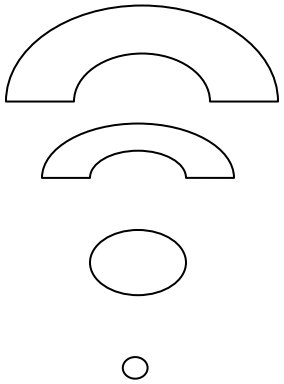
Brain Types

(Revised: 28. August 2012 by Clinton Callahan)

BACKGROUND

Successful people do not meet a certain criteria. Successful people are just themselves. Hippocrates said that if you want to understand a human being you have to understand his brain, because the brain is the source of love, excitement, and pain. The brain is the success organ.

THE TRIUNE BRAIN



Neomammalian 15-20 million years	BLUE – future
Paleomammalian 60 million years	RED – present
Reptilian 240 million years	GREEN – past
Original State Before time	YELLOW – beyond

The American neurologist Paul MacLean has theorized that our brain mirrors its evolution throughout the ages. MacLean believes that our skull contains not one but three brains, each of them being the record of a different stage of our evolution. He calls his paradigm “The Triune Brain.”

According to him, the three brains operate like interconnected biological computers, each with its own special intelligence, its own subjectivity, its own sense of time and space and its own memory. Each of the three brains is connected to the other two but operates as an individual brain with its own capacity.

The oldest of the three brains is situated in the core layer. The most recent is the outermost layer. The intermediate is the middle layer.

The oldest of the three is the reptilian, primitive or archipallium brain, which MacLean also calls the “R-complex”. It corresponds to the brain stem (midbrain, pons and medulla) and the cerebellum. It is responsible for the self-preservation processes, like respiration, heart beating and sleep, as well as for the unchangeable rituals of approaching, attacking, flight and mating. None of those processes require conscious control but they are essential to the animal’s life as can be shown by the fact that the reptilian brain never stops working not even during deep sleep. The reptilian brain never changes and never learns from experience. It is almost identical to the brain of

present day reptiles, having been present in the reptiles that preceded the first mammals about 240 million years ago. The reptilian brain responds to the mechanical, purely instinctive behavior.

Most mammals share with us the paleomammalian (old mammalian) brain, which corresponds to the limbic system, the middle part of the brain. MacLean believes that it appeared after the reptilian brain and was added to it at about 60 million years ago. Primitive mammals had a brain that was basically the reptilian brain plus the limbic system. The paleomammalian brain contains the hypothalamus, the thalamus, the hippocampus and the amygdala, which are considered responsible for emotions and emotional instincts like behaviors associated to feeding, competition and sex. Such emotions are important to the survival of the animal and its species. The paleomammalian brain is able to learn since it keeps memories of emotions that result from experiences where the animal felt pleasure or pain with more or less intensity. The paleomammalian brain is responsible for the emotional behavior.

The cerebrum, neocortex, cortex or neopalium is the main brain of the primates, which were among the latest mammals to appear. It represents about five-sixths of the human brain, having evolved along the last million years. MacLean calls it the neomammalian (new mammal) brain. All mammals have neocortex but it is particularly important only in primates and cetaceans. The neomammalian brain is responsible for the noblest cognitive functions, like language and reasoning. The neocortex corresponds to the rational behavior.

As we have seen, all three brains act together to produce the behavior of the mammals and of man in particular, which, according to circumstances, can be predominately mechanical, emotional or rational.

The neurologist Paul MacLean has proposed that our skull holds not one brain, but three, each representing a distinct evolutionary stratum that has formed upon the older layer before it, like an archaeological site. He calls it the "triune brain." MacLean, now the director of the Laboratory of Brain Evolution and Behaviour in Poolesville, Maryland, says that three brains operate like "three interconnected biological computers, [each] with its own special intelligence, its own subjectivity, its own sense of time and space and its own memory". He refers to these three brains as the neocortex or neo-mammalian brain, the limbic or paleo-mammalian system, and the reptilian brain, the brainstem and cerebellum (see above diagram). Each of the three brains is connected by nerves to the other two, but each seems to operate as its own brain system with distinct capacities.

