Article

Part I: A Critique of River Out of Eden: The Digital Adam and Eve

Robert Campbell *

ABSTRACT

The incredibly complex interdependent structural processes of the cell as it relates to organs and the host creature are not understood and yet Darwinists of Dawkins' persuasion insist that it works and evolves by accident. The only purpose is the survival of DNA sequences in a digital river out of Eden that reduces us all to mindless robots driven by greed. Recent evidence confirms each protein coding gene can code for many proteins through a complex variety of processes and epigenetic factors that can also employ the non coding sequences that constitute more than 95% of the human genome. New behavioral patterns are accommodated and can be heritable over generations without altering base-pair sequences of DNA. The emergence of the relatively fixed vertebrate body plan with cerebral hemispheres anchored to an autonomic nervous system anticipated developments 400 million in the future together with hierarchical developments in the plants and invertebrates in tandem with geological evolution.

Key Words: Charles Darwin, Theory of Evolution, Cosmic Order, intellegent direction, spirituality, atheist, Richard Dawkins.

River Out of Eden - Ch. 1-The Digital River:

The double speak proceeds in Dawkins' first chapter [3] by suggesting that religions are grounded in ancestor worship and that it is real ancestors not supernatural gods that hold the key to understanding life. Is religion really grounded in ancestor worship? According to the founders they are based upon direct experiential insights into a transcendent and intelligent creative order involving Divinity, the Dharma, and the Tao in various traditions.

The point here is not to justify traditional religions, nor the cultural biases that have become associated with them. The point is that Darwinism is an unsubstantiated belief that cannot claim to be based upon direct experiential insight into the creative process. It is pure conjecture, yet Dawkins insists that life is just digitized information in a river of genes out of Eden.

Dawkins points out that ancestors were survivors and are rare compared to descendants, but this is not a very "astonishing" fact as he claims. It is hardly a profound or meaningful basis for a new belief system to explain the whole creative order.

* Correspondence: Rober Campbell, Independent Researcher. Website: http://www.cosmic-mindreach.com
E-mail: bob@cosmic-mindreach.com
Note: The articles presented in this issue are based on my book "Downsizing Darwin: An Intelligent Face for Evolution" self-published in 1996 [1]. More information is available at my website [2].

If a successful life is measured solely by prolific numbers of offspring, thus determining successful genes, and if this is the sole reason why birds fly well, fish swim well, and why we love life, sex and children, then the selfish gene is ultimately the only reality and greed is the only moral. By this standard we may be able to understand why we "love" our own children or close kin, but why should we love or even respect the children of others, except as potential mates to propagate our own greedy genes? Social relationships all become reduced to strategic alliances of mutual greed. Better to kill off others outside our alliances to make more room for own greedy genes to succeed, at least to the extent that we can do it successfully.

Mother Theresa was obviously severely deranged, to say nothing of Jesus Christ or the Buddha, or the countless selfless contributors to enhancing the human condition. And childless souls like Isaac Newton, Copernicus, Michelangelo, and Leonardo were likewise all losers, unless we are to think of them as worker ants foregoing offspring so that others, who might happen to share some of their genes, may better survive. The most intelligent and compassionate among us must be blind slaves of genes, along with the most mindless of the propagating majority. This view of Darwinism denigrates us all. It would leave us bereft of any sense of meaning to our being except the blind gratification of animal drives. Insight into the creative order begins and ends with our own greedy flesh.

Darwin himself did not endorse such an extreme view. He took issue with the dogmatic Genesis view held by the church, however he was not an atheist in the same extreme sense that a modern Darwinist is. Nothing was known of molecular biology during his time.

Genes, it is claimed, are not upgraded or otherwise altered in the using. They are passed on unchanged except for very rare random errors, a few of which may bestow certain advantages. Now how does any biologist know with such supreme certainty that this is so? How does one know that a so-called "error" is really an error, not just sometimes, or most of the time, but *always*. Since there is no decisive "proof" available, this must be accepted as an article of faith, along with the rest of the package.

