

Dancing with Dragons Secrets of the Reptilian Brain

By

Todd F. Eklof

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One of the curious facts of evolution is that dinosaurs roamed the Earth nearly 170 million years, yet never became much more than eating machines. Mammals, on the other hand, after most of the great lizards were wiped out, have gone from being in-between-meal snacks for hungry dinosaurs to building rocket ships and computers in less than 65 million years. I suppose this has something to do with the fact that those mammals once preyed upon by dinosaurs had to develop emotional responses, like fear, if they were going to survive. If a hungry T-rex came across your path, you had to, at least, be smart enough to run away or hide. In other words, the reason mammals ended up smarter than dinosaurs is because they had to be! Our emotional desire to seek pain and avoid pleasure helped our original mammalian ancestors make choices that would increase their chances of surviving.

The development of emotional responses in mammals marked an important transition in the evolution of the brain too. Prior to this, most brains were simply comprised of a brain stem topped off with a small swelling called the cerebellum, which controls autonomic functions like our breathing, heartbeat, digestion and pupil dilation. On occasion mammals, including humans, are born with brain stems that don't develop past this state—a condition called *anencephaly*. According to the National Institute for Neurological Disorders and Stroke, “Infants with this disorder are born without a forebrain (the front part of the brain) and a cerebrum (the thinking and coordinating part of the brain). The remaining brain tissue is often exposed—not covered by bone or skin. A baby born with anencephaly is usually blind, deaf, unconscious, and unable to feel pain. Although some individuals with this condition may be born with a rudimentary brain stem, the lack of a functioning cerebrum permanently rules out the possibility of ever gaining consciousness.”¹ I suppose it is most merciful that anencephalic infants born alive usually die a few hours afterward. There is even some debate as to whether or not they should be considered “alive” to begin with, since they have no higher brain function, despite their beating hearts and ability to breath and digest food.

Without getting into a debate over the definition of “life,” most of us would agree that people born with this horrible abnormality could never lead any kind of meaningful life, even if their hearts could go on beating indefinitely. Nevertheless, we must also accept that there were once creatures on this Earth, with little more brain function than anencephalic infants, that not only survived, but thrived and dominated for nearly 170 million years. This was so despite the fact that their behavioral programming with such a brain was limited to being rigid, obsessive, compulsive, ritualistic, paranoid and repetitive, since they were unable to learn from past mistakes. (Incidentally, any

¹ www.ninds.nih.gov/disorders/anencephaly/anencephaly.htm

similarity to someone you may know is purely coincidental.) Yet, indeed, there are still many creatures like this living today that continue to thrive and, in some cases, dominate in their own environments. In fact, it's because the brain stem and cerebellum still dominate in most reptiles, that this part of the brain is often referred to as the R-complex—"R" for "reptile"—which is sometimes simply called the "reptilian brain."

Despite the fact that some human beings still behave like mindless tyrannosaurs, seeking to dominate and devour whoever and whatever they can, we are also born with the limbic brain, surrounding the cerebellum and brain stem, which does allow us to learn new behaviors through our desire to feel good and avoid pain. And, of course, we also have the most pronounced layer of our triune brain, the neocortex, surrounding the limbic system, or emotional brain. This part of the brain is in every mammal to some extent, but is especially developed in humans. So, when we're not reverting to the predatory behavior of our prehistoric saurian ancestors, or acting simply on our emotional wants and whims, we are able to reason, invent, create, and consciously self-reflect.

It is toward this higher consciousness that we strive as a species, though it seems we are, as of yet, incapable of harnessing the full potential of evolution's latest creation—the neocortex. It is often the case that our most basic instincts, our emotions and reason are at odds with each other, which can make it very difficult to make decisions of integrity. Like Gene Roddenberry's fictional Vulcans, we might sometimes think we'd be better off if we could remain completely in our heads and make our decisions based solely upon reason and logic, repressing our troubling instincts and emotions in the process. But if we were truly capable of repressing these lower brain functions, then we would not only live in a world without love and compassion, we would likely not live at all, since our hearts themselves would stop beating. No matter what evolution has in store, what exciting new layers it might add to the brain, I hope we continue to live in a world with love, compassion and beating hearts.

