulting suite. I feel completely discombobulated. Something profound has just happened. I'm trying to make sense of it. There's a message in here somewhere. And then it comes to me. It's not about being driven to changing other people. It's about applying those changes to yourself. To ensure that you try and be the best that you can be. To apply all those coaching interventions to yourself so that you 'walk your talk'. And then contribute the best that you are to all that share your environment , leading by example. We need to continue to enhance ourselves in terms of knowledge, understanding, skills, sensitivity and awareness and then contributing value to our environments. We can't hope to change people. This is something they need to do for themselves. And we can't control everything and fix things to conform to our own expectations. But one thing we can always do we can aspire to inspire!

Enrolling in the University of Life

It was a crazy time. One of those brief pauses in the path of life occurring between the end of one formal chapter and the beginning of the next. I had completed my internship and was soon to commence my two years of obligatory military National Service (after postponing to study medicine). In the days of apartheid South Africa, every able-bodied eighteen year old white male was conscripted into the military for two years. This included three months of basic training and then invariably a several month tour of duty in the Operational Area (war zone – the border between what was to become Namibia and Angola). And so I had six months to play with. A young doctor, driven by a hormonal mix of testosterone and some lesser important ones and seeking much dopamine gratification, I decided to take up a temporary medical position at a hospital in Durban. This is a large city on South Africa's east coast. My list of priorities for that short period were firstly, young nurses, then surf-skiing and then possibly some research into a subject that intrigued me – the body electric field.

And so began a crazy, multi-faceted dopamine binge. My first day set the scene for what was to come. I was a junior resident in a medical ward, senior to three interns, two of whom on our first ward round on the first day of the year, were still somewhat inebriated from the all-night New Year's party! And then there was that awe-inspiring view of the Indian Ocean as seen from our ward, since the hospital was situated across from one of the main beaches. We soon settled into the 'new normal'. When our unit was not on emergency intake (intake of urgent patients for admission), we would get our ward work done as soon as possible so that we could get into the sea by the latest, at 3.30 pm and surf for about 2 hours. My car was always parked in the hospital parking with the ski's on the roof-racks, ready for immediate action! This was before the days of mobile phones. So if we were needed to attend to a problem in the ward, the ward sister would wave a towel out of the window, with our individual pre-selected colors!

And then there were the nights. These were centred around the watering hole, the pub in the Doctor's Quarter's (DQ) where much fluid passed and was shared ... especially in the surrounding rooms. For this is where we engaged with the lovely ladies of the wards, the nurses. There were several hundred young nurses living in the nurses' residence. And if you didn't get lucky with any of the young nurses, there

was another building where 'old' nurses lived (late twenties) which was referred to as 'Menopause Mansions'. This was the back-stop where one of the ladies would always oblige to take up the slack! And so we indulged. It became a delicious blur of medicine, women, alcohol, surf and the many barbeques on the beach. This dopamine-driven instant gratification however was not sustaining and indeed not sustainable. And so I sought to introduce a new component into the hedonistic blur. The new element was clinical research – arguably the weirdest period of research that I have ever undertaken.

I had become familiar with a lot of the work done in the sphere of Kirlian photography. These were pictures apparently depicting the body aura and captured on photographic film. I decided to try and isolate the electric field, measure it and then see if it correlated with identifiable mind states. So I began searching for an oscilloscope and other required apparatus. But to no avail. At this point, one of the technicians suggested that I get in touch with Frank McGee.

Frank was a legend. A former member of the bike gang the 'Hell's Angels', he ran the electronic diagnostics division situated in the out-patients department of the hospital. He had left school at the age of fifteen to go out and work. But Frank was a true genius, as I was to find out. I was directed to his office. Several medical personnel were seated around a large desk. They included residents, interns, nurses and technicians. Like real 'groupies' they were drinking up the energy of the master. For sitting behind the desk was a giant. Easily six foot six in all directions, with a flowing black beard, steely blue eyes and a scar diagonally across the forehead, he peered at me and enquired 'yes?'. I responded, 'I'm looking for Frank McGee'. To which he answered, 'Who wants to know?' I introduced myself and indicated that I was interested in analyzing the body electric field and correlating it with mind states. Frank stared at me for a while and then turned to the groupies and said, 'All of you, fuck off out of here!'. Obediently they all rose and left.

And so began the studies. We worked after-hours to keep away from prying eyes. The technology for those years was state-of-the-art. The subjects were wired up and lay in a Faraday cage (complete metal-lined room and door) to shield against electromagnetic interference. We recorded the wave forms on a paper strip recorder, magnetic tape and monitored the wave form through an audio system. We were in

fact LISTENING to the body electric field! We also had two-way audio communication with the subjects in real time which was referenced with changes seen on the recordings.

We eventually isolated a wave-form which appeared authentic and not due to any interference. This was confirmed on Fourier analysis. Thence began the correlations. I found subjects and paid them ten bucks for an hour on the machine and also to complete a questionnaire. And so we discovered low amplitude, low frequencies in the depressed and hopeless-helpless, high frequencies in the exuberant, the meditators and those in pain. And in the high frequency fields we often detected 'streamers' – high frequencies that could be sensed more than 12 inches off the surface of the body.

One Sunday morning, heavily hungover, Frank and I decided to put in some extra monitoring time. I chose one of the ladies from 'Menopause Mansions'. We adopted our usual postures in the control room – slumped in our chairs, talking crap and listening to the audio of the field in the background. Suddenly we started detecting streamer after streamer which threatened to wreck our strip-recorder. I immediately buzzed the subject and asked if all was well. No response. I then opened the heavy door to find a blushing young lady. I asked if she could elaborate on what had just happened, in mind or body. Adding that all was confidential and 'trust me, I'm a doctor!' (even though I looked more like a hungover junkie at that moment.) Reluctantly she indicated that she was reliving the previous night's passion! Wow we had just recorded erotic passion in the body electric field! On witnessing my jubilation, Frank became a little concerned that we might morph into a Masters and Johnson-type sex therapy laboratory!

We needed to monitor a child's field. The charge sister in my ward was happy for her child to be a subject. So we wired him up, allayed anxiety and ran the recording for an hour. Then something strange happened. The child had departed already and we wanted to play back the recording, but we couldn't clear the machine of the child's wave form. Even with a full re-boot, the wave-form appeared again. This continued until exactly 6.00pm on the control room clock. Then it cleared to a flat-line and we were able to continue. The next day mom asked what we had picked up on her child's field. I told her what we had encountered, with the activity that wouldn't clear.

Mom went pale. She indicated that the child wouldn't let her remove one of the stick-on electrodes, on his forehead, until he had his bath at 6.00 pm.... Co-incidence?

At the end of each period of study, usually about nine at night, I would drive Frank home. He couldn't drive due to a gummy leg resulting from crashing his Harley. We took a route through the university and often parked the car in the deserted campus. Here we discussed the day's research findings and much more. There was something about the empty campus at night which was conducive to inspired discussion. Frank and I, from such different backgrounds, became so aware of the multi-faceted nature of the human being and indeed of life. Frank was very well read and had experienced so much in a parallel universe that the insights which he shared with me in that strange space became the foundation for a much broader inquiry into life in later years.

Too soon the six months came to an end. It had spontaneously formed, organically developed its own momentum and left me forever changed. I was only to see Frank once again ten years later, very briefly. The research was not completed and in fact was never adequately refined for peer-reviewed publication. But its value for me had really been in the doing.

Before I knew it I was in uniform, conscripted into the military. And shortly after basic training, found myself in a forward operational base in the midst of a war in the African jungle. It was our 'forgotten war' our Vietnam and many died, including two of my medical colleagues from my medical school class, who fell in the line of duty. I grew up ... fast!

On the matter of death

With so many well known and lesser known individuals dying, I thought it appropriate to share the subject of 'death' with you living folk. 'Living' is a relative concept incorporating the full spectrum of life – vital, optimistic, value-contributing, inspiring; idling in obligatory existence; pre-terminal existence.

I guess I was just one of those people destined to engage professionally with much human death. And so I've become somewhat of an expert in matters of death. I am in fact a 'mortologist'! My earliest recollection of death was awakening as a kid of six years old or so, in a full anxiety state mortified by the fear of dying. I needed serious consoling which came in the form of my mom assuring me that I wasn't going to die and that I should go back to sleep. And indeed life continued. My next encounter with death was the sudden passing of 'uncle' Joe. He was our electrical repairman who suffered a sudden and fatal heart attack in his mid-forties. I was devastated. How could a person so much alive be suddenly so dead and no more? There was a feeling of loss, desolation, hopelessness and a touch of foreboding. But this too, passed. Until the death of my mom's brother, uncle Mike. I was now fifteen years old, living within the dogma of religious orthodoxy. Uncle Mike had been tragically killed by a speeding vehicle while walking home from the synagogue. The entire family was traumatized. The wheels came off from daily life for a while. I remember exiting the synagogue the night after Mike's death and looking up at the clear, starry sky with the moon perched on the horizon and thinking 'where is uncle Mike?' and 'where the hell is heaven?'

Uncle Mike's funeral marked my first visit to a cemetery and my first funeral. The coffin containing uncle Mike's final mortal remains was wheeled in and at that moment the background weeping morphed into a crescendo of sobbing and wailing appropriate for the tragedy. Numbed, I was swept along in the wake of the loss, the finality and the end of a life. Standing at the graveside I listened to the Rabbi as he affirmed with authority that 'the Lord giveth and the Lord taketh' and that uncle Mike was such a good and righteous person that the Almighty chose to recall him to His side. And I thought, no way. This is bullshit. And so began my permanent separation from religious dogma and formal religion in all its forms.