Evidence to the contrary has been mounting over the past decade or more. The number of protein coding genes in the human genome, originally thought to be over 100,000, is now estimated at just over 20,000 and yet it is known that one gene can code for many proteins through a variety of processes. Non-coding DNA sequences called introns account for more than 95% of the base pairs in the human genome and used to be called junk DNA. It is now known that non-coding sequences, together with epigenetic factors can drastically alter the pattern of gene expression. Although epigenetic factors[1] such as DNA methylation patterns and histone tail modifications, do not alter the base pair sequences of DNA they are known to adjust gene expression to reflect specific behavior and circumstances[2]. Acquired traits have been shown in various remarkable cases to be heritable from generation to generation.[3]

[1] Campbell R. Gene Expression, 2011: http://www.cosmic-mindreach.com/Gene_Expression.html
[2] Morgan DO. The Cell Cycle, Principles of Control. Ch. 4.12. Oxford Univ. Press, 2007.
[3] Carey, Nessa. The Epigenetics Revolution. London: Icon Books, 2012

There are related processes such as gene splicing that alter transcription. Some DNA sequences can change relative position (self-transpose) within the genome of a single cell by "copy and paste" or "cut and paste". Transposition can create phenotypically significant mutations and alter the cell's genome size. And a host of small RNAs transcribed from non-coding DNA sequences are also known to regulate gene expression in various ways.

There is also compelling evidence that evolution cannot proceed exclusively by rare random mutations since many processes in the cell are mutually interdependent as a set. Professor Michael J. Behe in his book *Darwin's Black Box,* uses the example of a mouse trap to show that if any one part of even such a simple apparatus is missing the mouse trap will not work. A single cell is a far more complex interdependent apparatus.[4]

Genes, in this strange language of double speak, are then invested with values such as companionship. Genes must be good at working cooperatively with other genes of the species, it is maintained, while at the same time maintaining that they compete with other genes. "Good genes" know when and how to be altruistic to good collective advantage. These clusters of inanimate molecules that we call genes are invested with complex intentions and value judgments. This is quite apart from any sense of social propriety that we may entertain as individuals, and yet Dawkins implies that our genetic inheritance predetermines our judgments as well. If our judgments are in fact predetermined why does Richard Dawkins feel a need to sway the world to his view?

Now genes of different species are said to be in different rivers that don't have to cooperate, at least not in the same way, according to Dawkins. It is an inverted river that keeps branching downstream, all the rivers diverging from common ancestors, all the way back to invertebrates, plants and bacteria and presumably to the first living cell, however it came to get started.

It is maintained that major divergences of rivers, such as the mammals from the reptiles, did not in fact represent major events at the time, that they were no different in kind to any other divergence in species brought about by geographical separation. This is a little like saying that because a work of art begins with a single meaningless pencil stroke, the end result is only a meaningless scribble. Accidental geographical separation is also considered necessary in order for diverging species to evolve in parallel.

Both the fossil record and the living record provide powerful evidence to the contrary. The first mammals diverged from the mammal-like reptiles in the Triassic period early in the Mesozoic era, about 225 million years ago[5], when the reptiles were beginning to bloom into a great divergence of species. Yet during the reptilian period the mammals experienced very little evolution apart from refinements associated with warm blooded activity, all being confined to small rodent-like creatures until nearly the end of the reptilian reign.[6] The reptiles completely dominated the scene, then abruptly became almost totally extinct about 65 million years ago.

[4] Behe, M.J. *Darwin's Black Box.* New York: Touchstone Books, 1998
[5] Purves B, Orians G, Heller C, Sadava D. Life, The Science of Biology, p 680. Sunderland MA: Sinauer. 1997.
[6] Pough FH, Janis CM, Heiser JB. Vertebrate Life, Ch 19. Prentice Hall, 1999

Despite all the reptilian "success," it wasn't mammalian divergence from the end of the reptilian period that survived and blossomed in its turn. It was those tiny shrew-like rodents that had emerged near the beginning of the reptilian period, and that had undergone little change for 160 million years, that suddenly and rapidly exploded into a great divergence of mammalian species ancestral to those that we know today.