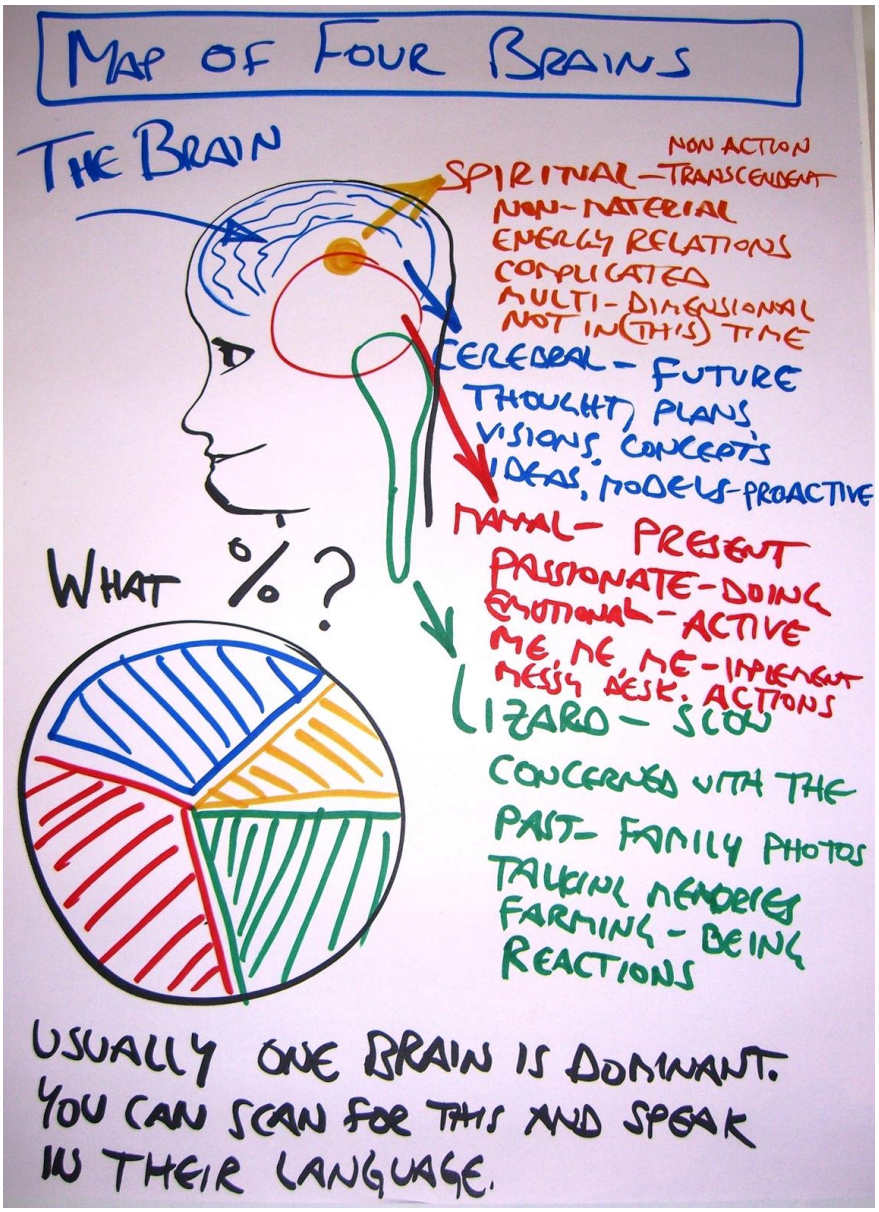
GREEN The Reptilian Brain. The archipallium or primitive (reptilian) brain, or "Basal Brian", called by MacLean the "R-complex", includes the brain stem and the cerebellum, is the oldest brain. It consists of the structures of the brain stem - medulla, pons, cerebellum, mesencephalon, the oldest basal nuclei - the globus pallidus and the olfactory bulbs. In animals such as reptiles, the brain stem and cerebellum dominate. For this reason it is commonly referred to as the "reptilian brain". It has the same type of archaic behavioural programs as snakes and lizards. It is rigid, obsessive, compulsive, ritualistic and paranoid, it is "filled with ancestral memories". It keeps repeating the same behaviours over and over again, never

learning from past mistakes (corresponding to what Sri Aurobindo calls the mechanical Mind). This brain controls muscles, balance and autonomic functions, such as breathing and heartbeat. This part of the brain is active, even in deep sleep.

RED The Limbic System (Paleomammalian brain) . In 1952 MacLean first coined the name "limbic system" for the middle part of the brain. It can also be termed the paleopallium or intermediate (old mammalian) brain. It corresponds to the brain of the most mammals, and especially the earlier ones. The old mammalian brain residing in the limbic system is concerned with emotions and instincts, feeding, fighting, fleeing, and sexual behavior. As MacLean observes, everything in this emotional system is either "agreeable or disagreeable". Survival depends on avoidance of pain and repetition of pleasure.
When this part of the brain is stimulated with a mild electrical current various emotions (fear, joy, rage, pleasure and pain etc) are produced. No emotion has been found to reside in one place for very long. But the Limbic system as a whole appears to be the primary seat of emotion, attention, and affective (emotion-charged) memories. Physiologically, it includes the hypothalamus, hippocampus, and amygdala. It helps determine valence (e.g., whether you feel positive or negative toward something, in Buddhism referred to as *vedena* - "feeling") and salience (e.g., what gets your attention); unpredictability, and creative behaviour. It has vast interconnections with the neocortex, so that brain functions are not either purely limbic or purely cortical but a mixture of both.
MacLean claims to have found in the Limbic system a physical basis for the dogmatic and paranoid tendency, the biological basis for the tendency of thinking to be subordinate feeling, to rationalize desires. He sees a great danger in all this limbic system power. As he understands it, this lowly mammalian brain of the limbic system tends to be the seat of our value judgements, instead of the more advanced neocortex. It decides whether our higher brain has a "good" idea or not, whether it feels true and right.