I arrived for my interview for a post as a junior resident in neurosurgery towards the end of my time as a military conscript. In the interview with the chief of the unit, I remember vividly one particular question put to me by the Prof. 'Do you have a strong right shoulder?', he inquired. I thought it to be a trick question at the time.

'Pretty average, Prof.' I responded. 'Well...' continued the chief 'you need a strong right shoulder to do neurosurgery because wherever you go and whatever you do, you will always carry the Angel of Death on your right shoulder!' A great inspiration on the threshold of commencing a difficult and stressful profession!

And death there was aplenty. Not only in the practice of neurosurgery, with the head injuries, brain hemorrhages malignant tumors and the like, but also in the fact that protocol required that all brain dead patients had to be assessed and removed from life-support in any of the hospital departments, by a neurosurgical resident. This applied especially to the brain dead whose organs were to be harvested for transplantation. We were awash in blood, tragedy and death. So much so that when a new funeral home opened its doors, the only clinicians invited to the grand opening were the neurosurgeons!!

There occurred a pivotal moment in the course of my residency. An encounter with tragic death of the worst kind which finally drove me to begin formulating some kind of sustaining, personal philosophy to ease my passage through this extreme profession. I was called one day to the ER, as the resident on emergency call. I arrived in the ER only to find it deserted of all humanity, bar one nursing sister who was seated at the nurse's station, weeping. Without saying a word to me she pointed to the main entrance. I had no idea what was going on. I walked to the main entrance and there was parked the 'disaster bus', an ambulance bus used for large numbers of casualties. Again, no sign of people or activity. I climbed on the bus ... and seized up in shock at what confronted me. A bus full of dead children lying on side shelves three high, from the front to the back of the bus. All unscathed and still in their school uniforms. And all were drenched. I walked slowly down the length of the bus trying to absorb this macabre and tragic scene. I then found out that a double-decker school bus had driven off a bridge into the lake below. These were the drowned fatalities. Protocol required that the bodies be brought to the nearest ER for certification before transfer to the State Mortuary.

And so began my life-long study of death. Not the physiology of death but death in a greater context. We're all going to die one day. That's an absolute fact, as real as having to pay taxes (for most of us!) But the 'why', the 'when' and the 'how' were the factors that intrigued me. And so I broadened the scope of my clinical enquiry. I questioned patients and their relatives about life preceding the diagnosis and/or death. This enquiry included personal and professional life, beliefs, emotions and in many cases, nurture history. In addition I began formulating a sub-sample of such patients who had survived near fatal physical trauma only to develop a malignant

medical condition within two years, and vice-versa, patients who had survived malignancies only to succumb to trauma soon thereafter. Yes, the statisticians would have a field day ripping me apart with the small sample. There's a lot of people suffering fatal injuries and there's also a lot of malignant tumors around, so there's bound to be overlap. But I knew these people personally and therefore while this may have been closer to anecdotal, I was familiar with their life profiles and prevailing causes and effects.

My conclusions in summary: The high risk life situations that predispose to death from illness and/physical trauma include –

- Nurture deprivation and associated compromise of emotional health, predisposing to periods of great fear as well as recurring, profound periods of hopeless-helplessness in the teenager or adult
- A prolonged and pervasive existential crisis characterized by a subjective feeling of terminal hopeless-helplessness (the male of the species often suppresses these feelings)
- Inappropriate and extreme fear which becomes an obsessional focal point of existence, eclipsing any potential positivity, optimism and hope
- In the case of children under the age of six years that died (brain tumors, terminal meningitis) there was a high incidence of discord at home (chiefly, parental separation and/or divorce). It was as if the children absorbed the pain.

Based on over twenty years of coaching those with potentially terminal illnesses, I have come to realize that we are often not aware of subtle and often suppressed feelings in others, including those close to us. In fact the afflicted have often not engaged in any meaningful way with themselves and are unaware of potentially damaging, deep seated emotions. As regards the potential influences in the environment, we know only too well that loss of a close friend or relative can precipitate a pre-morbid cascade of emotions which may result in the death of the responding individual. The classical and documented example is the death of a spouse relatively soon after the death of the partner following a long term relationship. This for me clearly illustrates the precipitation of a potentially terminal hopeless-helpless mind state which may culminate in death unless 'revived' by some new meaning or purpose.

Let me play out with one of my favorite poems yes, you guessed it - **Death be not proud** by John Donne.

Death, be not proud, though some have called thee
Mighty and dreadful, for thou are not so;
For those whom thou think'st thou dost overthrow
Die not, poor Death, nor yet canst thou kill me.
From rest and sleep, which but thy pictures be,
Much pleasure; then from thee much more must flow,
And soonest our best men with thee do go,
Rest of their bones, and soul's delivery.
Thou'art slave to fate, chance, kings, and desperate men,
And dost with poison, war, and sickness dwell,
And poppy'or charms can make us sleep as well
And better than thy stroke; why swell'st thou then?
One short sleep past, we wake eternally,
And death shall be no more; Death, thou shalt die.

The shameless and the damaged

It was the last consultation of a long and tedious day. Shawn presented with chronic headaches. In taking the history, I enquired how long the headaches had been present. Shawn indicated that they had been present since a traumatic time in his life which had occurred five years previously. I asked him to provide some details regarding this 'traumatic time'. 'Have you got the time Doc?' enquired Shawn. "Give me the summarized version" I responded. And so Shawn began to relate the details of this 'traumatic time' of his life. I was astounded by what I was hearing. I requested that Shawn pause in the narrative while I allowed my staff to shut down and leave. I locked the door and requested that Shawn continue with the unabridged version of the narrative.

From the copious notes that I took during that consultation, let me now share Shawn's story with you.

I was an only child. I have no memory of my father. He left my mom soon after I was born. Our family consisted only of me and my mom. Mom had to work to keep us going. She worked long hours and invariably I spent many hours alone in our small apartment. I had no real friends to talk about. There was a small wooded area near our apartment where I spent a lot of my time. It became my habit to think aloud. Then I was having conversations with myself. Not long after that I began having conversations with imaginary people in my fantasy world. Sometimes I even conversed with the trees.

Soon I began to attend school. I felt very different from the other kids. I kept very much to myself because I didn't know how to engage with others. From time to time I was the victim of mockery and abuse and on at least one occasion suffered cuts and bruises from being physically abused. This only served to alienate me further. I was very much the loner. My solace was still my conversations with the people of 'my world', my fantasy space. I used to share my pain with them and they use to provide solutions to help me deal with the pain of my daily life.

I remained a loner until completing my schooling. At eighteen years of age I was a complete loner without having formed any relationships. I had only 'my friends' in the fantasy space. I had however become an avid reader. My favourite author was

James Joyce. I got a job as a cashier at the local grocery store. It was here that the fateful moment occurred which was to result in the most extreme of trauma's. Something which would forever change my life. I was at the back of the store during my lunch break. Thinking that I was alone, I began talking with 'my friends'. Unbeknown to me, the manager of the store was standing behind me. Suddenly he approached me. "Who the hell are you talking to Shawn?" he asked. I was totally embarrassed. I could only shrug. "Hang on man, you're sick! You'd better get to see one of them shrinks urgently." he continued.

Somehow, between the manager and my mom's involvement I soon found myself face to face with a psychiatrist. "How long have you been hearing these voices?" enquired the doctor. "Ever since I can remember" I responded. "What do they say to you?" he continued. "This and that" I responded. The doctor looked at my mom and then back at me. "Can you please leave us for a moment. We'll chat with you shortly" requested the psychiatrist. I left the room. A short while later my mom exited the room and joined me in the waiting area. She indicated to me that I would need to attend an assessment the following day at a psychiatric hospital. I had no idea what was going on.

The following day we arrived at the psychiatric facility and were directed to the 'Interviewing Room'. We were soon joined by three doctors who began questioning me. Once again I was requested to leave the room. After a while I was recalled. I noted that my mom had become very tearful. It was communicated to me that I would need to remain at the facility for 'further tests'. I remember my mom hugging me and now sobbing. I looked enquiringly at the doctors and again at my mom. There was no explanation forthcoming. I recall shortly thereafter that two burly orderlies arrived and escorted me to 'my room'. I was surprised that access was restricted by heavy metal doors. But I didn't think too much of it at the time. I just assumed that it was a feature of the facility.

The room was sparsely furnished with a basic bed, table and chair. There was a window. Again the relevance of the bars across the window escaped me at the time. Soon there appeared a nurse with medication. I enquired what it was for and she responded, "Just something to make you feel a little less anxious." It is difficult to describe the feeling that overcame me about an hour after taking the medication. I

developed tunnel vision and all my thinking slowed down. I also felt no emotion. Movements slowed down and were becoming robotic. I no longer reflected on my surroundings. I felt as though I was walking through thick syrup. The best I can describe this was being wrapped up in a chemical straight-jacket! Soon I was asleep. I was awakened and escorted to a dining area. I had no idea what the time was or how much time had lapsed. In the common dining area I met other people. They all appeared to be moving very slowly. Some needed to be physically placed on chairs and fed. Others were mumbling to themselves and exhibiting repetitive movements. The food was placed in front of me, which I reflexly ate. I had no idea what it was that I ate.

After the meal I was directed to a lounge area where there were old chairs a table or two and a TV. Some of the people were seemingly engaging in some conversation, but the majority appeared to be locked into their own worlds. I sat there numbed, not able to make sense of where I was and what had just transpired in my life. After a period of time I was directed back to my room. Once again I was given medication. I knew it was now night-time since it was dark outside of my window. I soon fell asleep.