The mammalian expansion had even started just before the dinosaurs met their demise, along with a global explosion of the flowering plants, and a diversification among the insects, which happened to provide a more efficient pollinating vector. A few flowering plants and insects had typically diverged much earlier, but not in abundance. After many millions of relatively stagnant years why should they choose that precise period to diversify? At the same time India had begun slamming into Asia, pushing up the Tibetan plateau. Continents around the globe were under compression, rising and eventually creating vast areas of savanna where successive waves of mammalian herbivores could thrive and explore new mammalian forms.

So it wasn't just an accidental series of mutations among a few primitive mammalian rodents that heralded the beginning of the mammalian age. Concordant developments among the plants and invertebrates provided an enriched food supply to support the higher metabolic rate of the mammals and birds. And global tectonics cooperated by providing appropriate terrain. A genetically unrelated diversity of factors converged in a relatively short space of time to make the event possible. The reptiles had had their day in the sun and it was time for them to make room for new developments not associated with the survival of DNA sequences in their genes.

Should we now believe that the genetic sorting out of 160 million years of highly successful reptilian evolution, after the early rodent-like mammals had branched off, turned out to be a waste of time and a nearly complete failure? If they were so successful for so long, why didn't they evolve again from the remaining reptilian stock? And are we to believe that all of the information genetically assimilated for successful survival strategies was suddenly forever lost to surviving reptiles, as well as to future generations of mammals?

Why then had mammalian evolution been so lethargic for so long, only to burst forth so quickly in such great diversity with the reptilian extinction? Was it really just that they couldn't compete with dinosaurs? It took the reptiles over 200 million years to explore the limits to size, while the mammals did it much faster in more refined body plans, once they got started. Is this just another advantageous series of accidents that didn't happen to come along until late and then came in a flurry? Was there no integrating intelligence in the works that could reinvest the lessons learned by the dinosaurs to the advantage of the mammals?

Dawkins goes on to chastise his zoologist colleagues, some of whom are tempted to assign deep structural significance to the great divisions in the animal kingdom, since they represent the emergence of new blueprints or *bauplans* as they are sometimes called. He apparently believes that humans and cockroaches are equal players in the evolutionary theater, with any competitive edge going to the roaches, since they have been here relatively unchanged for a couple hundred million years and so have a highly successful survival record. Is that beautiful and inspirational?

The fact remains that however modestly and gradually the vertebrates diverged from the invertebrates, there was a vastly different body plan associated with their emergence, linked to a completely new way in which to integrate their experience.

With the primitive fish came the emergence of an autonomic nervous system coupled to cerebral hemispheres. Worms, crabs, insects and the like, don't have this complex apparatus. With the vertebrate animals emotive experience, associated with the autonomic nervous system, could be mirrored in cerebral awareness to some extent.

The cerebral hemispheres are like a screen on which emotional experience is projected as if onto a TV screen where it can be observed.[7] This is the basis of self consciousness and it evolved into the remarkable ability to intentionally modulate emotive or emotional behavior in the higher vertebrates. Higher vertebrates can select from a variety of emotional responses and tailor them to suit their circumstance.

No one but Dawkins is insisting that this unique new ability must have come into being perfectly formed. This is a smoke screen that he injects to refute the evidence. For some three hundred million years prior to the first vertebrates, the invertebrates were busy developing many different body plans with different sensory modalities and diverse means of locomotion, exploring them all to the full, from sponge and jelly fish to millipede, mollusk, ant, bee and octopus.

Then suddenly a whole new plan emerges that becomes anchored to a relatively fixed internal skeletal arrangement and limb structure, even similar sense and visceral organs from the reptiles to man. Integrating the sensitive mobility of the vertebrates is an autonomic nervous system coupled to cerebral hemispheres. However it got started this is a profoundly different new body plan capable of higher levels of sentient awareness. This evolutionary development reflects an intelligence inherent in the creative process capable of anticipating future developments in broad outline, hundreds of millions of years in advance.

