Bahman Nadimi

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The Human Brain: The Missing Link in Scientific and Philosophical Narratives of Human Evolution

Humanity's distinctive power to think in symbols, juggle imaginary numbers, weigh moral hypotheticals, or design spacecraft for worlds we have never seen – for the most part, remains a mystery. Standard evolutionary narratives hold that such powers arose after a relatively recent split from a chimp-like ancestor some five to seven million years ago. Yet, we still lack a clear biological account of *how* the human brain made the qualitative leap from primate cognition to abstract, recursive thought. Therefore, it is surprising how rarely the human brain's neurology features in scientific debates about our evolutionary history.

Too often, the conversation ends with percentages of shared DNA and fossil fragments, leaving the quantum leap of human cognition -and the neural machinery behind it – on the sidelines. This gap between *genomic markers* and *cognitive functionality* raises an interesting epistemological question: *How much confidence can we place in a precise evolutionary path for humans when we still lack a clear correlation between genetic and neurological configurations and the uniquely human capacity for abstract thought?*

Using this question as its starting premise, we will explore additional questions—including whether humans might be categorically different from all other animals.

To this end, the article revisits primary Bahá'í texts to extract ontological insights into mind, spirit, and humanity's distinctive station; sets out epistemological guardrails that allow faith-informed perspectives to question mainstream scientific assumptions without drifting into dogma or pseudoscience; and notes current limitations in evolutionary science, especially the still-unclear link between brain neurology and abstract thought. It then proposes a collaborative framework in which theologians, philosophers, and scientists can engage in sustained dialogue, keeping the scientific method, respect for empirical data, purpose, meaning, and ethical responsibility at the center of evolutionary inquiry.

Philosophy and Science: Partners or Strangers

Skeptics sometimes ask whether philosophy still has anything to say about the material world - especially when the topic is as technically complex as biological evolution. During a public discussion with Richard Dawkins, the renowned scientist Neil deGrasse Tyson voiced his doubts about philosophy[1]. Tyson noted that although philosophers once propelled science forward, everything changed in the 1920s. The discovery of the expanding universe and the advent of quantum mechanics pushed the field far beyond what could be solved by "armchair" reasoning. Lacking the new experimental tools, he argued that philosophers, who are "would-be scientists without a laboratory," in his words, are rendered "essentially obsolete."

Yet history offers a counternarrative. In one of his letters [2], ʿAbdu'l-Bahá remarks that careful philosophical reasoning already points toward an evolving cosmos, that nature, by its very

essence, is imperceptible to the senses, and light is a vibration of an intangible medium—ideas that later found resonance in twentieth-century science. Far from trailing science, philosophical reasoning anticipated and sketched novel conceptual frameworks that experimentalists would only fill decades later. The episode reminds us that calling philosophy obsolete often reflects group thinking, believing that empirical methods alone reign supreme and surpass philosophical reasoning.

'Abdu'l-Bahá often argued that European thinkers misunderstood human evolution because they relied solely on sense-driven, rigid methods. He insisted knowledge must draw on broader, more flexible approaches—directly challenging the methodological strictness that later culminated in the logical empiricism movement in the 1920s. In his talk in San Francisco, he stated the following:

"During my visit to London and Paris last year, I had many talks with the materialistic philosophers of Europe. The basis of all their conclusions is that the acquisition of knowledge of phenomena is according to a fixed, invariable law—a law mathematically exact in its operation through the sensed. That is to say, the materialists announce that the criterion and standard of human knowledge is sense perception [3]."

What, then, can philosophy contribute to the discussion of biological evolution? Philosophy should complement, not oppose, empirical data, offer interpretive frameworks for understanding that data and clarify the degrees of uncertainty associated with resulting conclusions. Unfortunately, most philosophical narratives on evolution often mirror the tendency to downplay human abstract thought. Many modern evolutionary accounts, framed by strictly naturalistic assumptions, depict humans as "smart apes," treating abstract reasoning as a modest extension of animal cognition requiring no special explanation. By focusing on humanity's defining capacity for abstraction, philosophers can re-examine our evolutionary story and assess what kinds of evidence might truly bridge the gap between philosophical reflection and empirical science.