Carl Jung once noted, "Once we were quite certainly cold-blooded animals, and we have a trace of it in our anatomy, in the structure of the nervous system. The saurian is still functioning in us, and only needs to take away enough brain to bring it to daylight. Let a man be wounded very badly in the brain, or have a disease that destroys it, and he becomes a vegetative and utterly cold-blooded thing, exactly like a lizard or a crocodile or a tortoise."² Although we are not usually aware of this dragon lying at the base of our skulls, it is the most vital part of us given that it maintains our vitals, and is present with us in every breath we take. The word *vital*, in fact, comes from the Latin word for "life." So this most ancient part of our brains never rests so long as we are alive. It is always working on our behalves, even when the neocortex is sleeping and unconscious, the dragon in us keeps us breathing, keeps our blood flowing, and keeps us alive.

I think this quiet steady working behind the scenes is really the gift of all dragons. We never see them, but they're there, making sure things are working the way they're

² Jung, *Dream Analysis: Notes of the Seminar Given in 1928-1930*, Bollingen Series, XCIX, Princeton, 1984, p.644.

supposed to. Cosmologist, Brian Swimme has actually written a book about the cosmic creation story entitled, *The Universe is a Green Dragon*. “Green because the whole universe is alive,” he writes, “an embryogenesis beginning with the cosmic egg of the primeval fireball and culminating in the present emerging reality. And a dragon, too, nothing less. Dragons are mystical, powerful, emerging out of mystery, disappearing in mystery, fierce, benign, known to teach humans the deepest reaches of wisdom.”³ I cannot help but wonder, in light of Swimme’s analogy, if, just as the dragon in each of us is responsible for our autonomic functions, if there is a dragon, of sorts, working quietly behind the scenes to keep the Universe going too.

The Universe began as dragon breath 13.7 billion years ago, and the dragon responsible for that first great ball of fire is still out there today helping the Universe breath, quite automatically, just as it helps each of us to breath. Each day, without any effort from us, a dragon soars across our sky breathing fire to light our days, giving us the energy to grow and sustain all life. And that same dragon sits at the center of our solar system, creating the gravitational forces that keep everything working and perfectly in place without any effort on our part. Indeed, the Dragon is everywhere in the Universe, keeping it in good working order with the same autonomic and self-sustaining processes that keep our hearts and lungs working.

In all the ingenuity of our neocortex, humans have proven unable to accomplish anything as extraordinary as this great Dragon! True, we have been able to take raw materials and construct incredible machines like cars, computers and space shuttles, but we are not able to invent machines that self-organize and self-replicate automatically by converting sunlight, heavenly fire, dragon breath, into energy. In nature this process is called autopoiesis, literally meaning, “automatic creation.” Creation has occurred, not by intelligent design, but by an Anencephalic Dragon, automatically, without any thought or effort. Indeed, it can be better argued that intelligent design is precisely what’s destroying Creation.

Creation has occurred without any help from us, yet we busy our neocortexes mucking it all up in our attempt to dominate and control nature. So who’s the real tyrannosaurus now? In his book, *The Natural Way of Farming*, Masanobu Fukuoka writes, “My greatest fear today is that of nature being made the play thing of the human intellect. There is also the danger that man will attempt to protect nature through the medium of human knowledge, without noticing that nature can be restored only by abandoning our preoccupation with knowledge and action that has driven it to the wall.”⁴

A couple years ago, for example, I had the best crop of tomatoes I’ve ever grown after simply digging holes and sticking my seedlings into the untilled ground. Part of this was pure laziness on my part. I’d procrastinated and needed to plant them before it was too late. Nor did I wish to borrow my neighbor’s gas powered tiller, knowing it puts

³ Swimme, Brian, *The Universe is a Green Dragon*, Bear & Company Publishing, Santa Fe, NM, 1984, p. 171.

