# God the Father of the Unholy Godless Trinity:

# Charles Darwin

# (1809-1882)

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> *"My good and kind agent for the propagation of the Gospel – i.e. the devil's Gospel."* – Charles Darwin, letter to T. H. Huxley, August 8, 1860.
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> *"I do not believe in the Bible as a divine revelation, & therefore not in Jesus Christ as the son of God"* – Charles Darwin, hand-written letter to American correspondent, F. McDermott, November 24, 1880.

## Introduction

As mentioned in the previous introductory remarks to this study, nowadays a preponderance of trained biologists subscribe either in whole or in significant part to a form of evolutionary theory very close to how Darwin originally explained human nature and the existence of humankind. Country by country, the national consensus among biologists and related sciences tends to strongly favor evolutionary descent of humanity by more than 90% in most cases, not divine creation nor any other kind of spiritual entity, especially in the economically advanced nations.

When we consider that these are the very people surely most competent and best qualified to tender a critical assessment of the logical and empirical evidence Darwin presumably offered to support his evolutionary theory, we are left dumbfounded by the blind adherence to a doctrine not empirically proven in

reality to this day. That is, Darwin didn't only theorize that humanity evolved in stages over time from lower- to higher-functioning species. More importantly, he posited that the agency and function of natural selection caused this evolution to take place. Evolution is explained by the unguided, undirected impersonal agency of natural selection, a functional biological process, not the invisible hand of a benevolent divine being or any other invisible process a la the traditional biblical perspective.

The implicit assumption contained in this bold theoretical claim, of course, was that a divine beneficent omnipotent Genesis 'God' as expressed in the Judeo-Christian Bible had literally nothing to do with the emergence of humanity. In other words, natural causes created human beings, not a divine decree. Human beings evolved over a long period of time from impersonal natural forces and processes, not personal divine acts of creation.

**Darwin Denies Divine Creation**

This assumed denial of divine creation is totally in line with statements Darwin had made in his famous book in 1859, On the Origin of Species: By Means of Natural Selection (2022). There, he denies divine creation on the basis of two essential lines of argument: first, the existence of useless or imperfect biological traits strongly implies lack of divine design; and second, he argued that literally any empirical observation can be interpreted as compatible with divine design, thereby rendering the idea of a divine creation thoroughly unscientific and vacuous in explanatory terms.

Natural selection does not mean divine selection, in Darwin's view; nor can random selection mean there is any fixed divine design in the natural world. Here Darwin intentionally wielded some general rules of causal inference in such a way as to exclude uniform Creation by a divine God (Clatterbuck, 2022).

**An Early Archrival: Lord Kelvin**

Needless to say, this bold evolutionary claim and the underlying atheistic assumption upon which it was made elicited strenuous objections even from within the ranks of biologists themselves, many of them quite celebrated at that time. As mentioned in the introductory chapter, perhaps Darwin's greatest archrival was Lord Kelvin (1824-1907), the famed mathematical physicist and engineer who became the first British scientist nominated to the House of Lords.

Kelvin marshalled the latest paleontological evidence of the age of the Earth against him, and he showed that all the various theories of Earth's evolution at that time predated Darwin's evolutionary theory itself (Singham, 2021). He claimed on established empirical-scientific grounds that Darwin's evolutionary theory as he presented it could not possibly be valid because both the Earth and the Sun were too young to allow for evolution to do its magical work upon not only organisms and animals but especially upon human beings.

More significantly for our purposes here, he also argued that the human moral tendency to consistently care for its weak over the varying course of human history effectively canceled out the blind operation of a natural selection process since survival of the fittest could not possibly include the weakest. These claims, in turn, compelled Darwin to cleverly expedite the evolutionary process by adopting well-known Lamarckian[1] ideas about inherited traits at the time and to revise his theory

[1] Jean-Baptiste Lamarck (1744-1829) was a French naturalist who added some of the classical ideas about inheritance circulating at the time into his own independent theory of evolution, but mainly as an addendum to his argument that species drive towards increasing complexity. Although some interest in various aspects of Lamarckian inheritance continues, it has been largely abandoned in modern biology (Bowler, 1983).

to include sexual selection as a causal factor in the genesis of moral choices (Bowler, 1983; Goodman, 2019).

