



BP – Complexity

"...how do the advanced waves know where to find the electron? Because the electron has told them where to look." [John Gribbin](#)

Complexity – with some commentary from Jane's time in Linked In discussion groups. Written in her first person (often in response to Paul S) in this, our narrative font (and often segmented with **&&^%):

I believe in evolution starting billions of years ago, just not Darwin's version. I am convinced by much converging evidence that "survival of the fittest" is not what evolution is about, that mutation and natural selection are not a sound foundation, and there is intelligence in the "fabric" of the universe, though the intelligence I advocate is not equated with a personified Deity (though it does not necessarily preclude concepts of God or religion). Both atheists and Creationists have provided some very useful scientific information and research.

We must be willing to follow the evidence.

*"Another reason that scientists are so prone to throw the baby out with the bath water is that science itself, as I have suggested, is a religion. The neophyte scientist, recently come or converted to the world view of science, can be every bit as fanatical as a Christian crusader or a soldier of Allah. This is particularly the case when we have come to science from a culture and home in which belief in God is firmly associated with ignorance, superstition, rigidity and hypocrisy. Then we have emotional as well as intellectual motives to smash the idols of primitive faith. **A mark of maturity in scientists, however, is their awareness that science may be as subject to dogmatism as any other religion.**"*

[M Scott Peck](#) - psychiatrist and former Medical Director of New Milford Hospital Mental Health Clinic, Connecticut, from *The Road Less Travelled: A New Psychology of Love, Traditional Values and Spiritual Growth*, 1978

*"In fact the a priori reasoning is so entirely satisfactory to me that **if the facts won't fit in, why, so much the worse for the facts is my feeling.**"* **Erasmus Darwin**, in a letter to his brother Charles

If evolution was merely about survival, simple organisms could have survived just fine, or reptiles or animals - thereby accomplishing your proposed goal of evolution - much before advancement into further stages of complexity and consciousness. But it kept going.

Our capacities for music, art, mathematics, imagination, etc were FAR ahead of the adaptability and survival needs at the time.



How exactly do aesthetics fit with “survival of the fittest”? What adaptive role does [the right hemisphere](#) of the brain play with its transcendent and meaning-seeking capacities and drives?

Physics professor, [Amit Goswami](#): *“Darwinian theory is not very compatible with the laws of entropy. The entropy law says that all things should proceed from order to disorder. The law defines an arrow of time; seeing that entropy has increased today compared to yesterday, you can tell that yesterday was the past and that time has moved on. But biological evolution proceeds in the opposite direction: from less order to more order, from the simple to the complex...It, too, defines an arrow of time; seeing that life in the past was simpler than it is today, we can discern the past. However, there is nothing in neo-Darwinism theory to explain the biological arrow of time: mutations are random, not directional; selection also has no obvious directional preference toward complexity. As the physicist Paul Davies has argued, natural selection selects for fecundity, not for complexity.”*

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How to account for the intelligence/meaningful information – from inorganic to organic?

George Wald (1967 Nobel Prize winner in Medicine), "The Origin of Life," [Scientific American](#):

*"This was only one of Pasteur's experiments. It is no easy matter to deal with so deeply ingrained and common-sense a belief as that in spontaneous generation. One can ask for nothing better in such a pass than **a noisy and stubborn opponent, and this Pasteur had in the naturalist Felix Pouchet, whose arguments before the French Academy of Sciences drove Pasteur to more and more rigorous experiments. When he had finished, nothing remained of the belief in spontaneous generation.***

*We tell this story to beginning students of biology as though it represents a triumph of reason over mysticism. In fact it is very nearly the opposite. **The reasonable view was to believe in spontaneous generation; the only alternative, to believe in a single, primary act of supernatural creation. There is no third position. For this reason many scientists a century ago chose to regard the belief in spontaneous generation as a "philosophical necessity."** It is a symptom of the philosophical poverty of our time that this necessity is no longer appreciated. Most modern biologists, having reviewed with satisfaction the downfall of the spontaneous generation hypothesis, yet unwilling to accept the alternative belief in special creation, are left with nothing.”*



Fortunately breakthroughs since then in quantum physics, neuroscience and biochemistry have converged to provide the scientific validation of a third option.