I was awakened the next morning. I was completely disorientated. Upon being awakened, I was once again instructed to swallow the medication. I have very little recall for the hours and days that passed. Then one afternoon the burley orderlies escorted me to the 'Interviewing Room". Seated there was a doctor. Amongst other things he asked me if I still heard voices. It suddenly dawned on me that I hadn't engaged in any conversations with 'my friends' since arriving at the facility. In fact I had had no thoughts that I could recall. "No" I said. "Good", responded the doctor. "We're making good progress".

"Progress in what?" I managed to ask.

"In your illness" he replied.

"I'm not ill." I replied. Something had now triggered a raw nerve. It had been a while since I had taken my medication that day and so some faculties were functioning. I continued, "In fact I don't wish to stay here any longer. I demand to be released. It's my right."

“You have no rights in this place. You are an inmate of a psychiatric facility where the medical staff are mandated to ensure your safety and the safety of others” he declared.

I was shocked at this realization. I was a prisoner. For some reason beyond my comprehension I had been labelled as ‘ill’ and removed from my daily life.

“How long am I to be kept here?” I asked.

“As long as it takes to effectively treat your problem”, he answered.

Something deep within me was suddenly triggered. I was alone, powerless, and helpless. Frustration morphed into anger and then rage. Immediately the orderlies were summoned. I was man-handled and strapped to a gurney. Next came the needle and I was injected with some mighty substance. I felt a buzzing feeling and then everything melted into oblivion.

A far off noise. A slow emergence. I found myself in a foreign place. I was in a cell-like room, on a bunk. There was a high ceiling with a single light. In the one corner there was a toilet and basin. The walls were padded with a canvas-type material. It slowly dawned on me that I was alone in a padded cell. I was fed through a slot in the door. I was given no utensils. I ate with my hands. My medication was now much stronger. I have very little recollection of that time. I have no idea how long I was kept in that cell. Each moment melded into the next. There was no day and no night.

At some stage I was moved back to my room. Numbed and devoid of thought and emotion I existed as a living, breathing zombie. There was only a vague awareness of others. Some time later an idea emerged from the depths of the fog. I would feign taking my medication so that I could regain my living faculties. And so I freed myself of the chemical chains. But with emergence returned the same frustration, helplessness and rage. I spontaneously erupted one day at mealtime. Again the ‘burley twins’ were quick to subdue me and strap me to a gurney. This time there was no needle. Much worse was to come. I was wheeled to a clinical section and kept in a waiting area for what seemed like hours. I was then wheeled into an OR. I was told that I was to receive electro-convulsive therapy – they were going to anesthetize me and pass an electric current through my brain to stabilize me for ‘my own good’. And so it was.

I awoke in a bed. It wasn't my bed nor my room. It was a big room with other beds. It took me hours to begin to piece together who I was. Fragments of old memories were the first to emerge. And then, over days I began to recall 'this place' in which I was imprisoned. A therapist arrived at some stage to help me out of the bed. But I had extreme difficulty with standing and walking. The disorientation caused me to feel as though I was walking horizontally along a wall!

And then at some stage I was returned to my room. I was no longer 'self' . I was a 'thing' beyond definition or context. There was no longer a past or a future. There was only floating fragments of sound, color and a body on auto-pilot.

One day I was escorted to the 'Interviewing Room' again. There was a new doctor, a woman. She seemed to be genuinely interested in how I was feeling. Perhaps as a result of the connection, some emotion was triggered. I began to cry. And through the tears I told her that a great injustice had been perpetrated against me. That I was just a loner, engaging with my own world. I was holding down a job and had harmed no one. And yet the powers that be had reduced me to a functionless zombie.

Her response was sincerely empathic .“You were diagnosed as being a paranoid schizophrenic by three of my psychiatric colleagues. You were admitted to this facility to stabilize you and ensure that when you are released, you will not be a danger to yourself and others. On two occasions you had become so violent that you needed to be subdued and isolated on the first occasion and and on the second, you required electro-convulsive therapy.”

“My rage was as a direct result of my frustration and sense of helplessness at being locked up in this place, without explanation or hope” I responded.

She gazed at me for a while and then said,” Ok, I will personally take an interest in your situation and recall you to a consultation in a month's time. If you indeed are assessed as having become stabilized, I will motivate for a release with follow-up treatment as an out-patient.”

And so began the period of probation. I behaved as a model zombie. I took my medication on cue and co-operated with all the staff.

One month later I was escorted back to the 'Interviewing Room'. There were several doctors present, including the woman psychiatrist. There were also senior nursing

personnel present. I was interviewed at length. I was mentally sharp and appropriately responsive.

On gaining some confidence I made my definitive statement, the one that I had practiced so many times before, for this moment. "I want to state to this committee that I have been wrongly incarcerated in this facility. This is clearly apparent by my exemplary and appropriate behavior over the past month."

One of the older psychiatrists in the committee fired back, " But that's because of the medication that we've kept you on."

I stood up and dug my hands deep into my pockets and produced all the medication that I was supposed to have taken over the full month! I had feigned swallowing the tablets and kept the accumulated collection in a concealed space in my room. Jaws dropped and eyes looked to each other and to the floor. The following morning I was recalled to the 'Interviewing Room'. There were doctors present as well as two non-medical individuals who I was introduced to as representing the Department of Health and the Department of Justice. It was put to me that if I signed a document absolving the respective departments of wrongly incarcerating me in a psychiatric facility and undertaking never to litigate against the said departments, I would be immediately released.

I signed the documents and was released. I was not referred to any out-patient psychiatric clinic nor prescribed any medication.

The law in our country at the time that this drama played out was that the signature of three independent psychiatrists was sufficient to institutionalize a psychiatric patient. The length of time of incarceration was at the discretion of the attending psychiatrist. Through my professional connections I was able to verify that Shawn had been incarcerated for a period of eight months. There were no further records following his release and most notably, there were no follow-up medical recommendations.

An ode to my mentor

From the moment that we roll out into this big bad world, we receive instruction. First it is from our mothers or primary care givers. Then follows formal teaching through the schooling years. Some of us continue into tertiary education, receiving tuition in support of a degree.

One form of teaching however, stands out apart from all other modes of instruction. This is **mentoring**. Mentoring is a form of instruction which incorporates teaching and coaching with the aim of enhancing ability, self-awareness, awareness of the environment and value contribution. Additionally, resilience and fortitude evolve. Mentoring is unique in that the mentor takes a personal interest in the development of the mentored individual such that the gratification of achievement experienced by the recipient is shared by the mentor.

I regard myself as privileged, in fact blessed, in having had a mentor that nurtured me through my higher degree. Born in Holland, Dirk emigrated to South Africa as a child. Since the Dutch language has so much in common with Afrikaans, one of the two original official languages, Dirk was raised in a rural Afrikaans community and consequently Afrikaans became his mother tongue.

Dirk managed to attend university and subsequently graduated as a medical doctor. For several years, Dirk served his community as the beloved family doctor. At some stage Dirk tired of the life as a family practitioner and sought more ambitious pastures. Since he was bestowed with gifted hands together with a keen interest in the evolving field of neurosurgery, Dirk soon found himself specializing in this area of medicine.

After completing his studies in the UK and graduating as a neurosurgeon in the proud English tradition, Dirk returned to South Africa and set up a private practice in neurosurgery. After several years in private practice, Dirk yearned to begin teaching new and up and coming candidates in the field. Consequently he gave up private practice and took up a full-time academic teaching post.

When I commenced my neurosurgical training as a junior resident, Dirk was the Principal Consultant (one level below the Professor and Chief of the department).

From the outset, Dirk whom I respectfully referred to as 'Meneer' ('Sir' in Afrikaans), took me under his wing.

He taught me the history of surgery and neurosurgery, about which he was passionate. Like most neurosurgeons I developed great pride in our pioneers (starting with Harvey Cushing, the first definitive neurosurgeon) and our history. I learned the names of all our surgical instruments, many bearing the names of their original developers to this day.

From his early days as a family/community doctor, Dirk maintained a special connection with his patients - a genuine non-judgmental sensitivity which he incorporated into my learning experience. This was further supplemented with Dirk's admiration for the comprehensive hands-on clinical approach of the British tradition of medicine. As a result, my clinical training was very much at the bedside. Special investigations such as blood tests, scans and the rest, supplemented what was gleaned from the clinical evaluation. Dirk always emphasized that the history and examination should already have provided most of the contribution towards the diagnosis, with special investigations merely fine-tuning the nature of the pathology.

This was so poignantly illustrated when Dirk was a visiting consultant at one of the big neurosurgical units in the US. While trailing at the back of a large entourage of surgeons on a ward round led by a 'big name' neurosurgical Professor, Dirk noted that the elderly lady whose bed they had just passed, appeared decidedly ill. Dirk called out to one of the residents, indicating concern for the woman's condition. The resident responded, "Her parameters are within normal limits", implying that since her blood tests indicated normal indices, the patient was fine. As it happens, the patient died before they completed the ward round! Dirk related this to me on his return, ending the account with " and so there was nothing to worry about since the patient died with *normal parameters!*"

My surgical training was comprehensive in every way. Dirk had masterful hands with technique and experience to match. And so I was mentored in the classical methods as well as in the newly innovated approaches. First Dirk performed the procedures with me assisting and then he assisted me in turn, before letting me go 'solo'. Often while assisting me, he would whistle or hum some classical music piece and asked

me to identify it. Since I was ignorant of most of the classics, I invariably couldn't identify the pieces, to which Dirk responded 'you bloody barbarian !'