**Fashioning Cultural Acceptance Before Darwin**

In fact, Darwin was not the first scientist to put forth theories about human evolution. A host of evolutionary ideas emerged in the early 19th century with the theory of the transmutation of species developed by Jean-Baptiste Lamarck (1744-1829), or ideas about the change of one species into another which preceded Darwin. There were several other 18th and 19th century proponents of evolutionary ideas that preceded Darwin's evolutionary theory that were in widespread circulation and, therefore, facilitated reception and general acceptance of his ideas. The thoughts and works of Diderot, Erasmus Darwin, Robert Edmond Grant, and Robert Chambers, can easily illustrate this point.

Denis Diderot, a French philosopher and writer, was one of the key originators of the Enlightenment who very early on in his life declared himself to be an atheist, preferring to believe in the moral improvement of humanity and progress of civilization without reference to divine beings. He played a dominant role in the dissemination of both atheistic and evolutionary ideas through his prodigious and varied writings. The eminent science historian, Conway Zirkle, confidently identified Diderot as an early evolutionary thinker who clearly and accurately described the theory of natural selection long before Darwin (Zirkle, 1941).

Grandfather to Charles Darwin, Erasmus Darwin (1731-1802), was a highly regarded physician, philosopher, and poet who even included statements about evolution in a poem interestingly subtitled: 'Temple of Nature: or the Origin of Society', published posthumously in 1803. Although it is difficult to be certain, it is likely that the title to Charles Darwin's own groundbreaking book on evolution, 'The Origin of Species', almost certainly constituted a praiseworthy

reflection of his grandfather's epic evolutionary poem. Since this poem was by no measure simply a romanticist sideline for Erasmus, we need to elaborate a bit on some of its evolutionary contents in order to fully appreciate what turned out to be a profound cultural impact.

At core, 'Temple of Nature' is a lengthy philosophical and learned scientific piece on natural history where Erasmus explores his cherished evolutionary ideas and demonstrates how all living things are interconnected by natural forces that literally shape life into being. He divides the book into four cantos each one of which addresses varying features of the natural world and its processes. What is perhaps most interesting about this book are the thematic leitmotifs it underscores: a universal life force that interconnects all living things, the power of nature to transform everything it touches, and most important of all, the concept of evolution itself. It is simply astounding to consider that these ideas were published in a poetic scientific book more than a generation before Darwin's celebrated work!

Further, in his immensely popular book called, Zoonomia; or the Laws of Organic Life, published in 1794-1796, he produced one of the first formal theories of evolution. In this impressive two-volume medical work, Erasmus adopts proto-evolutionary ideas to examine how pathology, anatomy, and psychology interplay in the functioning of the human body (Elliott, 2003). Several passages throughout this book pointed to the relevance of evolution by looking favorably upon the theory of organic transmutation and discussing ideas about how life evolved from a single common ancestor, how one species could evolve into another, and how competition and sexual selection could cause change in species – all ideas his grandson would take up more than half a century later (Darwin, 2022; King-Hele, 1999).

The contributions of Robert Edmond Grant (1793-1874) were also key to fashioning cultural acceptance of Darwin's

evolutionary ideas before publication of his famous book. Grant was an Edinburgh-trained physician who abandoned his profession to study invertebrates as a comparative anatomist, best known for his work on sponges and other marine invertebrates. He is especially noted for influencing Darwin's interest in natural history and research as well as his favorable views on Geoffroy's evolutionary ideas, a leading French comparative anatomist at the time. Grant later dedicated a book on the animal kingdom to Darwin, and subsequently became a strong advocate of evolutionary ideas (Desmond, 1989).