Physicist Paul Davies “No Miller-Urey type of experiment has succeeded in fabricating the energizing chemicals used by extant life: they are all manufactured inside cells. Spoon-fed RNA may be a slick replicator, but without an energy-liberating metabolic cycle already in place, these fecund molecular strands would soon become genetic drop-outs.

*An obvious escape route is to seek a self-replicating model far simpler than RNA to start the whole game going. The RNA world would then come only much later. **It is conceivable that a relatively small molecule might be found that could replicate faithfully enough.** The way would then lie open for molecular evolution to elaborate it, adding information step-by-step, until a level of complexity comparable to short strands of RNA was achieved. The system could then be “taken over” by RNA.*

*Is this how biogenesis happened? Maybe. **However, there are many obstacles to the theory, such as doubt whether small molecules can be accurate enough to avoid the error catastrophe. In extant life, high fidelity replication seems to be associated with large, complex systems.** The largest genomes, with their editing and error correcting procedures, are the best copiers. So, if the trend among nucleic acid replicators is followed down to smaller and smaller size, one expects only poor replication accuracy from simple molecules. Moreover, the smaller a molecule is, the more drastic will be the relative effect of any mutational change and the greater the chance that the mutation won't inherit the property of being a replicator itself.”*

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Examining theories of “emergence”

“It is no more heretical to say the Universe displays purpose, as Hoyle has done, than to say that it is pointless, as Steven Weinberg has done. Both statements are metaphysical and outside science. Yet it seems that scientists are permitted by their own colleagues to say metaphysical things about lack of purpose and not the reverse. This suggests to me that science, in allowing this metaphysical notion, sees itself as religion and presumably as an atheistic religion (if you can have such a thing).”

Michael Shallis - Astrophysicist, Oxford University, *In the eye of a storm*, New Scientist, January 19, 1984



When neither the prion or monomer defense of the [materialist paradigm](#) worked, Paul S went back to his standby experts, Deacon and Kauffman, and waving the Bernard cell card, though each has had their specific flaws laid bare.

My preferred lead expert is physicist Paul Davies. He looks at all the various proposed scientific explanations:

“Freeman Dyson argues that two systems, one for hardware one for software, came together to produce life as we know it. Dyson takes his cue from Oparin and his followers, who maintain that the very first step towards life involved the formation of some sort of cells or vesicles. We can think of these photo-cells as naturally occurring test tubes containing concentrated primordial soup.

*Because they lack a genome, Darwinian evolution isn’t an option for Dyson’s cells, but they might still evolve by chemical means. To investigate how, Dyson formulated a mathematical model to describe a chemical mixture, such as soup of amino acids that changes with time as the chemicals react in complicated ways. Especially important in Dyson’s model is the assumption that molecules can catalyze the production and mutation of other molecules. **Dyson’s chemical bags are not replicators; their order arises spontaneously, rather than by genetic specification. The production of molecules within the cells is therefore very imprecise.***

*Although Darwinian evolution needs some form of heritable replication plus natural selection, it is possible to conceive of other, weaker, forms of selection that might serve to produce a rudimentary kind of evolution, to get the thing started. ..If the cells can pass on at least some of their chemical characteristics, and if resources are limited, the most successful cells (from a chemical point of view) will prevail...**The challenge then is to explain how this rather hit-and-miss selection turned into the more precise gene-based natural selection of conventional Darwinism.***

A possible solution is parasitism. Dyson suggests that the gene-less cells were invaded by primitive nucleic acid replicators, and the two systems melded...Where might all of this have taken place? Oparin envisaged his coacervate cells in some pond or sea, but if life started on or beneath the seabed, then oily blobs may not be the answer...Euan Nisbet of University of London has suggested that perhaps membranes might form within cavities, like creatures trapped in tiny caves, to be liberated in due course by some geological upheaval.”

Paul S is a lawyer, PhD, successful real estate company owner and die-hard Newtonian, materialist, mechanist bent on finding a physical explanation for complexity. He actually posited prions, a parasite, the disease carrying protein (think Mad Cow), as the explanation because they “reproduce” – very loosely defined – and there can be variations in their “replication” so the selection process can “choose” among options.