Revisiting Bahá'í Text on Evolution

It bears emphasizing that the Bahá'í perspective diverges sharply from literalist creationism and instead strongly aligns with the central thrust of modern science: life has unfolded through a vast, evolutionary timescale.

"But this permanence was not definite, and did not attain realization and perfect existence until after a very long time. Then these elements became composed and organized and combined in infinite forms; or rather from the composition and combination of these elements innumerable beings appeared. [4] *“*

Building on this sense of gradual emergence, the Bahá'í writings also inherit—and refine—a long-standing philosophical tradition of classifying life by its defining capacities. The practice is anything but novel: it refers to the earliest Greek thinkers and finds systematic expression in Aristotle's three-tier vegetable, animal, and human hierarchy. The crucial human distinction for

Aristotle was reason—the mind's power to grasp abstractions rather than merely to sense or grow. Nearly two millennia later, the Bahá'í writings revive and elaborate this hierarchy. 'Abdu'l-Bahá states:

"Man is distinguished above the animals through his reason. The perceptions of man are of two kinds: tangible, sensible, and reasonable, whereas the animal perceptions are limited to the senses [5]. *"*

From a Bahá'í perspective, plants, animals, and humans do not form indistinct points along one evolutionary continuum; each occupies a distinct category defined by a characteristic capacity: plant growth, senses in animals, and abstract thought for humans. However, what sets these categories apart is more than a difference in function; it is a qualitative difference in biological complexity**,** or what 'Abdu'l-Bahá calls the *"mingling and combination of elements."*

In *Some Answered Questions*, he explains that the animal spirit arises from a more intricate blending of the same elemental building blocks:

> *"After this is the animal spirit, which also results from the mingling and combination of elements. But this combination is more complete*[6]. *"*

Speaking of humanity's physical complexity, he declares:

> *"The body of man … is the most solid construction, the noblest combination, the most perfect existence. " "The perfection of man is entirely due to the composition of the atoms to the method of their combination*[7]*."*

Complexity resides *not* in new ingredients; plants, animals, and people share the same atoms but in *how* those atoms are organized and interact. A simple rearrangement yields the stirrings of sensation; a more elaborate architecture unlocks the realms of language, mathematics, and moral reasoning.

Bahá'í writings extend this idea by linking the spiritual categories of vegetable, animal, and human spirits to a *layered physical hierarchy* that unfolds over immense timescales. If this perspective is valid, it harmonizes Aristotelian distinctions with the modern focus on biological organization, implying that abstract thought emerges only when matter is combined with unparalleled intricacy. While such a view does not settle every evolutionary question, it suggests that tracing human origins requires more than comparing genetic sequences; it also demands close attention to the organizational thresholds that, in Bahá'í framework, keep the realms of plant, animal, and human genuinely distinct.

Some Bahá'í commentators have read 'Abdu'l-Bahá as implying that every individual species arose independently from the beginning of life on Earth. 'Abdu'l-Bahá states that *vegetables cannot evolve into animals*, and *animals cannot evolve into humans*[8]. Taken at face value, this seems less a claim about the separate evolution of every species than an attempt to mark *categorical boundaries* among the three kingdoms. Evolutionary change, in this view, could still proceed *within* each realm, while transitions *between* realms would require a qualitative shift in complexity that ordinary variation might not achieve.

Another interpretive question centers on *'Abdu'l-Bahá's* well-known womb analogy:

"as man in the womb of the mother passes from form to form, from shape to shape, changes and develops, and is still the human species from the beginning of the embryonic period—in the same way man, from the beginning of his existence in the matrix of the world, is also a distinct species [9].*"*

Some readers take this to mean that a non-philosophical reading of this analogy implies that the human lineage began an entirely separate path at the beginning of life on Earth. A closer reading, however, suggests a more nuanced point. An embryo develops only within an existing womb; its growth presupposes a supporting environment. By the same logic, the emergence of the human species would require a pre-existing ecological and biological framework before the distinctly human evolutionary path can unfold. This analogy suggests that human life could only emerge *after* a suitable biological and ecological framework existed rather than at the beginning of life on Earth.