Robert Chambers (1802-1871) an Edinburgh publisher whose connections to evolutionary ideas in general and to the widespread acceptance of Darwin's theory in particular, surely merits extended discussion here. A brief description of his life story will clearly illustrate why the central features of the British cultural environment in Darwin's time played such a pivotal role in the emergence and approbation of Darwin's evolutionary theory. Among other things, it would make clear to Darwin the obstacles and vehement criticisms his theory would eventually be subjected to, discussed at great length below.

Chambers was born into a well-to-do business family in a small town in Scotland. But early in his life, his father's business had collapsed, and the entire family was plunged into dire poverty. In a desperate effort to save the family from the ravages of starvation and destitution, Robert and his older brother, William, went out into the streets of Edinburgh to sell Bibles and schoolbooks. The brothers not only helped their family to survive but became so successful that they continually expanded their book-selling business until later they became one of the greatest publishing firms in Britain, W. & R. Chambers. This publishing house specialized in printing books appealing to general readership interests which, at the time, meant a growing taste for scientific and cultural works.

Both brothers also operated, edited and wrote in their popular weekly magazine, Chamber's Edinburgh Journal.

At first, Robert Chambers' chief interests were writing about the history of Scotland and general folklore including a book on Scottish humor. But after reading the evolutionary writings circulating at the time, he fell under the dominant influence of a very wealthy and prestigious French aristocrat named Georges-Louis Leclerc, Comte de Buffon (1707-1788). One hundred years before Darwin in his massive 44-volume Historie Naturelle, as well as in his subsequent work, Les Epoques de la Nature, Buffon had severely criticized 2,000 years of biblical doctrine on biblical creation of humanity and biological diversity, and the 6,000-year age restriction of Earth. Stimulated by such evolutionary ideas, Chambers decided to teach himself geology and botany, among many other sciences.

**British Scientific Culture Set Afire**

Then in 1844, the radical world of British scientific culture was set afire by the publication of a lengthy book proudly titled, Vestiges of the Natural History of Creation. Published anonymously, this book put forth a non-biblical account of the history of the Earth starting from the solar system to animal and plant life all the way up to the emergence of humanity. Needless to say, the book sold incredibly well and became a best-seller by standards of its time, considered to be more than 20,000 copies.

Every elite in all walks of life from businessmen to poets to politicians to great statesmen to eminent scholars and beyond read this book. Among the famous elites who read it can be counted: the celebrated philosophers, Arthur Schopenhauer and John Stuart Mill; the renowned statemen Benjamin Disraeli and William Gladstone; eminent scientists like T.H. Huxley and Adam Sedgwick; the famous poets Elizabeth Barrett Browning and Alfred Lord Tennyson; and even the prominent government leaders Abraham Lincoln and Queen

Victoria. Obviously, this kind of widespread approbation from elites in what must have surely been the dominant Christian culture of its era for a book that flatly and fervently rejected Bible-based creation doctrine is remarkable.

Of course, given the timeframe, the critical responses to this book cut across the continuum from mild enthusiasm to outright damnation. Liberal journals at the time, like the Lancet, described it in glowing terms without a hint of consternation or doubt. After reading it, Darwin himself carefully proclaimed it to be a bizarre but extremely well-written unphilosophical book, strongly suggesting its factual status. Praises and approbations came from all the nooks and crannies of elite culture.

However, some corners of elite culture also expressed strong adverse reactions to the book. Sir David Brewster (1781-1868), eminent physicist, inventor, author, and academic administrator, now known as the founder of modern experimental optics, claimed that Vestiges would literally poison both scientific and religious thinking. The well-respected Scottish geologist and journalist, Hugh Miller (1802-1856), was so upset about the book that he actually wrote and published a lengthy book as a critical rebuttal, Foot-Prints of the Creator. One of the most prominent scientists at the time, biologist and anthropologist T.H. Huxley (1825-1895), who would later become one of Darwin's most ardent defenders, perhaps wrote the most condescending book review of all time when he described it as notorious fiction and completely without logic.