During my training, micro-vascular surgery was evolving as a new and essential component of neurosurgery. We didn't have our own training lab so Dirk and I set up our own. We were both averse to sacrificing animals in this regard. So I came up with the bright idea of using human placentas as a source of blood vessels upon which to hone our skills. Since we had an obstetric department with labor ward in our hospital, we had a ready supply of placentas. Therefore on regular occasions I'd make my way over to the labor ward to pick up a placenta or two. This was always met with the chorus from the sisters, 'Here's the nutty neuro resident again scrounging for placentas!' Dirk and I would then spend hours together working under the microscope, perfecting our techniques.

We had many wonderful chats together in his office. Our Friday afternoon ritual was to pick up our cups of coffee in the ward tea-room (cups only two thirds filled) and then proceed to Dirk's office. After closing the door we would top up the cups with a ready supply of whisky! Thereafter followed discussions ranging from neurosurgical issues, politics, philosophy and of course to the 'hot' new red-head nurse that had just started in the ward!

Indeed I was privileged and blessed to be mentored and nurtured in the art and science of neurosurgery as well as in many aspects of life itself. I remember Dirk's visible pride in my evolution as a neurosurgeon and how he celebrated my graduation.

This post is thus dedicated to the sacred memory of Dirk - my teacher and mentor. With much respect and appreciation. *Dankie Meneer. Rus in vrede.* Thank you Sir. Rest in peace.

The extended environment

As a light to a flame

He stood there alone. All around him lay destruction. Still smoldering was the skeletal remains of his homestead. There was an eerie silence apart from the occasional breeze and the rustling of some debris. At his feet lay the mortal remains of his erstwhile life partner, now a lifeless corpse no different from the rocks that lay alongside.

He had passed the anguished time, the extreme fear of pending loss. It was all lost. There was nothing left. His fields were blackened and charred as far as the eye could see. He was numbed as he stood fixed in an eternal moment of nothingness.

Slowly some thoughts began to trickle through the undefined fog, fragmented and random. Was there a higher meaning for this devastation, this end? Was it fortuitous as are all devastations since the beginning of time? What were his thoughts and feelings in that recent past time, in that life now gone forever? They were dealing with his partner's illness which had no real prognosis. She was already making her peace with her inevitable end. And yes there was no hope for her and for them as physical life partners. And yes the drought had been severe for three years and daily life was tough and thankless. And he had begun to feel hopeless and helpless in the face of the relentless challenges.

Was there some bigger and all pervading space with which we and all that we are, eternally connect? Did it not influence our origins as physical beings and continually reflect who we are and materialize that which is synchronous with all that we are, always?

If it is so, then standing in the desolation of all that devastation and loss with no spark of hope and inspiration, he would surely succumb soon in some way. For that would be synchronous with his being.

Out of the corner of his eye he saw a movement. Turning towards it he was surprised to see a small animal moving towards him. It was a small mongrel of a dog that ran up to him and sat before him, gazing at him with its large dark eyes. It stood up, wagged its tail and moved closer to him and again sat and gazed up at him. He reached out a hand towards the small mutt who licked his fingers.

Kneeling and gently stroking the dog he began to feel some connection again. Deep within him there was still a flame burning. And he knew with a real knowing in that moment that he would prevail. Yes, he would grieve for his losses and deal with the challenges which lay ahead. But he would overcome. For in his darkest hour a crack of light had appeared. This moment would sustain him because he had felt the synchronous connection with that bigger thing and it had answered him with the light that ignited his inner flame.

Surviving Africa

In the Beginning

Once, so we are told, our ancestral parents were African living in Southern Africa. It was a time of plenty where the land gave generously of itself. And so our grandparents and parents two thousand times removed were at one with the land, the plants and all the wild animals that roamed freely. And what they needed they took. There was no need to plant or to herd. They lived fully in the present for there was no need to worry about tomorrow. Seasons came and went and they derived comfort in the predictable cycles of life. And always there was the confidence that the land would sustain them. But then occurred a time when the rains never came and a drought threatened their very survival. The people gathered together with their elders to decide how best to deal with the great stress which had befallen them. From this great dialogue, two camps emerged. The first camp were those who still had faith in the land and its seasons that would again provide. The second camp however were those that feared that unless they moved on to find new pastures, they would succumb to the perils of the killer drought. And so inevitably the people of the second camp sadly bid farewell to their brothers and sisters, not to be reunited with them again in their lifetimes. For in fact it would take another fifty thousand years for the two camps to re-unite again.

The Great Migration

And so the people of the second camp began their long and hazardous trek into the perils of the unknown. The lands were foreign to them while the climate became colder and intemperate. Slowly their trust and confidence in the environment waned and was replaced with fear. Daily life was now beset with the fear of ensuring their tomorrows. The people of the second camp now became preoccupied with planning their existence to minimize the fear. To ensure adequate nutrition they began to sow crops and to keep herds. They had moved from a world of trust and confidence to one of unknown perils in which planning and ingenuity was vital for their survival. So the people of the second camp withdrew from the joys of living confidently in the present and entered a place of stress where all efforts were directed at ensuring their

tomorrows. They became dependent upon their own ingenuity and slowly lost the connection with their heritage.

The people of the second camp developed their skills over many years in many hostile lands. In this way they invented machines of labor and organized themselves to efficiently ward off the perils of the environments and ensure their survival. They also created ships to travel the seven seas. And with their weapons and gun powder they began to conquer the world to ensure that their lives were sustained for all their tomorrows.

The Return

And so it came to pass that after fifty thousand years the descendants of the second camp landed on the shores of their ancestral home and met their brothers and sisters, descendants of the first camp. And each saw the other as being strangely different. For while the descendants of the first camp roamed freely through their homeland and took what they needed for each day, the descendants of the second camp were fearful that the land would not offer up enough for their future needs. And their fear was a fear based on a heritage of hostile environments. So to appease their great fear the second camp descendants carved up the land and put up boundaries. They built dwellings upon the land and sowed crops and raised herds of animals within their enclosures. The obsession with the insecurities of tomorrow caused the second camp descendants to build or import machines to produce more. They produced much more than they needed. But this was good because they could accumulate wealth which would further appease the fear and anxiety of not having enough for tomorrow. This accumulation of wealth by the second camp required great planning and design and management. All this activity required that many facts be recorded together with the plans and designs for the future. To enable the generations of the second camp to function in this way they needed education in reading, writing and in arithmetic.

Now the people of the first camp lived by day and trusted the land and the elements to provide for tomorrow. They believed that the land belonged to everyone and that you took what you needed on each day. In their lives there was no need for plans and design or for recording and calculating because they believed in the land which

they knew so well and with which they were so deeply connected. But now their passage on the land was obstructed by the descendants of the second camp who laid claim to vast tracts. And when they took what they needed they were punished and murdered by their brothers of the second camp. They died in great numbers because they fought with their hunting weapons. They were no match for the guns of the second camp whose great fear of tomorrow had given rise to the development of efficient killing machines.

The Conflict

Inevitably the second camp suppressed and controlled the lives of the first camp by brute strength and efficiency borne out of fear. The second camp became intoxicated with their power and they truly believed that they could control all that was within their environments including the people of the first camp. And they looked down upon the people of the first camp and regarded them as savages with inferior intelligence. For the people of the first camp could neither read nor write nor could they invent, plan or manage. But they had had no need for this for they were deeply connected to their land and all that lived on it.

The cruel suppression of the first camp by the second camp increased so that able bodied people were removed from their land and enslaved. In this way the descendants of the first camp lost their land, their extended families and all the connections with their heritage. They were forced into lives of toil where they were incorporated into the plans of the descendants of the second camp. But never were they compensated – either in payment or in receiving the value of education which was at the core of the second camp heritage. For many years the oppression of the first camp prevailed. The might and controlling influence of the second camp descendants created a world whose systems and values were those of the second camp. In that world the prevailing fear of tomorrow created an insatiable hunger to accumulate and hoard. Wealth became the only value worth living for. Self-esteem and purpose of life was measured in material gain. But the price was great. The accumulation of wealth trivialized the forgotten values of the first camp – respect for the land and all that live on it as well as the respect for other people whose uniqueness in the group contributed to the collective value.

The Liberation

And then it came to pass that processes were set in motion that culminated in the liberation of the descendants of the first camp. A people that had been forcibly removed from their land and families and who were not afforded the right to education and schooling in the way of the second camp, now inherited their ancestral land. But the land was now a second camp land irrevocably changed from their first camp heritage. Again a new stress befell the people of the first camp. How were they to govern this second camp land which aspired to the world's second camp values when they were inadequately schooled in the ways of the second camp? And the land was further troubled by the product of first camp descendants whose families had been destroyed and who had toiled for the second camp descendants for generations. The first camp descendants had lost their own heritage, their land and its connections and were displaced. And there had been no compensation in the form of schooling to prepare them for integration into the world of the second camp.

Despair descended on the first camp and their self-esteem was dangerously low. They had become victims of a great injustice. When they were not able to succeed in the second camp world they were labeled as inept and of inferior intelligence. But these were the descendants of the proud first camp! The despair borne out of a poor self-worth and self-esteem created a dangerous mind state in the survivors of the oppressed first camp. They felt that if they couldn't succeed then no one else should be allowed succeed. Therefore they began to disrupt all that was part of the successful second camp and to take by force that which they felt was rightfully owed to them. And again they were regarded as uncivilized savages.