When Bahá'í Scripture and Science Agree: The Separate Evolution of Plants and Animals

The Bahá'í ontological hierarchy becomes most transparent- and least controversial - at the boundary between the vegetable and animal kingdoms, a boundary that modern biology likewise regards as impermeable. *'Abdu'l-Bahá* captures the point in the following statement:

"*When we examine the vegetable kingdom, we see that the fruits of the different trees do not arrive at maturity at one time; on the contrary, some come first and others afterward. This priority does not prove that the later fruit of one tree was produced from the earlier fruit of another tree…In the same way, the fact that the animal having preceded man is not a proof of the evolution… that man was raised from the animal world to the human world* [10].*"*

Priority does not equate to ancestry. Biology underscores this point. Approximately one billion years ago, two major evolutionary groups diverged from a single-celled eukaryotic ancestor. The lineage that became plants acquired chloroplasts synthesized cellulose cell walls, and adopted a photoautotrophic, static lifestyle. The lineage that became animals dispensed with rigid walls shifted to heterotrophic metabolism and eventually evolved neurons that support mobility and sensory integration. Since that split, no lineage has reversed or crossed these fundamental organizational boundaries.

Why is the divide so final? A plant's rigid cell wall cannot simply transform, step by step, into the flexible membrane that lets animal nerve cells fire rapid signals, nor can a light-harvesting chloroplast be refitted into the acid-filled stomach of a predator. Likewise, a stationary stalk does not incrementally acquire the muscles, joints, and instantaneous neural coordination needed for

roper movement. The genetic programs that govern plant growth differ fundamentally from those that lay out an animal body, and even their basic energy strategies—soaking up sunlight versus hunting for food—pull them along separate evolutionary tracks. Once these contrasting designs locked in, ecology sealed the divide: plants turned sunlight into oxygen, animals adapted to

breathe and feed on them, and the two kingdoms settled into mutually exclusive niches that have endured ever since.

Strikingly, two very different knowledge traditions converge on the same conclusion. Scripture's ontology and evolutionary biology's phylogenetic tree affirm that plants and animals occupy discrete domains, not successive points on a single continuum - an even more notable agreement, given the question's complexity and the distinct methods each tradition employs. Their distant common ancestor merely underscores the categorical discontinuity introduced by divergent organizational thresholds.

The convergence of the Bahá'í framework and scientific accounts in tracing the evolutionary trajectories of plants and animals raises a further point of inquiry: if the plant–animal divide is so decisive, could an equally sharp boundary separate animals from humans that arises from the emergence of abstract thought? *What kind of evidence such as human-exclusive neural architecture, unique developmental blueprints, or cognitive capacities unattainable by any other animal—would be strong enough to suggest that such a boundary truly exists?*

From Law-Follower to Law-Bender: Evolution's Paradox

Within the Bahá'í framework, the critical distinction among life forms lies not in anatomical variance but in *how each interacts with the laws of nature.* Plants operate according to phototropic processes; animals act through instinctual drives; both remain, in ʿAbdu'l-Bahá's words, "*captives of nature."* Only one creature, he insists, refuses its chains:

"Nature is the ruler of all except man[11]*."*

"Man, as it were, takes the sword out of nature's hand and with it for his scepter of authority dominates nature itself [12]*. "*

This assertion is not merely rhetorical. ʿAbdu'l-Bahá has redefined *complexity.* According to the laws of physics, a bipedal organism should remain earthbound and constrained by gravity. Yet, humanity transcends these natural limitations: *"he guides ships over the ocean, flies through the air in airplanes, descends in submarines."* Ships and planes do not break the laws of physics but l*everage* these laws to transcend nature's local limitations. Unlike other species-however adaptive- humans conceptualize tools that manipulate natural constraints at a fundamental level. Unlike other species, humans alone reconfigure physical laws through abstraction and can employ mathematics to predict the timing of the next comet.