Proteins, however, don't arise without the machinery of a living cell, so can hardly have been the ancestors of life. But posing an invading disease carrying protein as the explanation for complexity or consciousness? Quite a stretch.

After pushing for the "prion/parasite solution", Paul S switched suddenly to monomer amino acids that have been proven to combine into at least dimers at this point, without the need for cellular machinery (proclaiming, "It is even on TV already"). Further, he said, "... and dimers can then combine to form polymers, yes? You know this has been done right? And polymers are what proteins are, yes? You know that right? So this is a means for creating the first proteins without any DNA, right?" Obviously quite excited about his report.

However, his reference was hardly the first model to propose pathways to self-replicating molecules...

It didn't seem from what I read that there had been any self-replicating molecules that lead to more complex, pro-life (not error catastrophe), self-replicating molecules (let alone with DNA)...or as Davies would ask: *Has it been shown that the sort of small replicators painstakingly designed and fabricated in the laboratory form spontaneously under plausible prebiotic conditions, and if they do, can they avoid error catastrophe?*

No. What they state is that several challenges (to conventional materialist evolutionary theory) "may not be challenges". ...MAY be steps to making the case. And though "several" challenges "may" be met, others remain. Just a week ago, Paul was so hot on prions...the Error Catastrophe model of a path to complexity? (Which btw fits well with the Dangerous World theory). Now a new hot theory...that has yet to yield an actual self-replicating molecule that can avoid error catastrophe (and leap to DNA).

This is what I mean when I say your evidence doesn't hold up under scrutiny. Sometimes your assumptions don't have any evidence at all.

Davies: *"[It has yet to be shown] that the sort of small replicators that have been painstakingly designed and fabricated in the laboratory will form spontaneously under plausible prebiotic conditions, and if they do, whether they can avoid error catastrophe."*

No evidence, zero...but when it comes to their own foundational assumptions it seems no evidence is plenty.

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Davies: *"A completely different theory for the origin of life has been given by Graham Cairns-Smith, University of Glasgow who shares the belief that nucleic acids came late in the piece. ...Perhaps life started with information encoded in some other manner."*



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What sort of structures might serve to store the original genetic database? Cairns-Smith suggests that clay crystals offer an attractive possibility...it has to be said there is little experimental evidence to support his theory.

There are imaginative ideas involving some small physical part or process...They all share one common assumption. Once life of some sort had established itself, the rest was plain sailing, because Darwinian evolution could take over...Unfortunately, before Darwinian evolution can start, a certain minimum level of complexity is required. But how was this initial level of complexity achieved? When pressed, most scientists wring their hands and mutter the incantation, "Chance." So did chance alone create the first self-replicating molecule? Or was there more to it than that?

Life is but one example of complexity found in nature. Many other examples occur in the world around us. We see complexity in the spangled pattern of frost on the window, in the intricate wiggles of coastline, in the filigrees and whorls that adorn the surface of Jupiter, and among the jostling eddies of a turbulent river...Disorganized complexity is found all over the place, from the spatter of raindrops on the ground to tea leaves at the bottom of the cup. But organized complexity, though scarcer, is by no means restricted to biology. A spiral galaxy, a rainbow...are both complex and organized. Yet they form without any genes to specify them or any Darwinian evolution to create them.

If nonliving systems can generate organized complexity spontaneously, just by following the laws of physics, why can't life do it that way, at least in the beginning?

Some people think it can...Prigogine and his many devotees envisaged a sequence of self-organizing transitions, where matter, driven by an energy flow jumps to higher and higher levels or organized complexity, until it is truly living.

A simple but instructive example of self-organization is the formation of convection cells...The sudden transition to convective flow occurs when the system is forced far from thermodynamic equilibrium, and the resulting order is paid for by a flux of entropy from the pan into the surroundings. Without the gas to provide a source of free energy (ie to maintain a thermodynamic dis equilibrium between bottom and top of the fluid), the convection cells would vanish and the state of the water would soon sag back to featureless equilibrium.

Stuart Kauffman, at Santa Fe Institute for Study of Complexity, has tried to flesh out the details of the self-organization route to life, focusing on a chemical phenomenon known as autocatalysis.

