



What's Life got to do with It

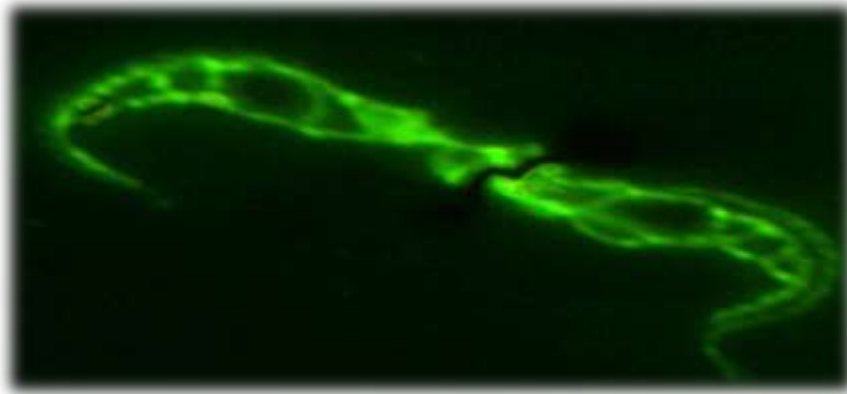
Tom Ransom 2015...

This remarkable miracle we call Life, insofar as the scientific evidence shows, got up and running as soon as it was able, meaning—of course, the *potential* for Life was here first. Gradually coalescing from the hot spin-offs of a condensing star, the Earth started out as a molten mass of mostly rock and heavy metal. As it cooled water began to accumulate. The water was coming from the frequent impacts of icy "meteors", far flung remnants of the solar system forever in pursuit of their gravitational center. In fact, we likely owe our very existence to having interrupted their transits of the Sun, for these ballistic intruders not only deposited water, infused within were a host of "organic" compounds.

Slowly rotating in the warm radiance of its native star, fertilized with dirty ice raining from beyond, the Earth was soon awash with all of Life's requisite ingredients. And deep within these natural elements, in their innermost "atomic" arena, a dynamic affinity was at play—matter was mixing it up. Matter spontaneously interacts because an "electrostatic force" *impels* it to do so. The 'negatively' charged perimeter electrons of every atom are attracted to the 'positive' nuclei of adjacent atoms, and thus, as a matter of course, incessantly seek to close the distance. Whenever together is more stable, that is, closer to "thermodynamic equilibrium" than is their separate adjacency, atoms unite. Because equilibrium is their preferred state, more stable means longer lasting. This intrinsic propensity for matter to persistently combine meant ordered *complexity*, of ever longer duration, when and wherever possible, was for certain. In other words—it was *supposed* to happen.

Thus, whenever conditions are favorable, by proximal necessity, the natural elements engage in chemical synthesis forming molecular compounds, which likewise attract and interact, forming evermore stable assemblies. Furthermore, when molecules conjugate, bonding energies are discharged and exchanged producing electrical pathways that further enhance polyreaction potentials. Induced to expand along their electrical charge-gradients, these "metabolic" cascades test every available adjacency, proceeding to extend, wherever possible, into regions of ever greater stability. And with every extension, as the topological complexity expands, the combinatorial range of bonding possibilities expands as well, exponentially—it *grows*.

What we find, then, is that ordinary matter spontaneously imports from *within* a dynamic affinity to organize into evermore complex, durable arrangements. But there's more: by their very nature, oily organics and water don't mix, they form "cells", within which metabolic activities can incubate. And so it was, given a warm juicy planet hosting an expanding number of opportunistic combinations, just a matter of time before a miracle happened—multiplication by division!



All that was required for the initiation of "Life" was the division of an "autopoietic"⁽¹⁾ cell along a symmetrical axis, such that its potential to do so—its *seminal symmetry*, is conserved in both. As this symmetrical break was coincident in its development, the one—now two, resume their regenerative activity, whereupon, should this fission point reappear under similar circumstances, the cycles of division are repeated. The world, however, is a dynamic tumbler, deviation and variation forces present at every stage of development, and only the fittest reproduce. It followed that those cells most able to reliably repeat—accurately encode, their regenerative functions, became the most successful reproducers. The result was the most stable variations featuring the fastest reaction gradients, those demonstrating the greatest "dynamic kinetic stability",⁽²⁾ became the most prolific dividing multipliers.