Return to Wisdom

In this way the descendants of the first camp who were now governing, reached a point of despair. For the centre was in jeopardy of giving way - how to correct the great ills which had befallen the land? And so they approached the elders of the descendants of the great first and second camps. After fifty thousand years the two camps sat together as one. For several days they deliberated and eventually proposed the solution. This is what they said: We are all brothers and sisters,

children of our ancestral parents. Fifty thousand years ago we were separated by events of that time. We come together now many years later with two unique experiences. On the one hand is the heritage of a deep connection with the land and the elements and a belief in its eternal sustenance. These are the people of the first camp - optimistic, accepting, confident and living fully in the present. Then on the other hand are the people of the second camp with a heritage of struggle in hostile environments. The prevailing fear had forced them always to plan for tomorrow. In this way they became fearful and anxious people with a need always to define and understand the environments so that they could plan and control their tomorrows and thereby alleviate their fears and anxieties.

We come together now and must reconcile through mutual respect, devoid of prejudice. Each camp has something unique to offer the other. The collective will be more powerful than the some of its parts. The second camp must acknowledge the qualities of the descendants of the first camp – benevolence, optimism and being fully connected in the present where they perceive far more of the environment than the descendants of the second camp (who are too preoccupied with tomorrow). Likewise the first camp must acknowledge the qualities of the second camp – planners, designers and administrators. And as they embrace each other in mutual respect devoid of prejudice, they will walk each other along a common path, sharing their experiences and forging a new union. But it must be stressed that only by acknowledging the qualities of the other and by accepting the weaknesses of each, can progress be made. Inherent in this process is the need to relinquish excessive material wealth as a value and as a requirement for self-esteem. Real value and elevated self-esteem arises from the distribution of excess wealth to those deprived of a living wage. In this way will a new order emerge, one which truly acknowledges all the qualities of the two camps - a comprehensive foundation for a new epoch.

Embrace the zeitgeist and transcend

I was driving home from work in one of our spectacular Johannesburg summer thunderstorms when it occurred to me that we control very little of our environments and indeed, our lives. Most of our choices are determined by our unique individual history, our nature-nurture heritage. This incorporates the people, the places and the social dynamics of our formative beginnings. Thereafter we engage with people, places and circumstances, perceived through our subjective world view and exercise our choices, again determined by our subjectivity. From the experiences derived from these engagements we fine-tune our subjective world view. However the powerful influences of heritage still prevail, albeit minimally dampened. The whole process therefore conforms very much to *Lorenz Chaos Theory*: The life narrative is determined very much by its historical starting point but the final outcome is modified by the multiple influences that occur along the life path.

But we live in a psycho-social collective in which there are multiple inputs from many other subjective beings. Everyone gives voice and action to their subjective needs which reflect their individual origins in time and space. And so we encounter a pivotal mediator and dampener of our subjective needs prerogative – we all need to co-operate and conform to ensure that the viability of the system prevails in terms of appeasing the needs of the collective. If we were to apply the best of *Complexity Theory* to this dynamic, we would ring-fence central ‘sacred’ rules such as respect for life and property and allow the system to self-regulate. But that applies to an ideal world. We don’t live in that space.

Our collective is subject to the interference by others. In summary these influencers include regulating governments, individuals and organizations with material resources and the popular media which invariably become the mouthpiece of the resource-based organizations. In this way, the freedom of the collective to self-regulate is significantly compromised. But more importantly, the subjective world view of the individual members is influenced by the media who often disseminate partial truths or untruths and thereby manipulate an entire belief system.

But there are two more layers to this complexity. It becomes apparent that the collective of humanity is subject to mass psycho-social cycles. Strauss and Howe in their seminal work, *The Fourth Turning*, have shown how values, beliefs and

behaviours undergo cycles in the form of four periods of twenty years in large cycles of eighty years. Each twenty year period can be defined and recognized by the values of its dominant players. We are now in the Fourth Turning of our eighty year cycle. It began with the economic crash of 2008. The hallmark of this Turning is the attack on the Establishment leading to economic hardship, conflict and probable war. It results in the dismantling of the prevailing status quo which sets things up for the re-building of the collective which then marks the beginning of the First Turning of the next cycle. The previous Fourth Turning commenced with the Great Crash of 1929, culminating in the rise of Nazi Germany and the 2nd World War ten years later.

The final layer of influence is that which is being studied in the field of magneto-biology, the effects of electromagnetic activity on biological systems and ultimately on human behaviour.

In effect, the collective supports the values and dynamics resonant with itself at any given point in time. This can be referred to as the *zeitgeist*, the spirit of the times. Those that recognize the prevailing fears, aspirations and needs of the collective and thereby engage with the *zeitgeist* are promoted and succeed with their endeavours. As Victor Hugo stated, "*Nothing is more powerful than an idea whose time has come.*" (Thoughts of the election of Donald Trump come to mind!)

And so as individuals we have very little influence over outcomes in the multifaceted collective. In so many ways our subjective world view and our choices are influenced by powerful factors beyond our control. To prevail with a degree of personal gratification together with emotional and physical wellbeing we need to transcend subjective feelings of helplessness by seeking clarity and contributing value to our personal spaces. Value contribution is defined as making something better than it was before we engaged with it. Value contribution should be directed to ourselves in order to reach our individual full potential, to our personal environments and to the extended environment. Thereafter, knowing that we have contributed all we can to ourselves and the collective, it is sustaining to embrace a mind state of calmness and trust and also gratitude for the positive and gratifying elements in our lives.

Reference

<http://www.lifecourse.com/about/method/turnings-introduction.html>

Relativity, relatives and other relationships

After watching a very thought provoking movie, *'The death and life of Otto Bloom'*, I found the need to clarify 'time' and related influences insofar as our individual lives are concerned as well as the 'bigger picture'. It has always been difficult to describe Einsteinian relativity in the context of basic semantics, in a way that you and I can make sense of things. So this is my contribution to that end. In doing so I will add my own bit to extend this fascinating concept.

What is space-time? Well let's first start off with the dimensions of space. There are 3 dimensions of space – length, breadth and height. And within this space, there is mass of objects and movement through time – an object moves from A to B at a certain speed which is defined as the distance covered in a specific time. What if we made 'time' the 4th dimension of this space such that we no longer just have space and time but space-time? What does this look like in the context of our reality?

Consider the following analogy: We are surfing in the sea and facing out to sea, observing the formation of the waves in front of us. Where we stand is the point that the formed wave crashes against us. Behind us, the wave continues to roll to the shore. In front of us we see the wave gradually form from a swell which begins to grow taller until it breaks by rolling forward. It's origin as a swell is way in the past, coming closer to us is the past approaching the present. Where it crashes against us is the present. **If we had to capture all the stages of the build up of the swell transforming into a standing wave and it's subsequent crashing against us, and freeze it all into one frame, we have space-time.** This includes all the past and present configurations as they moved towards us through distance (space) frozen in time. This is past and present in space-time. What of the future? This is the wave that continues moving behind us and which we do not observe. We can assume that it continues rolling towards the shore and dissipating it's momentum. But without actually observing it, we can only project and assume.

Does the past influence the present in space-time? Indeed it does. It is the basic substrate together with its energy and forward momentum that drives the process from the past to the present. Does the present influence the past? Absolutely. In the space-time analogy, if a giant hole had to appear in the sea bed where we are

standing, the forming swell which is to evolve into a standing-crashing wave would lose height and forward momentum as it approaches. So the end point (the 'present' in this analogy) affects the past (the consecutive fixed wave points preceding the impact with where I'm standing).

Does the present influence the future? It does in that it provides the substrate, energy and forward momentum into the future. This gives rise to the probabilities defining the future but not the reality of the future. In physics terms then, the future is in 'superposition' – a potential state. It is only when it 'happens' (referred to as 'collapsing the wave of superposition') that it's potential becomes space-time reality (the base state in physics terms). Therefore we may ask, does the future affect the present? The answer is no. It can only affect the present when it converts from superposition to base state reality, and by definition, that moves the future into the new present.

It becomes apparent that time or more precisely space-time, moves in one direction. It is a direction which is determined by the sequential wave collapse of superposition into space-time reality. Bearing in mind that everyone's physical experiences occur within a space-time environment wherein overlap between different space-time dynamics occur, we begin to appreciate the complexity of the collective space-time dynamic. The final level of complexity I would suggest, results from the fact that all physical entities have an energy equivalent ($E=mc^2$). Therefore the space-time reality is also represented within an energy dimension (the singularity?) in which there is no separation in terms of time and space – everything is connected and orchestrated through the resonance of similar frequencies. In the context of this complex interconnected reality, death is no longer an entity. It represents only a cessation of observable physical existence in space-time but not in interconnected singularity.

Inflamed and smoked

It began like any other weekday. The usual rush hour, people, cars and the noises of a populated city. But this was to be like no other day. For a process had been unleashed which was to have a devastating effect on the normality of daily life. And if there was to be a solution, it would tax the experts to the limits of their knowledge and expertise.

It really began with nothing more than a flu-like illness in several people in the course of the working day. But that flu-like illness had also manifest in others, in different parts of the world. And the illness progressed such that those afflicted became really ill and incapacitated. The very young, the elderly and the frail required more intensive treatment and so admissions to healthcare facilities began to increase.