Attractive though self-organization may seem, it faces two major obstacles when it comes to the origins of life. The first is the paucity of convincing experiments. So far, most of the experiments have been computer generated simulations rather than the real thing. This has earned the subject of complexity



something of a bad name in biology. In a now famous put-down of Kauffman's ideas, John Maynard Smith once described them, rather harshly, as "fact-free science".

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Self-Organization

More Davies:

"There is however a deeper problem of a conceptual nature. Life is actually not an example of self-organization. Life is in fact specified – ie genetically directed – organization. Living things are instructed by genetic software encoded in DNA (or RNA). Convection cells form spontaneously by self-organization; there is no gene for a convection cell. The source of order here is not encoded in software; it can instead be traced to the boundary conditions on the fluid...In other words, a convection cell's order is imposed externally, from the system. By contrast, the order of a living cell derives from internal control, from its genes (with environment influencing to some extent but principle characteristics determined by genes).

...the hexagonal convection cells I described are more reminiscent of crystalline order than of the organized complexity of biological organisms. In the absence of some new principle of self-organization that induces the production of algorithmic complexity, a crucial part of the biogenesis story has been left out. So much for the bottoms-up approach to life.

The theory of self-organization as yet gives no clue how the transition is to be made between spontaneous, or self-induced, organization – which in even the most elaborate non-biological examples still involves relatively simple structures – and the highly complex, information-based, very genetic organization of living things...It is not enough to know how these giant molecules arose or started to interact. We also need to know how the system's software came into existence. Indeed, we need to know how the very concept of software control was discovered by nature.

...we need an explanation for how a kite can turn into a radio-controlled plane...This is not merely a matter of adding an extra layer of complexity; it is about fundamental transformation in the very nature of the system.

Related to the latter criticism is the need to draw a careful distinction between order and organization. I have used the terms interchangeably but they often have opposite meanings. Properly speaking, order refers to simple patterns. A periodic sequence of 1's and 0's is ordered. ..[but] they can't possess the complex organization and information storage of a genome. Attempts to seek a route to life via self-organization often fall into a trap of mistaking order with organization.



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For instance, chemical reactions that display rhythmic cycles are often given in accounts of self-organization, but periodic behavior is clearly an example of nonrandom order.”

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Consciousness, interconnectedness, quantum (non-mechanistic) processes

What about quantum “non-locality” in biology? By the way, non-locality is about a transcendent interconnectedness...the spooky action at a distance that Einstein referred to...the fact that cause-and-effect is not a material chain consisting of only physical, measurable causes and linear mechanistic thinking. Something non-material is a causal reality.

(like Nobel neuroscientist Roger Sperry said *consciousness is primary and a causal reality*...here we have neuroscience, physics and biology (additional fields as well) all converging into a coherent model.)

Evidence of non-locality in biology? **Biologist Mae Wan Ho documents many examples of coordinated acts between biological molecules. The rapidity of these activities that are coordinated over long distances rules out any explanation in terms of classical processes:**

“...remarkable is the message from quantum theory: that we are inseparably entangled with one another and with all nature, which we participate in co-creating ^[46]. It is this holistic, organic perspective that can enable us to negotiate our path out of the moral maze of genetic engineering biotechnology. It provides the basis of a new ethic of science that can reshape society and transform the very texture and meaning of our lives. Seattle has shown us that things can be different. Society does not have to be ruled by the dominant culture. Science can transcend the dominant status quo to reshape society for the public good, which is also the private good. We begin to appreciate how the purpose of each organism and species is entangled with that of every other. Our humanity is a function of this entangled whole, and we cannot do arbitrary violence to one another, nor to the nature of other species without violating our own. The ethic of science is no different from that of being human.”