This functional sovereignty over nature reaches deeper than technology. ʿAbdu'l-Bahá lists the faculties that enable it- *"intelligence… volition… memory… the reasoning faculty."* Modern cognitive science would add recursion and counterfactual imagination, yet the substance is the same: *humans act on possibilities that no sensory cue provides*. We hypothesize atoms, invent zero, and legislate human rights. These theoretical constructs, atomic models, numerical systems, and moral codes presuppose a cognitive power transcending immediate environmental stimulus.

If plants and animals parted company when photosynthesis and predation set them on mutually exclusive tracks, humanity's leap into symbolism may mark an *additional categorical divide.* This leap would not represent a mere extension of prior capacities but the emergence of a qualitatively distinct biological order: a shift from being wholly governed by natural law to modulating it through reflection. A shift from being ruled by nature to ruling - at least partly - over it.

ʿAbdu'l-Bahá draws the logical conclusion: *"Therefore, he is the ruler and commander of nature… Man is nobler than nature* [13]*."* One need not invoke spiritual vocabulary to comprehend this unique human capacity. The empirical record has yet to show an animal civilization launching satellites or drafting constitutions. Until it does, the possibility remains that, just as plants and animals inhabit separate domains, *humans may occupy a domain of their own - demarcated by the power to turn nature's law into a tool rather than be governed by it.*

Yet this claim - a creature forged entirely within nature can later step outside its limits—poses an interesting dilemma. Evolution, as typically told, is a long obedience to physics and chemistry: mutations shuffle molecules, selection prunes unfit bodies, and gravity presses every experiment to the ground. How does such a law-bound process produce an organism that can deliberately *leverage* those same laws against itself, launching lunar modules past Earth's escape velocity and navigating the vacuum between worlds?

From a strict Darwinian paradigm, the feat looks counter-intuitive. Natural selection rewards traits that solve *local* problems - finding food, fleeing predators, and reproducing before winter sets in. Rocket science meets none of those immediate constraints. It requires abstract imagination and the collective endeavor to refine calculus for three centuries. No other lineage, however ancient, has transformed basic survival skills into the capacity to calculate trajectories for interplanetary navigation.

In the Bahá'í perspective, the paradox is a clue rather than a contradiction. Plant and animal kingdoms illustrate how new capacities appear when matter reaches higher orders of organization; the human capacity to *reverse-engineer* nature may mark yet another organizational threshold, one where mental constructs, not just molecules, become causal forces in the world. Science becomes the latest expression of that threshold: the mind turns its explanatory lenses back on the process that produced it, rewriting local constraints into global possibilities.

Whether described as spirit, emergent complexity, or a "second genesis," the fact remains: evolution has delivered at least one species capable of *leveraging* physical law against immediate physical limitations. Until we understand how that turnaround occurred—how a captive of gravity became its navigator; the story of human origins will retain an element of awe, pointing to boundaries in nature that raw incrementalism alone may not easily cross.

Probing this pivotal transition requires turning inward to the cerebral cortex, which makes defying gravity or any other natural constraint possible. Beneath the cortex lies a largely uncharted frontier: the genes, cell types, and high-dimensional networks that convert neural activity into mathematics, art, and engineered motion. Murat Gunel, a professor of genetics and neurobiology at Yale regarding a study in 2011, stated that:

The demonstration of the fundamental role of this gene in human brain development affords us a step closer to solving the" *mystery of the crown jewel of creation, the cerebral cortex.* [14]"

In 2017, the authors of another study on the human brain discovered that the organ operates on *"up to 11 different dimensions"*, creating multiverse-like structures that are *"a world we had never imagined.* [15]*"*

The scientific advancement into the brain gained momentum in the 2020s; for example, an international NIH-BRAIN Initiative project released over twenty companion papers mapping more than *3000 distinct kinds of brain cells* across practically every region of the adult human brain [16]. The open atlas gives scientists a reference map for studying everything from memory to mental illness.

These advances make one point clear: the brain's sheer complexity has traditionally kept empirical research in low gear, and only now is neuroscience gaining real momentum. We are still merely scratching the surface of our understanding of the brain's neurology and its functional sub-systems. Small wonder, then, that most narratives of human evolution have sidestepped the brain's architectural configuration altogether.