BLUE The Neocortex, cerebrum, the cortex, or an alternative term, neopallium, also known as the superior or rational (neomammalian) brain, comprises almost the whole of the hemispheres (made up of a more recent type of cortex, called neocortex) and some subcortical neuronal groups. It corresponds to the brain of the primate mammals and, consequently, the human species. The higher cognitive functions which distinguish Man from the animals are in the cortex. MacLean refers to the cortex as "the mother of invention and father of abstract thought". In Man the neocortex takes up two thirds of the total brain mass. Although all animals also have a neocortex, it is relatively small, with few or no folds (indicating surface area and complexity and development). A mouse without a cortex can act in fairly normal way (at least to superficial appearance), whereas a human without a cortex is a vegetable.
The cortex is divided into left and right hemispheres, the famous left and right brain. The left half of the cortex controls the right side of the body and the right side of the brain the left side of the body. Also, the right brain is more spatial, abstract, musical and artistic, while the left brain more linear, rational, and verbal. Modern Western culture trains and centers us into one half of one third of our brain, namely the left hemisphere of the Neocortex, leaving the rest of brain and the rest of our capacities uneducated and unused.

Each of us has aspects of our personality or Box from each of our three brains. It turns out that often one of the three brains holds dominance and provides us with more than average share of its characteristics. If our Box is dominated by one brain and another person's Box is dominated by a different brain we will tend to automatically reject each other due to what seems to be a fundamental incompatibility. Through recognizing and naming characteristics of the three brains, their strengths, weaknesses and ways to compensate, we can come to a far vaster acceptance of others with a different brain dominance than ourselves. This is an extremely useful soft skill in teams and organizations, because it also turns out that the resources of all three Box types are needed for a team to function successfully.



BRAIN TYPES: STRENGTHS, WEAKNESSES AND HOW TO WORK BETTER WITH THEM

(Based on research by Paul MacLean)

A neutral color can refer to each of the three brains:

CHARACTER	GREEN	RED	BLUE	YELLOW
Relationship	Contact	Dominance	Distance	All is one
Time	Past	Present	Future	Timeless
Orientation	Sensing	Grasping	Put things in order	Harmonizing, acceptance
Thinking	Intuitive	Practical, concrete	Systematic, abstract.	Holistic
Ideas	Standard	Black white, no gray	Multiple views, details.	Non-linear
Success	Sympathizing	Carry along	Convincing, persuading	Winning happening
Decisions	Relies on the known	Spontaneous	Examines all consequences	Come from principles
Action	Habitual	Dynamic, quick	Not without plan	Collaboration
Center	Stomach	Arms, legs	Head	Energy body
Body Technology	Round	Medium	Thinner	Medium
With problems	Traditional	Fight or fight	Think about it	Opportunities
Strengths:	Teamwork, Cooperation, Can Compromise, Can trust, Flexible to others	Natural authority, Instills enthusiasm, Practical, Self secure, Handles risk.	Planning, Systematic, Logical, Accepts the facts, Abstract thinking	Being with, non-linear, creating, big picture, vision, transformation
Weaknesses:	Gets nose in things Poor decisions, Irrational, Bureaucratic, Insistent	Hectic, Authoritarian, Moves too fast, Arrogant, Impatient,	Hesitant, Pedantic, Perfectionist, utopian, boring, unrealistic, better knowing	Cosmic, New age, Ungrounded, Fantasy world, Arrogance, Fuzzy, Psycho babble.
To Balance	Enjoy deciding Personal neutrality, Try innovation, Systemize, Analyze, Be more neutral.	Make plans, think what might fail, Look to details, Try more patience, See consequences.	Try more spontaneity, learn to enjoy contact, shift ideal to practical, accept your humanity, Try more flexibility.	Handicrafts, Growing vegetables, Having children
How to work with them:	Hug, touch, Talk about kids, Stories of the past, Listen, patience, Warm up to them.	Give them space, Laugh with them, Be exuberant, Do not block them, Let them move.	Come to the point, Be clear, be specific, avoid personal things, say yes or no, be on time.	Get off it, Meditate with them, Share your vision, Don't take it personally, Suffer with them, Practice with them (sword fighting)