Dr. Mae-Wan Ho, [Towards a New Ethic of Science](#), 16 Mar 2000:

Quantum Coherence and Conscious Experience MWH 1997: *“The extracellular and intracellular matrices together constitute an excitable continuum for rapid intercommunication permeating the entire organism, enabling it to function as a coherent whole [13]. The existence of this liquid crystalline continuum has been directly demonstrated in all live organisms by a noninvasive optical imaging technique recently discovered in my laboratory [17-19]. It constitutes a “body consciousness” that precedes the nervous system in evolution [16]; and I suggest, it still works in tandem with, and independently of the nervous system (see next Section). This body consciousness is the basis of sentience, the pre-requisite for conscious experience that involves the participation of the intercommunicating whole of the energy storage domain. In the limit of*



the coherence time and coherence volume of energy storage, intercommunication is instantaneous and nonlocal. Because energy is stored over all modes, the organism possesses a complete range of coherence times and coherence volumes [7].

The life cycle, with its complex of coupled cyclic processes, forms a heterogeneous, multidimensional and entangled space-time which structures experience. In the ideal, it is a quantum superposition of coherent space-time modes, constituting a pure state that maximizes both local freedom and global cohesion [7, 12, 13] in accordance with the factorizability of the quantum coherent state [20]. Quantum coherence gives rise to correlations between subsystems which resolves neatly into products of the self-correlations so that the sub-systems behave as though they are independent of one another. One can also picture the organism as a coherent quantum electrodynamical field of many modes, with an uncertainty relationship between energy and phase [21].”

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*"By coupling undirected, purposeless variation to the blind, uncaring process of natural selection, Darwin made theological or spiritual explanations of the life processes superfluous. Together with Marx's materialistic theory of history and society and Freud's attribution of human behavior to influences over which we have little control, **Darwin's theory of evolution was a crucial plank in the platform of mechanism and materialism-of much of science, in short-that has since been the stage of most Western thought.**"*

Douglas J. Futuyma - Professor of Evolutionary Biology, State University of New York, Stony Brook, *Evolutionary Biology*

Pre-existing extra-dimensions/factors

Amit Goswami, *Visionary Window*:

"Physical laws are mathematical, a fact that puzzles many scientists...if mathematical scientific laws guide the behavior of material objects, they must exist a priori to matter and transcend the material world.

Vedanta has another concept that Sri Aurobindo in India has emphasized "...the idea that descent or involution of consciousness must occur before ascent, or evolution, can occur. According to this cosmology, the transcendent consciousness (or Brahman) in order to know itself projects itself into levels that are grosser and grosser."



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Dense matter is trapped light...light's energy is in its motion...when it becomes matter it loses quantum potential. As consciousness descends, it forgets itself and binds itself to ignorance."

[And we use "dense" to describe someone who just doesn't get it (whatever the "it" is)...]

At the lowest level, the material level, all is unconscious. The journey is called involution because all the higher levels remain potential in matter, ready to unfold.

*Once involution is complete, evolution begins...quite different from the materialist cosmology. **Life is not seen as emerging from matter - from material properties and interactions – alone, for a higher can never emerge from a lower. Instead life is understood to exist already in potential and to emerge at the level of complexity of matter where it can be supported.**"*

The cosmology just presented is consistent with ancient, indigenous, and esoteric traditions.

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***"Real progress with the mystery of biogenesis will be made, I believe, not through the exotic chemistry, but from something conceptually new. Could some sort of quantum organizing process be just what is needed to explain origin of informational macromolecules?...Like DNA, quasi-crystals seem at first sight to be "impossible objects", with enormous algorithmic complexity yet somehow quantum mechanics permits them to come into existence...their study may elucidate how quantum mechanics can organize the formation of complex physical structures with high information storage capacity."** Carl Wieland Published: 19 January 2010*

Information and the Nature of Reality Edited by Paul Davies and Niels Henrik Gregersen (2010 Cambridge U Press):

From Intro: **"Instead of taking mathematics to be primary, followed by physics, and then information, the picture should be inverted in our explanatory system, so that we find the conceptual hierarchy: info -> laws of physics -> matter...and involves the observer.**

*Certainly the role of observer in qm is unlike that in classical mechanics. Moreover, if qm really does provide the most fundamental description of nature, then at some level it must incorporate an account of consciousness and other key mental properties (like the emergence of semantics, impressions of free will). **Stapp champions case for understanding mind and its observer status in a quantum context, and sets out a well-argued case for taking consciousness seriously (not defined as an epiphenomenon) and for accommodating it within a quantum description of nature.***



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Seth Lloyd uses the concept of quantum information science as the basis for a world view, declaring that nature processes quantum information whenever a physical system evolves.