At this time, global communication across the multi-media, social media and personal connections became activated. And indeed the affliction of many across the globe took on the appearance of a global viral pandemic. This immediately triggered the virologists and immunologists to begin the process of identifying a probable new strain of flu. With great confidence based on their advanced technology and experience, the institutions and their teams of experts set out to profile the virus fiend and develop the appropriate vaccine. But to no avail. No virus could be identified.

The global pandemic was now accelerating with the first of many deaths being reported. Alarm bells began to ring. The pandemic had all the hallmarks of the 1918 Swine Flu – the roaring immune response with an excessive inflammatory reaction, which resulted in severe and often fatal consequences upon cardiac and lung function. But what was the immune activity and the inflammatory reaction responding to?

Inevitably then, panic took hold of the people. And with this came an upsurge in the numbers of the afflicted and the dead. The world was caught in the grip of a lethal pandemic of what? Of inflammation? The clinicians attempted to profile who was contracting the illness and who was dying. The illness had cut across regions, races and gender, almost simultaneously. Most disconcerting was the fact that isolated communities around the globe had been affected in similar ways and with similar profiles to the large urban populations. And still no infecting organism was isolated.

Suddenly a breakthrough from the immunologists. All the afflicted had the same blood group. But the bad news was that this was one of the common blood groups. And so the immunologists roped in the haematologists and the geneticists and sure enough they identified an antibody to a protein made by a previously 'hidden' or suppressed part of the DNA, which was linked to the gene coding for the blood grouping. It became apparent that this segment of the DNA molecule was suppressed from birth. And when the immune system matured it was never presented with the protein coded for by that segment. Hence it was never recognized as 'self'. But something had disturbed the suppressing chemical which had allowed the previously hidden part of the DNA molecule to produce a new protein which was not accepted by the immune system as being 'self'. So it had mounted a massive attack on the 'foreign' protein which was in fact 'self'.

Armed with this information the experts, now with a slight spring in their steps, boldly turned to their animal models. They developed immunological and genetic engineering methods to artificially destroy the suppressing chemical on the DNA molecule and allowed the 'foreign' protein to be made and to elicit an immune response. And indeed it occurred, thus proving their theory and observations.

And all this, while people were dying on an unprecedented scale, world-wide. Normal life had almost ground to a halt. Everyone personally knew many who had been afflicted and who had succumbed. Panic gripped the world.

The experts were now confident. They could taste victory! They synthesized the destroyed suppressing protein and inserted it into harmless viruses which were designed to infect people and thus transfer the missing protein into the nuclei of their cells, thus restoring the suppression of the 'foreign' segment of the DNA.

At last arrived the moment when the new viral vectors were ready to be disseminated amongst the populations. But a strange thing happened – tests began to show that the afflicted had begun replenishing their own damaged suppressor chemistry. But despite this, the illness continued to ravage the people unabated. There was no letup in the incidence of the newly afflicted and the death toll continued to soar. The world was gripped by a lethal pandemic and the experts were now clueless and powerless. They had played their last card. Panic, disease and death became the order of the day.

Enter Morton Stanley. A physician by profession, Morton was anything but your regular physician. Generally stoned, Morton dabbled in everything from physics to numerology, from astronomy to astrology and everything in between. While tinkering with his miscellaneous transmitters and receivers (he was trying to make contact with extra-terrestrials) he noted much interference during the time of the onset of the pandemic. He had even 'purified' the interfering frequency which had emanated from deep space.

Morton was now salivating with the relish of unfolding possibilities . He was familiar with the newly discovered causes of the pandemic. He now toyed with the possibility that the given frequency emanating from deep space could perhaps have resonated with, and specifically disrupted the suppressing DNA chemical, thus unleashing the pandemic. He checked his receiving apparatus and noted that the frequency was no longer discernible, possibly coinciding with the time that the spontaneous replenishing had begun to occur around the globe. But why was the world still in the grip of this devastating pandemic?

Somewhere in Morton's stoned right hemisphere emerged the flicker of a hunch. He was drawn to review his old notes on psychoneuro-immunology (PNI) – the study of the influences of mind states on immune function. And there it was ... it jumped out at him. He had to go and find a group of individuals with the implicated blood group that had either not been afflicted or who had survived.

And so Morton's quest began. His small sample of non-afflicted or surviving individuals consisted of: Highly spiritual individuals who believed that they would survive, but even if they didn't survive they weren't afraid of death; several alcoholics who had remained quite euphoric throughout the ordeal; several psychotics who had no connection with their environments; a group of golfers who had been playing their best golf such that they resolved to continue playing and enjoying the roll 'come hell or high water'.

Yes indeed, Morton had nailed it. The beam of frequency from deep space had resonated specifically with the covering/ suppressing chemical of the DNA segment and destroying it. This had caused a 'foreign' protein to be manufactured which had kick-started an immune process characterized by a florid and in many cases, a lethal

inflammatory cascade which then had destroyed hearts and lungs. But the real killer was panic and its chemistry.

The pandemic had triggered a mighty collective amygdala panic action with the subsequent outpouring of collective adrenaline and cortisol. It was inevitable that this would, in turn, precipitate a lethal wave of inflammation. And so the masses were succumbing to wholesale and unchecked acute inflammation which was perpetuating itself chemically and psychologically. Mankind was spiraling down the plughole with its own inflammatory juices!

Morton was fired up. He had the solution - Quieten the panic on a macro scale and the inflammation would subside together with the lethal illnesses. But no one was available to listen to Morton. The professors and their legions of academics required Morton's CV. The little that he had would not gain him access to receptive ears. And the few that granted him an audience demanded supporting data. They laughed him out with his 'crazy' theory and his 'anecdotal' evidence. It was a futile and hopeless endeavor. And so a disheartened Morton returned to his humble abode, lit a joint or two and watched as the darkness descended and the lights slowly went out.

The 'experts'

Drowning in snake oil

They're everywhere. At the office and at the club, in all the media and even at your place of worship – the relentless pitch of the 'experts'! Economists, coaches, wellness therapists and the like, ensnaring you and manipulating you and invariably relieving you of hard-earned cash. Often schooled in the best of snake oil sales traditions, they subtly but relentlessly tempt you at every turn and all too often, we relent.

And so I share the story with you of 'Mary'. Mary qualified with a Bachelor's degree, with a philosophy major. In the open job market, Mary had to settle for a low profile clerical job just to put bread on the table and pay off her student loan because her degree afforded her no special edge in a competitive job environment. But then came that life-changing moment. Mary noted that a well-known coaching expert/motivational speaker was going to be in her neighbourhood. She decided to attend the free introductory presentation. Fired up and on a roll following the presentation, Mary invested the last of her savings and attended the weekend-long course to become an accredited coach. She bought the books, learned the buzz and was cloned as an accredited life coach. She spread the word amongst family, friends and work colleagues that she was an accredited life coach, qualified to deal with the full spectrum of life's trauma's. Soon Mary had a thriving 'practice'. Mary attended subsequent weekend courses and morphed successfully from life coach, to corporate coach, to executive coach, to 'global' executive coach and then ascended to the peak of coaching ... Mary attended a course facilitated by a company which had the word 'neuro' in its name and promptly thereafter, assumed the extra qualification of 'Neuroscientist'! Mary today is an expert executive coach with a 'neuroscience qualification' managing individuals with issues ranging from existential life crises to neuroses, from depression to psychosis! Mary has since become a sought after motivational speaker and now runs her own accreditation course with several published books.

Being a very enterprising woman, Mary recently saw a gap in the market – lifestyle enhancement. Dovetails very well with the coaching bit. So Mary did another weekend course on some kinesiobiology/physical therapy-based method and soon added massage therapy and exercise instruction to her repertoire. Finally Mary started selling vitamin supplements through her 'clinics' which were subsequently branded ('Mary's complete vitamin vitalizers for all maladies!'). Full, one-stop mind-body wellness clinics emerged, soon to be franchised, because all the while Mary

has been training accredited 'therapists' who will buy into the world-wide franchises. Mary has become a BIG name. Mary is a world expert in mind-body wellness. And the product now sells itself.

Join me now as we look under the covers and establish exactly who Mary is and what in essence is her value contribution. Mary has no experience nor university-level qualification in human anatomy, physiology or psychology. Mary has no neuroscience degree. Mary has never been personally evaluated in terms of her own psychological wellness and stability nor has she been mentored for any length of time in an internship. In summary, Mary has never been assessed in terms of her fitness to practice as a 'mind expert' and physical therapist. In addition she has never opened up her methods to scientific scrutiny. Mary also conveniently ignored the scientific finding that mega-vitamin supplementation provides **no** wellness enhancement whatsoever!

Unfortunately the prevailing global environment allows for the emergence of unqualified experts like Mary because coaching is an unregulated profession. Add to this the odd course in massage, exercise and movement stuff and out of the murky depths emerges a 'wellness expert'! Never to be scrutinized nor challenged unless they harm or kill someone.

You see my fellow humans in suffering, we are being conned on a daily basis. Authenticity has been overcome by impressive packaging and marketing at our expense. The only way to remedy this sick situation is to scrutinize and seek supportive information in the form of method and results validation. Anyone not making their methods and results available for objective/scientific evaluation has something to hide.

I end this final post for 2016 with one important consideration. The mind states of **trust** and **belief** in something generates the secretion of **oxytocin**. Oxytocin is also secreted in response to massage. Oxytocin, in turn, enhances dopamine production (gratification, motivation) and suppresses inflammation – 'feel good' stuff. Oxytocin is therefore the mediator of the **placebo effect** – the belief that something enhances your wellness. It accounts for up to 40% of the effectiveness of all healthcare interventions! So the mind-body experts such as Mary are on to a good thing – they've got us all by the oxytocin!