Mating, mutating, and mixing it up, absorbing one another, utilizing what's useful and discharging the rest, these interactive organelles began to establish evermore stable symbiotic associations with one another. Each evolving "species" became a veritable experiment testing its longevity and powers of prolificacy. While most variations appeared briefly and faltered, the fittest remained, "selected" to continue its lineage. In conformal correspondence with its resource environment, leaving no opportunity untested, Life proceeded to probe and occupy every habitable space. And with each new generation, as the competition for requisite resources became evermore challenging, the advantage soon went to those most capable of consuming what *others* had produced.

Now, recognizing that Life, in effect, selected to consume *itself* in advancing its expansion, purports a profound implication. It means any "Creator" empowering the synthesis of matter, and by extension the autopoietic processes of Life, must be entirely indifferent regarding *which* particular variations succeed. Each in every new generation survives simply because, and only because, it proves to be as proliferant and durable as the other competing candidates. What this means is that Life isn't really about the players at all—it's a *process*.

Inquire further and one's comfort-zone sensibilities are soon challenged by an even greater apprehension. The planetary and cosmic contingencies that shaped the course of Life on Earth have also been entirely indifferent—with regard to its very existence! Numerous cataclysmic volcanic and meteoric events, as evidenced in the mineral fossil records, have periodically reduced earth's biological

complex to its most primitive forms, erasing nearly all that natural selection had so laboriously produced. If the emergence of Life on this most hospitable planet was a 'given'—supposed to happen, then its success certainly wasn't selectively granted by Grand design. The implacable truth is that unconditional adversity, periodically and randomly applied, has been Life's 'tool and die'.

So what are we left with? Everything! Apparently, billions of years of natural selection selected for *us*. We human beings represent the highest order of auto-poietic complexity on Earth because our species proved more capable and resourceful than any other. It wasn't because we were physically the biggest, strongest, fastest, or the most sensate; adaptation provided many other species with greater physical capabilities than ours. Nor did we reproduce fast enough to win over with numbers-of-kind like the microbes and insects did. The reason we out-performed all the other evolutionary candidates is because the nexus of our senses—our brain, multiplexed into a vastly superior processing organ.

It appears that beyond the durable reproduction of biological complexity, even beyond the advance of sensate awareness, the process of Evolution has been selecting for *intelligence*. While all species possess the intelligence required to successfully respond to the challenges of their particular environments, our kind fast-tracked on the rapid path to ever greater processing power. From within the networks of neurons in our neo-cortex emerged the capacity to not just download sensory perceptions into memory, but *reflect* upon them, fashioning over time a comprehensive understanding of our world. Humankind ascended because "conscious cognition" conferred upon our species the winning adaptive advantage.

This aptitude for "insight" made it possible to mentally project into the future, imagine possible outcomes, and reduce risk by planning in advance. We envisioned the manufacture of tools to shape our environment and designed instruments to enhance and extend our senses. Most importantly we developed symbolic language to record and convey what we learned with one another. Over time this global network of shared knowledge and experience proved so enabling that humankind not only assumed dominion on Earth, but may be transcending it.



Have you ever observed a flock of birds and marveled at how they seemingly move as one "superorganism"? It appears that human beings weren't the first or only species to develop a demonstrative "collective intelligence". In fact, long before we happened on the scene, animal herds, insect colonies, and even bacterial biofilms were engaged in collaborative behaviors that enhanced their mutual success. Some posit that this coherent "organizing principle" is *the* defining attribute of Life. After all, every living thing, or distinguishable group thereof, is bound by the same similar sense of *unity*.

That's why on first sight "flocking" behaviors—bird clusters, schools of fish, and animal stampedes, may appear to be 'top-down' phenomena, informed in some global fashion. Slow motion analysis, however, reveals that nothing 'super'natural is involved. When slowed frame to frame these group expressions are seen to be the radiating recurrence of individual inputs.⁽³⁾ Flocking behaviors manifest locally, 'bottom-up' from within, when an individual action—the tip of a wing, the flick of a fin, or an animal's startle reflex, causes a reaction wave to propagate across the population.

When a "quorum threshold" is exceeded whereby adjacent actions begin to resonate and feedback on one another, second generation harmonic effects are often produced that can both amplify and modify the original waves. These are "emergent" expressions, coherent outcomes no longer attributable to specific initial actions. What gives a flock its superfluid appearance is that these secondary harmonics often propagate faster than the sum of the group's individual reaction times.⁽³⁾ Such secondary "epiphenomenal" expressions, however, are *consequently* a synchronous collaboration. The illusion of a group agency at work is just that. The actual causal agents are autonomous individuals comprising the group's "vanguard".