John Maynard Smith: The sequence structure of DNA is causally related to the production proteins in a specific way. Informational structures also play an undeniably causal role in material constellations, as we see in, for example, the physical phenomenon of resonance, or in biological systems such as DNA sequence. What is a gene, after all, but a set of coded instructions for a molecular system to carry out a task? No evolutionary theory can have explanatory function without attending to the instructional role of DNA sequences and other topological structures.

Keith Ward and John Haught: the concept of God as an informational principle at work in the universe...[like the] Ancient stoic notion of Logos as a fundamental organizing principle of the universe."

Physicist, [John Gribbin](#) says that light and photons have " **preferred orientation**". From his book, *Schrodinger's Kittens and the Search for Reality*.

"The physicist Paul Davies has summed up then situation succinctly "It is as though, prior to observation, there are two nebulous electron 'ghosts' each inhabiting one chamber, waiting for an observation to turn one of them into 'real' electron, and simultaneously to cause the other to vanish completely." That word 'simultaneously' is also important here, pinpointing that this is another example of non-locality at work."

Davies: "The source of semantic info can only be the environment of the organism, but this begs the question of how the info got into the environment in the first place. Follow the chain of causation and the question becomes one of cosmology. Where did the information content of the universe come from? Information is not something that is supposed to come for free, but something you have to work for. This is really just the 2nd Law revisited, because the spontaneous appearance of information in the universe would be equivalent to a reduction in entropy of the universe - a violation of 2nd law and thus a miracle.

The assumption that life is a fundamental cosmic phenomenon, predestined to develop wherever conditions permit, remains widespread...few proponents of the "life-will-out" thesis fully appreciate the sweeping implications of what they are proposing. Deterministic thinking represents a fundamental challenge to the existing scientific paradigm...it slips an element of teleology back into nature, a century and a half after Darwin banished it.



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For 300 years science has based itself on reductionism and materialism, leading inevitably to the meaninglessness of physical existence. A bio-friendly universe would mark a decisive shift. the momentous significance has been eloquently expressed by de Duval "from the perspective of determinism...I view the universe not as a 'cosmic joke', but as a meaningful entity - made in such a way as to generate life and mind, bound to give birth to thinking beings able to discern truth, apprehend beauty, feel love, yearn after goodness, define evil, and experience mystery"...Once the tree of life is shorn of its elaborate canopy of foliage, "the structure of the trunk, with its progressive rise toward greater complexity, is clearly evident.""

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Paul S, now you are into Theory M? You must love to jump on board with new theories...that “they” or “some” physicists are speaking about. Exactly who are “they”? And who are the “some”? You know me; I like specificity and substantiation that isn’t based on unproven assumptions.

Regarding photons, those are facts that have been validated. Just because you declare No, makes them no less inaccurate or unsubstantiated. And information, like meaning, is on a level you are not connecting with...like trying to discuss infinity with someone whose imagination is stuck (constrained?) in everyday concepts of time.

Regarding information, it is distributed instantaneously. That’s the whole point of non-local and non-linear causes. It is an interconnecting principle. That level of information compared to what you are talking about is like comparing time as you perceive it, with the concept of infinity.

I mean “meaning” as our assignment of value and judgment to everything that crosses our field of vision so to speak. Not only “meaning” as in life purpose. Every event and circumstance can be perceived and responded to in myriad ways. To realize one has a profound power to choose/assign meanings (a crowning frontal lobe capacity), and that, as observers collapsing quantum waves of possibility into actualities, the meanings we choose (unfortunately at this time all too unconsciously) profoundly affect “reality,” leads to a new motivation to pay attention to assumptions and conclusions (meanings and interpretations) and pick the ones that will have the greatest positive benefit.

By redirecting awareness and attention toward what contributes to flourishing rather than floundering, we individually and collectively can create a new universe of possibility. I’m thrilled that so many physicists (and many for a very long time) have seriously undertaken the exploration of [consciousness as a causal](#), not secondary or emergent (or casual), reality.