A brand new world

I had the opportunity to visit my family in Australia recently. The highlight of my trip was in fact connecting again with my eight-month old Aussie granddaughter. And yes I also climbed trees with Kaola's and hopped with kangaroo's, indulging in the odd 'roo burger Great country, great people – I always enjoy the splendid times 'downunder'! And indeed I also managed to engage with corporate Australia, presenting my **NeuroSurge** wellness, performance and leadership application.

And all too soon it was over and I was winding my way back to Africa on one of those long haul fourteen hour flights. I elected to travel back in 'cattle-class' since the South African Rand to the Aussie Dollar is at ten to one and saving a buck or two takes the sting out of things. On finishing my meal on the plane, I elected to watch one movie, pop my sleeping tab and wake up in Johannesburg as fresh as a daisy! No chance of that. On reclining my seat backwards I suddenly encountered frantic protests from the lady sitting behind me, crying out that my seat was crushing her knees! So we entered into high level negotiations about a compromise in my reclining, which would spare her knees and allow me to become a little more horizontal.

Then there was the movie. It's about a doctor (yes you guessed it, a neurosurgeon – you need one of these in all medical movies to really enhance the effect!) who experiences an encounter with the quantum physics world and evolves mentally and psychically. However in true Hollywood style, he repeatedly returns to his OR where he continues to gaze into the gorgeous blue eyes of his assistant who from time to time performs CPR on him. Wow it's been a long time since I gazed into the gorgeous eyes of an assistant ... Anyway it's not recommended viewing.

So I popped my sleeping tab and managed to squeeze out a good two hours of sleep! As you can see, things were not playing out as I expected. In effect therefore I was left to read and cogitate for about nine hours, with one hour used for eating, peeing and walking around the cabin.

As it happens, that cogitation time was very purposeful and had been precipitated by a communication that I had received just prior to boarding. It had to do with this thing called BRANDING. Now I've steered clear of this concept, simply because I'm no

expert in the field. It has been dealt with and articulated comprehensively on these very hallowed pages by many an erudite individual. Let me therefore just share two common definitions of branding which I would propose are very simple and generic in their wording:

Branding is the process involved in creating a unique name and image for a product in the consumers' mind, mainly through advertising campaigns with a consistent theme. Branding aims to establish a significant and differentiated presence in the market that attracts and retains loyal customers.

Branding is all of the ways you establish an image of your company in your customers' eyes.

Now the communication which I received just prior to boarding my plane was a manuscript sent to me confidentially by a senior and highly recognized executive coach. This individual portrays himself as an 'expert' in personal branding and re-branding (re-establishing meaning and purpose in people who've run aground in an existential career crisis). This individual also subtly wears a 'neuroscience mantle' as part of his own branding. But this is no neuroscientist. This is a coach who has attained accreditation by doing my *NeuroSurge* course!! This individual had approached me to review the neuroscience section of his manuscript prior to submission for publication as an *authoritative text on branding!*

And so, sitting in the departure lounge, I began reading. And suddenly without warning, my pair of amygdalae were instantaneously fired up into near rage. This 'expert' had stated in his manuscript, in the 'neuroscience' section, that he was currently working with me in researching neuroplasticity. What followed was a description of my neuro attributes. The truth of the matter is that this individual is not engaged in any research with me and nor has he ever been. It was a case of secondarily cloaking himself in the other's qualifications to support his 'neuroscience mantle' as the author of a text on branding!!! Is he so deluded that he believed that on requesting me to review the neuroscience of his manuscript, I would go along with the glaring untruth so as to boost his neuro standing?

And so to the discussion and debate on the subject of branding I share this definition as my contribution:

A **brand** is the essence of one's own unique story. This is true for personal branding as it is for business branding. The key, though, is reaching down and pulling out the **authentic, unique "you"**. Otherwise, your brand will just be a facade. - **Paul Biederman**

Indeed, the critical element for me in branding, is authenticity. It is the authenticity of the person, of the product and subsequently the authenticity of the engagement.

Lost in an expert fog

Genuine authenticity is becoming extinct due to the rise of the modern day expert. There is no limit to the availability of impressive packaging and choreography with accompanying marketing which ultimately delivers the experts into our work and into our homes. So extensive and interwoven are the supporting documentation and testimonials that it is often nigh impossible to unravel the authentic from the fabrication.

Generally driven by self-interest, the experts are associated with the cathartic outpouring of endless wisdom. As a consequence, the writing about a great deal amounts to very little. We are being buried by an avalanche of self-interest driven information which is invariably aggravated by repetition – a developing veritable Tower of Babel! This makes the mining of useful information increasingly difficult. In the world of science it is the ‘publish or perish’ syndrome which further drives and aggravates this self-interest process.

Flowing from this has been the worrying trend noted in the peer-reviewed literature of increasing retractions due to doubtful supporting data. In the neuroscience literature alone there has been an eighty percent increase in retractions over the past five years! In the psychology literature, only forty percent of information communicated in major articles was reproducible.

Unfortunately we live in an age characterized by individual silo's of interest which invariably represent the entire subjective world view of the individuals inhabiting those specific silo's. The mind state which emerges from this situation is one characterized by the need to defend one's turf at all costs and taking a judgmental view of all other silo's (which are generally deleted or distorted to fit into one's own subjective silo). The result is that ‘truths’ that are validated within a given silo lose their universal authenticity when viewed in the context of multiple and potentially overlapping silo's of interest. Consequently therefore, the expert may not only lack intrinsic genuine authenticity, but is also very much limited by being silo-based.

Seeking out the genuine person imbued with knowledge, understanding, experience, integrity and an awareness of the environment and its needs has become a challenge. We have arrived at a point where validated facts are

questionable. It is at this time that we turn to those researchers with known integrity, committed to genuine value contribution and who have a track record of generating reproducible data or delivering applications which have genuinely performed to specification. But this is just the starting point. From here we need value contributors who venture beyond their interest silo's and integrate the data from other interest areas (silo's) so as to create a more authentic and comprehensive contribution.

And so at this juncture we are required to transcend the fog of self-interest and embrace a space of genuine curiosity and awe with a view to contributing value to ourselves and to our environment and all that dwell therein.

Mushroom soup

Coaches and therapists of multiple descriptions are popping up all over the place like mushrooms in the dark! Life coaches, executive life coaches, coaching neuroscientists, energizers, shamans – the list is exhaustive. And all are making claims of enhancing your wellness, banishing all traces of your unfortunate nature-nurture beginnings and bringing you to a place of gratification and bliss for evermore. And to really add spice to this crazy mixed up soup is the fact that many are using terminology conveniently borrowed from the sciences. And so for example there are claims that your pituitary gland can be massaged (somewhere near your big toe, by the reflexologists) and that you have a brain in your heart and in your guts which you can fall back on if the one between your ears is damaged beyond repair. And then there are the vitamins and supplements which have been shown to have no beneficial effect if you are consuming an average Western diet. In fact, big studies have revealed a slightly higher incidence of lung cancer among those using mega-vitamin supplements. And those joint-enhancing supplements they've been shown to include shark cartilage which is toxic due to high levels of mercury salts!

Aggravating this mob rule is the fact that very few of the modalities have been validated. The basic requirement for any claimed modality of intervention is to be able to describe the modality in some rational way and then provide evidence of success in an experimental group compared to a control group over a period of five years. The best that we're getting from this space is individual anecdotal descriptions. And so the soup darkens with misinformation, disinformation and sadly, some real fake news. Not that the medical fraternity are angels. We're sitting with big pharma pushing drugs with doubtful significance and applications. In addition we have an increasing retraction rate of articles published in peer-reviewed journals because of questionable data. And finally, only 40% of articles published in reputable psychology journals were reproducible.

Which all raises the question of what is authentic? The conventional bio-medical model is too narrow and conveniently discredits anything lying outside of the 'acceptable' zone while the alternative/complementary coaches/therapist domain fluffs out into some undefined and undefinable ether zone. And so to contribute some clarity to this state of affairs, I offer a model which perhaps could lend itself to

creating a working context, one that can be built on by others of all denominations, provided that contributors respect the requirements for validation of their methods - by providing case studies over time and applying a process of logical reasoning to explain the rationale of the modality and its effectiveness.

The best way to develop a comprehensive model is from the bottom, up. In this way it has firm legs to hold up the universe! At the bottom are the basic sciences and the bio-medical model – physics, chemistry, cells, tissues and organs together with systems that co-ordinate the structure and function of the whole organism. At the next level up, we introduce the concept of psychoneuro-immunology (PNI) – the study of the influences of mind states on immunity and indeed on organ function and metabolism. These influences feedback to the brain, which serves to further modulate the mind states.

Once this level is locked in place we can ascend and introduce the third tier of influence – the nonlocality energy space. All physical entities have an energy equivalent ($E=MC^2$) which seem to exist in a dimension which is independent of time and space (Implicate order, singularity, nonlocality). Everything in this space is interconnected through the process of energy resonance (see analogy of 2 tuning forks, where one vibrating may cause the other to vibrate in sympathy if they generate similar frequencies). It has been documented further that human consciousness is able to convert the energy form, existing as energy potential (superposition), into physicality (base state) by merely engaging with it – co-creatorship, in other words.