⁴ Fukuoka, Masanobu, *The Natural Way of Farming*, Japan Publications, Inc., 1985, p. 7.

harmful emissions into the air. So, having noticed all the plants growing in my yard with absolutely no help from me, I decided to give the tomatoes the same opportunity and ended up with a bumper crop. The real question, however, was not would they grow without my help, but why did I so arrogantly presume they would not? As Fukuoka explains, “The seeds sown by nature are not so weak as to grow only in plowed fields. Plants have always grown by direct seeding, without tillage. The soil in the fields is worked by small animals and roots, and enriched by green manure plants.”⁵ He goes on to point out that chemical fertilizers have only recently become indispensable because the intentional spreading of manure and compost by farmers has depleted the land from which it’s taken. Likewise, the use of pesticides and herbicides has destroyed nature’s balance by destroying those vital animals and roots in the soil, which, like a dragon, automatically controlled pests and weeds effortlessly. Fukuoka believes that, “Once we accept that nature has been harmed by human knowledge and action, and renounce these instruments of chaos and destruction, nature will recover its ability to nurture all forms of life.”⁶

Fukuoka, who died last year, a pioneer of no-till farming, successfully used his method of natural farming to grow between 22 and 33 bushels of grain per quarter acre, something equal to or better than modern agricultural methods. But would you believe the secret to his success was *doing nothing*? He explained that while other agriculturalists “get swept up in fiddling around [with] new methods requiring additional expenditures and effort by farmers,” he took the opposite track by telling himself, “I don’t need to do this, I don’t need to do that.’ After thirty years at it, I have managed to reduce my labor to essentially just sowing seeds and spreading straw. Human effort is unnecessary because nature, not man, grows the rice and wheat.”⁷

I think it’s more than coincidence that Fukuoka is Japanese. Unlike western mythology that slays its dragons, easterners honor them. I think on an intuitive level, it’s easier for our eastern counterparts to appreciate the dragon, and to allow it to do its work without interference. As he explains, “Natural farming is a Buddhist way of farming that originates in the philosophy of ‘Mu,’ or nothingness, and returns to a ‘do-nothing’ nature.”⁸ It is written in Taoism, for example, “the Master acts without doing anything and teaches without saying a word. Things arise and she lets them come; things disappear and she lets them go.”⁹ In his book, *The Way of Zen*, the late Alan Watts explains that this principle of inaction, of accomplishing by doing nothing, is called *wu-wei*, which literally means “not-making,” or “doing without doing.” As Watt’s puts it, “Now this impossibility of ‘grasping the mind with the mind’ is, when realized, the non-action (wu-wei), the ‘sitting quietly, doing nothing’ whereby ‘spring comes, and the grass grows by itself.’”¹⁰ But the importance of “doing nothing” is present, to some degree, in

⁵ Ibid. p. 5.

⁶ Ibid. p. 6.

⁷ Ibid. p. 16.

⁸ Ibid. p. 23.

⁹ See Mitchell, Stephen, trans., *Tao Te Ching*, Harper & Row, New York, NY 1988, #2.

¹⁰ Watts, Alan W., *The Way of Zen*, Vintage Books, New York, NY, 1957, p. 141.

our own western tradition. In Judaism, it is called the Sabbath, the sacred command to rest, to do nothing. And in Christianity it's called "grace," the idea that salvation comes without any effort on our part.

Perhaps now, more than ever before, as the mechanisms of our own ingenuity are rapidly destroying our planet during the greatest mass extinction in world history, we must begin to honor our dragons as the life sustaining natural forces they are. And we honor them most, by trusting them and getting out of their way. How often we feel the anxiety created by exaggerating the importance of what we do. It's vital that I get my work done. It's vital that I get where I'm going to on time. It's vital that the economy continues to grow. But the truth is, everything that is really vital, our breathing, blood flow, digestion, even our desire to procreate, and, of course, the very beating of our heart, happens automatically, without any effort or thought on our part at all. "Do not worry about your life," Jesus said, "what you will eat or what you will drink, or about your body, what you will wear. Is not life worth more than food, and the body more than clothing?"¹¹ There is no need to worry about these vitals, because the dragon in each of us takes care of all these things, just as the great dragon holds the Universe together effortlessly. To interfere with these vital processes, in our attempt to arrogantly improve upon what has occurred naturally in the Universe since it first began, and in our bodies from the time we are born, is to slay the dragon, and, in so doing, to threaten the life force that permeates all things. "Though there are no dragons, we are dragon fire," writes Brian Swimme, "We are the creative, scintillating, searing, healing flame of the awesome and enchanting universe."¹²

¹¹ Matthew 6:25

¹² Swimme, *ibid.*