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Plant geneticist Dr John Sanford began working as a research scientist at Cornell University in 1980. He co-invented the 'gene gun' approach to genetic engineering of plants. This technology has had a major impact on agriculture around the world.

"Mutations are word-processing errors in the cell's instruction manual. Mutations systematically destroy genetic information—even as word processing errors destroy written information. While there are some rare beneficial mutations (even as there are rare beneficial misspellings),¹ bad mutations outnumber them—perhaps by a million to one. So even allowing for beneficial mutations, the net effect of mutation is overwhelmingly deleterious. The more the mutations, the less the information. This is fundamental to the mutation process.

[Natural] Selection does help. Selection gets rid of the worst mutations. This slows mutational degeneration.

Additionally, very rarely a beneficial mutation arises that has enough effect to be selected for—resulting in some adaptive variation, or some degree of fine-tuning. This also helps slow degeneration. But selection only eliminates a very small fraction of the bad mutations. The overwhelming majority of bad mutations accumulate relentlessly, being much too subtle—of too small an effect—to significantly affect their persistence. On the flip side, almost all beneficials (to the extent they occur) are immune to the selective process—because they invariably cause only tiny increases in biological functionality.

So most beneficials drift out of the population and are lost—even in the presence of intense selection. This raises the question—since most information-bearing nucleotides [DNA 'letters'] make an infinitesimally small contribution to the genome—how did they get there, and how do they stay there through "deep time"?

Selection slows mutational degeneration, but does not even begin to actually stop it. So even with intense selection, evolution is going the wrong way—toward extinction!



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I was totally sold on evolution. It was my religion; it defined how I saw everything, it was my value system and my reason for being. Later, I came to believe in "God", but this still did not significantly change my intellectual outlook regarding origins.

*My recent book resulted from many years of intense study. This involved a complete re-evaluation of everything I thought I knew about evolutionary genetic theory. It systematically examines the problems underlying classic neo-Darwinian theory. The bottom line is that Darwinian theory fails on every level. It fails because: 1) mutations arise faster than selection can eliminate them; 2) mutations are overwhelmingly too subtle to be "selectable"; 3) "biological noise" and "survival of the luckiest" overwhelm selection; 4) bad mutations are physically linked to good mutations,² so that they cannot be separated in inheritance (to get rid of the bad and keep the good). The result is that all higher genomes must clearly degenerate." *Creation* **30**(4): 45–47 September 2008*

Dr Sanford has written a book: *Genetic Entropy and the Mystery of the Genome*.

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Information

Paul Davies: *"Information is one of the defining properties of biological organisms...where does it come from? Communication theory - or information theory as it is known today - says that noise destroys information, and that the reverse process, the creation of information by noise, would seem to us to be a miracle. A message emerging on its own from radio static would be as surprising as the tide making clear footprints on the beach."*

Dangers of Darwinism

"How evolution became a scientific myth," *New Scientist*, 11 September 1980:

*"There was little doubt that the star intellectual turn of last week's British Association for the Advancement of Science meeting in Salford was Dr John Durant, a youthful lecturer from University College Swansea. **Giving the Darwin lecture to one of the biggest audiences of the week, Durant put forward an audacious theory-that Darwin's evolutionary explanation***



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of the origins of man has been transformed into a modern myth, to the detriment of science and social progress. Durant said that scientists and popularisers have asked too much of the theory of evolution, demanding that it explain... "Life, the Universe, and Everything". As a result Darwin's theory has burst at the seams, leaving a wreckage of distorted and mutilated ideas, and man's understanding of his society has been hobbled by his inability to escape the conservative myths he has created."

Dr. Colin Patterson, Senior Palaeontologist; British Museum of Natural History, London, Discussion at the American Museum of Natural History, New York City, 5 November, 1981:

"Now I think many people in this room would acknowledge that during the last few years, if you had thought about it at all, you've experienced a shift from evolution as knowledge to evolution as faith. I know that's true of me, and I think it's true of a good many of you in here."

So that's my first theme. That evolution and creationism seem to be showing remarkable parallels. They are increasingly hard to tell apart. And the second theme is that evolution not only conveys no knowledge, but seems somehow to convey anti-knowledge, apparent knowledge which is actually harmful to systematics."

We must be willing to follow the evidence.