There has been no significant vertebrate divergence from this common plan for three hundred million years, no millipede lizards or eight legged spidermen, no compound eyed aardvarks or hummingbird cocoons. The fact is that with the vertebrates the whole focus of evolution changed to a higher level of integrating experience, a more conscious and sentient level harnessed to a common skeletal and nervous system format.

This did not occur within the infinitely more diverse format of invertebrate evolution. Neither did invertebrate evolution have to explore the same limits to size that the vertebrates have. The invertebrates were focusing on methods of sensing and responding to a huge variety of circumstance, not on the limits to behavior associated with four limbs. There's never been a forty ton spider, ant, or crab. Even the giant mollusks and cephalopods are no match for dinosaurs and whales. These obvious facts have been conveniently ignored.

The climb up the ladder of sentient awareness has integrated the whole of vertebrate evolution into a common scheme that has obviously drawn on the several hundred millions of years of prior

[7] **MacLean PD. The Triune Brain in Evolution: Role in Paleocerebral Functions. NY: Plenum Press, 1990.**

invertebrate experience. All the diverse modes of sensitive motility did not have to be re-explored again in order to settle on a single quadruped format with a common mode of nervous system integration. This is a powerful indication that the whole creative process is in communication with itself, just as the various parts of the human body are. Why is no scientist trying to determine how? The current constraints of the Darwinian paradigm preclude the question.

It isn't an easy thing to formulate an alternate paradigm. It is commonly believed that it all has to do with chemical messages. Of course there is chemical signaling, but that isn't all. It's like saying because we send letters that we can't sense another's mood or meaning, or the feeling of spring. How is the sense in the message to be read and understood if there is no more to the creative order than inanimate messages going from place to place like billiard balls.

There is nevertheless a rather obvious hierarchical order to the evolutionary process in which each higher level is dependent upon the capabilities achieved by the lower levels in the long hard climb toward higher levels of sentient awareness. We are indebted to plants for oxygen and food, to invertebrates for the basics of sensory response, and our autonomic nervous system is anchored firmly to the primitive parts of our cerebral hemispheres associated with the reptile and lower mammal. These are well established biological facts.

Although we are emotionally anchored to our early vertebrate ancestors, the neocortex (or new brain) has exploded in size with the higher mammals and man. This enhanced intellectual capacity is not directly colored by emotional input and thus has brought with it an increasing ability to modulate and tailor more primitive emotional urges to better consciously suit the needs of circumstance. We will return to this later.

Dawkins keeps shifting back and forth in double speak. His rivers of genes are now digital rivers, physical bits of genetic know-how that offer no place for values and purpose. But somehow there is only one genetic code for the whole of earthly life, from bacteria to humans (and perhaps only one in the universe if life originated from space). The chances of this happening twice by accident, he says, are about a million million million million million to one, so life on Earth *must* have evolved from a single cell, he insists. There are other scientific options possible, which we will come to later, but he doesn't acknowledge them since it would erode his argument. In fact the odds against life emerging on Earth, or anywhere else, by accident are infinitely greater than those that he quotes but this fact is also ignored.

Genes are digital information and this, Dawkins claims, has dealt the final killing blow to vitalism. By implication he means to also sweep aside any other possible belief about the nature of life. By some unexplained leap of logic he makes the remarkable statement that it is *no longer possible* to believe that there is anything fundamentally mysterious in living protoplasm.

I am not contending here that genes do not encode discrete bits of information but how does one conclude from that bit of knowledge that there is nothing else whatever involved in the creative process? And if less than one percent of the diverging branches of the evolutionary tree have survived, are we then not forced to conclude that over ninety-nine percent of the information accumulated through the evolutionary process is forever lost to future generations and a waste of time? According to the same logic we may expect the percentage of retained information to get

smaller and smaller as the process proceeds. The genetic river must be drying up, despite all its branching and diversification. The DNA struggle for survival is destined to lose. The contradictions to the exclusive Darwinian argument keep multiplying with the diverging branches of the evolutionary tree.