Current evolutionary narratives merit respect but should remain tentative. The genetic and fossil evidence is compelling, but our understanding of the mind's architecture is still unfolding. The prevailing evolutionary models should not be viewed as final accounts but as working hypotheses, open to revision as the architecture of the mind becomes clearer.

The Journey Matters: Why Method Outshines Finality

It is illuminating to begin with Shoghi Effendi's 1932 reply to Dr. J. W. Freudenberg [17]- a letter that questioned several statements attributed to ʿAbdu'l-Bahá about human origins. Freudenberg's concerns echo today's scientific objections to a literal reading of Bahá'í references to evolution. Instead of defending each contested phrase in isolation, Shoghi Effendi outlined general principles for navigating apparent conflicts between revelation and empirical science.

He anchored the exchange in a guiding axiom **-** *"nothing can exceed its own potentialities."* Stones, plants, animals, and humans are viewed as discrete stages on a hierarchy of latent capacities, shifting attention from outward form to inner trajectory. Whether early humans looked ape-like is less significant than the claim that human potential was present *"from the very beginning of creation ."*

Next came *methodological balance***.** Divine revelation, he noted, arrives through *"divinely inspired Educators,"* while science offers the best reading of natural facts available at any moment—even though *"what science tells us today… tomorrow may be entirely changed"* by fresh data. The practical virtue is humility: scripture must be read in context; science must accept its provisional status.

He cautioned against *textual tunnel vision*: These various statements must be taken in conjunction with all the Bahá'í teachings." Isolating a single passage distorts the larger picture. A

synthetic reading, placing scripture, philosophy, and evolving data side by side, yields a more robust framework.

Finally, Shoghi Effendi applied a *developmental perspective* to the human form: *"We don't believe man has always had the form of man,"* yet evolution was never a *"haphazard branch of the ape family."* The human blueprint was latent from the outset, awaiting the right conditions to unfold and actualized under suitable evolutionary conditions. Shoghi Effendi's correspondence emphasizes that methodology is as crucial as outcome. He upheld the principle that no being can exceed its potential, advocated for a balanced relationship between science and revelation, cautioned against decontextualized interpretations, and treated scientific claims as provisional.

This process-oriented view parallels broader intellectual traditions - from Aristotle's classifications to ʿAbdu'l-Bahá division of nature into kingdoms and the development of various neuroscientific models. Despite the disciplinary variations, these frameworks converge on a shared challenge: translating raw biological inventories—genes, cell types, wiring graphs, into a coherent account of the emergent capacities they supposedly underwrite. Until we can show how structural complexity produces symbolic language, moral reasoning, and technological inventions, our explanations of human origins remain partial, however precise their measurements may appear.

Emphasis on process calls for epistemic humility. The recent human-chimpanzee divergence is the best available model but remains provisional. If future research demonstrates that distinctively human behaviors are underpinned by foundational neural architectures absent in all other species, such findings could warrant recognition of a categorical boundary leading to a reframing of our view- not that humans evolved, but humans evolved from animals.

Conclusion: Toward a Synthesis of Philosophy and Neuroscience

Despite decades of inquiry, philosophy and neuroscience have often approached the human brain from separate vantage points; philosophy treats the mind abstractly, and neuroscience focuses more on structure and function without addressing conceptual implications. Yet the human brain may offer a point of integration where both disciplines converge. Real progress will require a partnership in which philosophical reasoning provides conceptual coherence, and neuroscience contributes to empirical specificity.

A shared framework for complexity is essential. Rather than simply counting neurons or cataloging genes, both fields must address how particular biological configurations give rise to capacities such as symbolic language, abstract reasoning, or the construction of technologies that allow humans to override natural constraints. Neuroscience research studies can trace the developmental pathways from genetic variation to behavior. Philosophy can clarify which cognitive features, such as counterfactual thinking, moral foresight, and open-ended creativity, represent qualitative rather than quantitative departures from other species.