And there you have it. If you wish to remain at the basic physical level with its biomedical model, that's fine. What you see is what you get as per the five senses. At this level the concept of cause and effect prevails. At the next level up, causality includes brain-mind-consciousness which influences body wellness and performance but which feeds back to the brain-mind-consciousness. At the apex energetic level, we depart from cause and effect causality because in the energy dimension all physicality has representation – including our physical bodies. Here, interaction is based on resonance – the simultaneous occurrence and activation of entangled entities. This plays out in physicality for example, as a toxic mind state, resonating with a toxic body chemical configuration, resonating with a growing malignant tumor.

There is no cause and effect but rather, resonating linked processes. And I hazard to extend this resonance beyond the body – the toxic mind state materializes a toxic external event which negatively affects you ... because all entities are unified in the energy space and their co-ordinated interaction in physicality reflects the energy resonance. Ultimately each level is incorporated into the higher one, with the energetic apex incorporating all lower tiers of function - degrees of influence thus increase with successively higher levels. The central core of this model is conscious awareness, functioning at each level.

So there it is. Something upon which to cogitate. Perhaps something even to build upon to create context and value and turn that soup into something more appetizing and appealing.

The *NeuroSurge* Program

***NeuroSurge* - The cutting edge of wellness, performance and leadership enhancement**

We are all products of our nature-nurture heritage which evolves into our personal life narrative and indeed, into our unique subjectivity. Invariably we will perceive ourselves and the extended environment through subjective filters. It becomes important therefore, especially when related to a group dynamic, to be able to move into an objective space so as to achieve clarity insofar as we as individuals are concerned as well as the extended environment.

To this end I proposed a model in 1992, based on the integration of the neurosciences with the developing science of psychoneuro-immunology (PNI) – the scientific study of the mind-body connection. The model was developed in an attempt to identify and incorporate the full range of behavioral attributes based on the determinants of the nurture dynamic. Following a study of degrees of deprivation of neonatal and infant needs, three Archetypes were defined. The model, which is referred to as the *Triangles Model*, was completed in 2006 with the incorporation of the relevant chemical configurations associated with each Archetype. Each Archetype therefore consists of a determining nurture heritage, inherent processing traits, values, needs, beliefs and drives as well as a chemical configuration.

It became apparent that a diagnostic or psychometric was required to quantify and define the individual archetypes and thereby formulate the most appropriate intervention, if required. In addition, individuals needed to be tracked quantitatively as to the effectiveness of the intervention. As a result, the final version of an online diagnostic was rolled out in 2010.

The online *Neuro-Diagnostic* is programmed to comprehensively profile users in terms of their levels of personal gratification, self-esteem, self-worth, self-efficacy, purposefulness, hostility as well as potential in terms of leadership and entrepreneurship. The data supporting the Neuro-Diagnostic was derived from several thousand case studies. In effect, the Neuro-Diagnostic provides an accurate snap-shot of all prevailing drives, fears and potential limiting beliefs. The diagnostic has been validated through several Master's degrees. The three Archetypes may be summarized as follows:

The Bravo Archetype: This Archetype evolves from a nurture dynamic of moderate deprivation. This Archetype is highly driven to achieve objectives, knowing that there will be ultimate reward for task application and achievement. One of the important drives is fear - fear of failure to achieve the objectives as well as fear of not being recognized. The Bravo Archetype is self-absorbed and judgmental (to disparaging levels), but efficient and ambitious. Issues which may arise as a result of excessive fear is the need to control as well as the inability to delegate. Since the need to appease 'own needs' is at the core of this archetype, they are driven by the 'five finger rule' – WHAT'S; IN; IT; FOR; ME! The extreme form of this archetype is the narcissistic personality.

The Charlie Archetype: This Archetype emerges from a nurture heritage of extreme deprivation. Here is found low self-esteem and low self-efficacy indices. This Archetype may incorporate the belief that they are not worthy of gratification and that they are born to serve the needs of others. In cases where the narrative incorporates elements of 'why should I be the only one suffering', traits of hostility and vengefulness may arise towards those who they believe are more successful and fortunate than themselves. In the same vein, this Archetype tends to blame others for their own shortcomings. The combination of low self-esteem, hostility, vengefulness and suppression may give rise to the sociopathic personality disorder or in extreme forms, to psychopathy. On the positive side, we have noted in our experience that individuals with this archetype often have talents. This is important in the context of intervention.

The Alpha Archetype: The Alpha Archetype is a product of minimal deprivation – own needs were never an issue. They are non-judgmental and sensitive to the extended environment. They are driven by task-engagement gratification rather than by the achievement of objectives alone. They also derive gratification from value contribution to their environments. From this archetype develops the visionary leaders, the entrepreneurs and the great mentors.

In practice, a continuum exists such that there are no pure Alpha's, Bravo's or Charlie's. Rather, individuals generally incorporate traits from all three Archetypes but are still recognizable as occupying a defined point along the continuum. Defined Archetypes therefore include Alpha, Alpha-Bravo, Bravo, Bravo-Charlie and Charlie.

Quantification

The Neuro-Diagnostic consists of four sections:

Triangular configuration: This is a diagrammatic representation of how the individual prioritizes his/her life in regard to work, personal and recreation. Incorporated into the diagram are measures of fulfilment/gratification in the work and personal environments. Gratification that falls below a statistically significant threshold usually indicates the onset of a hopeless-helpless mind state which may impact negatively on wellness, performance and leadership.

Verve score – defining the functional Archetype: The Archetype reflects degrees of self-esteem, self-efficacy and resilience. Generally, the lower the score (tending to Bravo-Charlie or Charlie), the lower the self-esteem and purposeful motivation. This score usually reflects nurture influences.

Corporate Profile: This section provides a measure of self-worth or value contribution to the work team/unit/company. It is represented as a graph such that individuals who are at least ten percentage points above the threshold line on the Y-axis are motivated and productive. Those falling on or below the line reflect the onset of hopeless-helplessness. This may result from inappropriate placement of the individual in a specific job description and/or problematic management of the work team/unit. The entire work team/unit/division/company can be plotted on the same grid thus providing a snap-shot of the effectiveness of the group.

Leadership-entrepreneurship index: This section provides a measure of the leadership and entrepreneurship potential of the individual on a sliding scale. There are three defined areas: High end – visionary leaders; Middle – competent senior managers or directors; Low end – deficient in leadership potential.

The Neuro-Diagnostic is fully quantified. This quantification is also used to generate the mean percentage of effectiveness of the work team/unit (Corporate Efficacy Index – CEI). In this way, both the individual and the work team/unit and indeed the entire company can be quantified and tracked.

Derived from this diagnostic are four indices – **GRAT** (quantifying personal gratification); **RES** (quantifying self-esteem and resilience); **WORTH** (quantifying self-worth/value contribution); **HOS-I** (quantifying degrees of hostility). These can be generated for the individual and can also be used to generate the mean for the group. They can also be tracked for the individual and for the group thus providing valuable insight into evolving trends and challenges emerging at the workplace.

Leadership in the context of the Neuro-Triangles Model

The most effective leader is the combination of the big picture sensitivity of Alpha and the hands-on experience of Bravo – hence the Alpha-Bravo configuration. The Alpha-Bravo leader leads by inspiration and by inviting an all inclusive employee contribution to enhancing the effectiveness of the organization.

The classical Bravo-type company structure and management style is top-down prescriptive with the motto ‘my way or the highway’. It is non-inclusive of lower levels of the employment structure and looks down upon input from employees at lower levels. Tenure and promotion therefore favours the Bravo Archetype.

The Charlie Archetype may emerge, through manipulation, into a position of authority. Owing to their low levels of self-esteem, they function by surrounding themselves with able-bodied Bravo’s and hold them to ransom. It is this ‘rosette’ which then leads prescriptively in a top-down manner. In this organization there will be a great deal of fear and insecurity.

Archetypal Challenges within the Work Team

Bravo is driven by fear of failure and hence needs to control and is averse to delegating. Bravo is also self-absorbed – driven by the five finger rule: What’s; in; it; for; me! Consequently Bravo is not a great team player. In a work team under pressure, Bravo will be intolerant of Charlie’s inadequacies and will judge and attempt to control the apparent relaxed attitude of the Alpha type. Invariably Alpha, who is self-assured and connected to the bigger picture, always manages to deliver on time, even managing to ‘smell the roses’ along the way!

As a result of constant harassment of Charlie by Bravo, the Charlie self-esteem and self-efficacy may deteriorate and result in compromised performance and increased absenteeism. Invariably it is the Alpha-Bravo or high scoring Bravo that modulates

the fear of Bravo through reassurance. Charlie is invited to participate, Bravo is encouraged to delegate (in controlled amounts initially) and the language slowly changed from judgmental aggression to non-judgmental, sensitive inclusiveness. Mediation/facilitation however may need to be more formalized through the manager or coach.

In the event that the Charlie Archetype incorporates traits of hostility, more complicated challenges arise and consequently this is best managed by an external coach/facilitator.

And so we've arrived at a point of sufficient clarity to understand individuals and the dynamics of interacting groups of individuals such that interventions become appropriately tailored to the landscape. In addition, we are able to track the effectiveness of intervention in regard to the individual, the work-unit and indeed the entire company. Today I'm involved with teaching, coaching and profiling in the personal, clinical and corporate spaces. I also train coaches in the use of the diagnostic so that they become proficient and accredited in the use of this powerful psychometric. In its essence, the program has become a platform which has enabled us to transcend subjectivity and thereby create a powerful means to enhance wellness, performance and leadership.

The program is made available world-wide in the form of workshops as well as in the form of a comprehensive online distant learning application.

See ***www.neuronostic.com*** or contact ***nsurge2@gmail.com***

Further reading

<http://www.pninet.com/articles/Memory.pdf>