Jumping from genes being encoded information to genes being capable of exclusively directing living processes is like saying that because a set of engineering drawings and specifications contain all the information necessary to erect a building that they can do it themselves. There is no team of architects or engineers producing the most incredibly complex of plans. They happen by accident, even though countless useless mistakes can apparently perpetuate themselves in reptiles for 160 million years before their demise. There is no construction company reading the plans, organizing and assimilating the skills, the equipment and the materials and then erecting the structures. All this happens by itself without supervision or management. And there is no budgeting, or financing, or sales involved. The chemical resources are assumed to be gratis and if there's a surplus of cement more buildings can go up, whether there's plumbing or electricity available for them or not, and without regard for whether the buildings are of the slightest use to anyone. Buildings are infinitely simpler things than cells, not to mention multi-cellular creatures.

There is no intelligent direction integrating and balancing the diverse requirements of biological structures, nor are there intelligent occupants in the biological buildings of Dawkins' world. That would include Dawkins himself. "Life is just bytes and bytes and bytes of digital information," he says. Let's all go out and propogate as much as we can, for it is only the survival of our genes that matters, and for that who needs to study genetics, or anything else.

Not quite. There's a bit more to it than that, says Dawkins. Bodies are important too. Genes inhabit bodies he observes. A polar bear has about 900,000,000 cells grouped into a couple of hundred types for different body parts, he says, all with the same genes. How do the body parts differentiate? Only certain genes are programmed to turn on in certain cells. How are they programmed? By the computer method known as bootstrapping, says Dawkins, who confesses that there is an element of the chicken and egg paradox here, then hurries on to say it is not insuperable. How does bootstrapping work? By chemical differences caused by "polarities" within the fertilized egg as it divides again and again. How does the polarity come into being and function? He doesn't pursue this process of regress further, for there surely seems to be some kind of incredible communication system at work, which intelligently organizes the orderly development of polar bears. That discovery would refute his whole argument.

Then there is the physical shaping of the embryo as it develops. How does a glob of replicating cells assume a complex functional form. He marvels at the process but he doesn't touch on how this works. Nor does he comment on how all the cells in the mature body somehow communicate with one another to maintain a balanced commitment of available resources to meet an immensely complex priority of mutual needs. The truth is that no scientist knows how it all works together. Science doesn't know how experience is organized and integrated. When it gets down to this fundamental level of abstraction the inquiry stops. Dead in its tracks! It stops even though science implicitly acknowledges that genes are hierarchically ordered, that some genes control other genes that in turn control others. But if there is hierarchical order at work this contradicts random order as the driving mechanism. We can hardly believe that one of those billiard balls could suddenly

become a cue ball and cue with the ability to shoot other billiard balls around at will with unerring accuracy.

Then come the blind assertions, the leaps of faith. Dawkins invents a "...throbbing, heaving, pullulating, protoplasmic, mystic jelly," new descriptions of life's animating reality coined to ridicule all opposition to atomic billiards. "Nineteen fifty-three, the year of the double helix, will come to be seen ... as the end of mystical and obscurantist views of life..." he says. Really! What can it be but another obscurantist view of life!

References

1. Robert Campbell, Downsizing Darwin: An Intelligent Face for Evolution. MindReach Library (1996).

2. http://www.cosmic-mindreach.com

3. Richard Dawkins, River out of Eden: A Darwinian View of Life. Basic Books (1996).

4. Richard Dawkins, the Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design. W. W. Norton & Company (1996).

5. Richard Dawkins, the Selfish Gene. Oxford University Press (1990).

6. Pough FH, Janis CM, Heiser BH. Vertebrate Life 5th Ed. NJ: Prentice Hall, 1999

7. Purves WK, Orians GH, Heller HC, Sadava D, eds. Life: The Science of Biology 5th Ed. Sunderland MA: Sinauer Assoc, 1998.

8. Morgan DO. The Cell Cycle, Principles of Control. Ch. 4.12. Oxford Univ. Press, 2007.

9. Gilbert SF. Developmental Biology 5th Ed. Sunderland MA: Sinauer Assoc, 1997

10. Voet D, Voet JG, Pratt CW. Principles of Biochemistry 4th Ed. John Wiley & Sons, 2012.