This line of inquiry also invites a deeper question: can the behaviors unique to humans, such as manipulating the environment at scale or formulating scientific laws that themselves reshape

human life, be tied to a level of biological and cognitive complexity that warrants classification as a distinct category? In other words, does the human capacity to "bend" the laws of nature to its favor reflect an underlying architecture so differentiated that it no longer fits within the continuum of animal cognition?

Both disciplines would benefit from shared evaluative tools. A composite index, measuring network dimensionality, cell-type diversity, and behavioral adaptability, could help philosophers empirically ground category distinctions while offering scientists a benchmark for identifying functional thresholds. Computational models that integrate biological constraints with cultural and symbolic systems could act as collaborative spaces; philosophers scrutinize the model's assumptions; scientists test and refine its predictive scope.

At the foundation of this effort lies epistemology - the branch of philosophy concerned with the nature, scope, and justification of knowledge. For science, it defines the limits of generalization, highlights model dependence, and ensures that theory remains responsive to evidence. Philosophy disciplines speculation and strengthens the link between abstract claims and observable realities. Shared epistemic commitments are indispensable, such as making auxiliary assumptions explicit, recognizing that data can undermine theory, and treating timelines as provisional. Falsifiability, transparency, and openness to anomaly serve as standard safeguards.

Institutional humility must accompany this methodological rigor. Philosophers must avoid abstraction that is disconnected from empirical constraint. Scientists must recognize that without interpretive frameworks, data cannot fully explain. Joint academic programs, interdisciplinary research teams, and co-authored publications can institutionalize this synthesis and encourage sustained collaboration.

Ultimately, both disciplines must stay focused on a central question: Does the architecture of the human brain support a mode of cognition so structurally and behaviorally distinct that it constitutes a categorical boundary - analogous to the divide between animals and plants? If so, mapping that threshold will require conceptual precision, empirical depth, and a framework in which science and philosophy speak not in parallel but in concert.

[1] https://scientiasalon.wordpress.com/2014/05/12/neil-degrasse-tyson-and-the-value-of-philosophy/?utm_source=chatgpt.com

[2] https://bahai-library.com/abdul-baha_three_verses_hikmat Keven Brown

[3] PUP page 20 https://reference.bahai.org/en/t/ab/PUP/pup-9.html.utf8?query=London%7CParis&action=highlight#gr1

[4] SAQ page 180 https://reference.bahai.org/en/t/ab/SAQ/saq-47.html.utf8?query=permanence%7Cdefinite&action=highlight#gr3

[5]PUP 335 https://reference.bahai.org/en/t/ab/PUP/pup-110.html.utf8?query=Man%7Cis%7Cdistinguished%7Cabove%7Canimals%7Cthrough%7Chis%7Creason&action=highlight#gr5

[6] [7] SAQ page 143 https://reference.bahai.org/en/t/ab/SAQ/saq-36.html.utf8?query=combination%7Cmore%7Ccomplete&action=highlight#gr2

[8] SAQ page 230

[9] [10] SAQ page 191 https://reference.bahai.org/en/t/ab/SAQ/saq-49.html.utf8?query=form%7Cto%7Cform%2C%7Cfrom%7Cshape%7Cto%7Cshape&action=highlight#gr7

[11] PUP page 16 https://reference.bahai.org/en/t/ab/PUP/pup-7.html.utf8?query=Nature%7Cis%7Cruler%7Call%7Cexcept%7Cman&action=highlight#gr2

[12] PUP page 49 https://reference.bahai.org/en/t/ab/PUP/pup-20.html.utf8?query=sword%7Cout&action=highlight#pg51

[13] PUP page 16 https://reference.bahai.org/en/t/ab/PUP/pup-7.html.utf8?query=truler%7Cand%7Ccommander&action=highlight#gr2

[14] https://medicine.yale.edu/news-article/tiny-variation-in-one-gene-may-have-led-to-crucial-changes-in-human-brain/

[15] https://bigthink.com/hard-science/our-brains-think-in-11-dimensions-discover-scientists/

[16] https://www.youtube.com/watch?v=24AsqE_eko0

[17] Bryan Donaldson, Appendix C On the Originality of Species: The Convergence of Evolutionary Science and Baha'i Teachings