The species-characteristic traits exhibited by this leadership vanguard are not privileged to them, rather, these are genetic endowments belonging to the group as a whole, inherited more or less by all, and effectively expressed in a normal "bell-curve" distribution. Because the most successful expressions are more often the most productive, effective change agents tend to be the most well endowed. In fact, every adaptive advantage, innovation, or new idea, was necessarily introduced into the collective mix by an "exceptional" individual. Truly, our entire existence is the cumulative result of *their* every success.

That successful group outcomes are the cumulative expression of *individual* successes is a Life lesson that should provide a reasoned and principled approach to matters of governance and economics. Policy intentions would focus on improving opportunities, rather than outcomes, with the understanding that a variable outcome distribution is not only natural and nominal, but unavoidable—even necessary, in order for any success selecting evolutionary process to advance. It follows that meritocratic, free-enterprise economies amenable to the unencumbered success of the best among us, in every variety of productive endeavor, should over time prove the most prosperous for all. As the viability of a nation is a function of the combined strength of all its members, strategies promoting personal initiative, resourcefulness, and responsibility would benefit everyone.

In terms of governance it suggests that *less* is better. It suggests that to the extent the natural auspices of the evolutionary process are permitted to exercise freely—from the bottom-up, will populations naturally tend to become more capable. Government command and control interventions, designed and implemented from the top-down, are destined to constrain freedoms of function and redirect resources, causing a collateral cascade of unintended consequences. The ruinous conceit of those who advocate for evermore centralization is the belief that the prerogatives of a remote group of select representatives can pull the bureaucratic levers of regulatory redirection fast and smart enough to outperform the extemporaneous creativity of our evolutionary endowment trust. The truth is, our future is being secured moment to moment, as it always has been, by the innovative vanguard of motivated individuals emerging naturally from *within* the evolutionary impetus of Life itself.



We previously observed that beyond sentient awareness, the trajectory of biological natural selection has been selecting for intelligence.⁽⁴⁾ From metabolic pathways in a vesicle, to the alliance of cells in an organism, to ants in a termite mound, to complex human civilizations, this intrinsic propensity to intelligently self-organize^(5,6) has been at Evolution's leading edge. This inherent "coherent synergy" means Life's potential is always greater its present state.

And so it was that with the advance of intelligence was imported a curious tropism toward *comprehension* that began expanding the depth and breadth of our perceptions. Beyond simple sentience, well beyond biological necessity, conscious awareness has evolved into a 'meta'physical configuration space where intangible images, thoughts, and ideas take form. With the insight of our 'mind's eye' we're able to visualize subjects far beyond the scope of our given senses. This transformative phase-transition from actionable adaptive processing to the abstract world of mental imagery and symbolic reasoning enabled structured thought and creative thinking. It's where the boundless domains of mathematics, theoretical physics, and the arts find residence, as do the more introspective subjects of morality and meaning. Some posit that these purely noetic features should be considered part and parcel of a 'meta'mind—the accrued entirety of the human cognitive enterprise, feeding back upon and exponentiating the evolution of each new generation of minds.

Just as biogenesis has direct attribution to a seminal potential within matter itself, the potential for comprehension must also have been precedent within. So why would an intrinsic inclination toward conscious intelligence exist? One pretense to consider is if not for the likes of "us", how would the Universe be known? Rather than lost on a lone outpost in the vastness of empty space, conscious beings like ourselves may be an integral part of the Cosmos. Rather than a random happenstance without direction, Life might know full well what's it up to, and if so, insofar as purpose and meaning are concerned, we would do little better than learning to "dance with the one that brung us"...



Less about the leaves



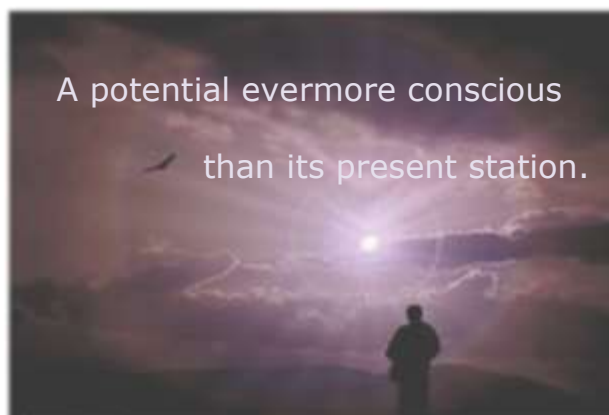
More about the tree



Less about us



The bigger picture



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