Although it was officially unknown at the time, the author of Vestiges was later (1844) confirmed to be yours truly, Robert Chambers. Apparently, Chambers had opted for anonymous authorship for pragmatic political and cultural reasons, fearing that cultural backlash would damage his publishing business. However, since many people already at that time openly suspected him as the author (including Darwin himself

who wryly called him, 'Mr. Vestiges') due to his well-known interest in science, anonymity of authorship could just as easily be viewed as a shrewd business ploy to promote sales rather than a protective strategy (Chambers, 1994; Schwartz, 1990).

It still needs to be questioned why this book was so controversial when it actually contains very little that was not known before or expounded in other scientific books. Due to his very limited practical experience with science, he included in his book many parts of which several eminent scientists found ludicrous, such as the logically and empirically flawed experiments of many other lesser-capable scientists. In other words, there was no surprising and lasting scientific value to the book's contents.

The argument here is that its cultural value and functions outweighed its scientific value and functions by demonstrating that many of Darwin's evolutionary ideas were already well in circulation within both elite British scientific culture and general popular culture way before his own book on evolution was produced. Anti-biblical evolutionary thoughts and ideas were already well-known to the British general and scientific public many decades before he published his own.

**Darwin's Sneak Preview**

These pre-existing evolutionary ideas floating around in widespread circulation within British culture provided for Darwin a sneak preview of what to expect with his own theory. In doing so, one of its significant effects was to show him how to overcome resistance to acceptance of his own evolutionary ideas. Essentially, it likely functioned as a constant and reliable guide in the actual writing of his Origin book.

In any case, by the time Darwin evidently followed in his grandfather's footsteps to model a title for his own groundbreaking genuflection to evolution in 1859, critical

ideas about Bible-based creation doctrine, naturalism, human progress, the perfectibility of humanity, and atheistic beliefs had already sunk deep roots within the fertile soil of elite British culture in general and elite scientific culture in particular. The learned assault on a traditional Genesis-based view of creation and a biblical worldview of human nature which had begun in fledgling stages during the Renaissance years and grown to high levels during the early years of the Enlightenment had now indeed intensified in earnest and spread like wildfire across the British cultural brush.

**Embracing Atheistic Beliefs**

In a manner of speaking, atheism found confirmation in the thoughts and ideas of a willing companion on natural history. By the time the famed nobleman, French scholar, astronomer and polymath, marquis Pierre-Simon de la Place (1749-1827), proclaimed that God was basically an irrelevant conjecture in his study of the heavens, British culture was already headlong into embracing atheistic beliefs. Although there is some scholarly debate about how and why de la Place said this, there is little debate that he said it. It is a brief story worth recounting here.

It is noteworthy to point out here that de la Place was not just an average scientist or scholar of his French nation at the time. Because his work was so important to the development of engineering, math, statistics, physics, astronomy, and philosophy, he was regarded then as he is now still recognized by many scholars as one of the greatest scientists of all time, so great that he is sometimes dubbed the 'Newton of France' or the 'French Newton' (Clarke, 1911). During his time, his reputation was so great that the emperor Napoleon Bonapart made him a Minister of the Interior for a brief time. And this is where our brief story about his commentary on God begins.

**The French Newton: God is Irrelevant**

One fine day, de la Place and Napoleon are having an amusing conversation in the presence of several others about how the universe originated. Everyone in the room is listening attentively, and Napoleon himself is noticeably studious. When de la Place finishes explaining his theory of universal creation, Napoleon pauses reflectively and asks him a pointed question about how almighty God fits into his reflections. Without flinching or delaying for a moment, de la Place responded that he had no need for such a conjecture in his thinking.

When one investigates a little further into the personal de la Place's personal history, we come to understand that his response to Napoleon was not just a flippant spur-of-the-moment statement from a prideful renowned scientist trying to impress an emperor with his ability to think independently. His father had sent him to become an ordained priest, but Pierre Simon soon adamantly rejected this calling to become a mathematician. Although not announcing it publicly for fears of cultural repercussions that might hurt his opportunities, he privately rejected Christianity to become a fervent atheist.

In other words, his response to Napoleon's inquiry about his theory of universal creation was indeed an explicit and flagrant admission of his personal atheistic beliefs. Just like flagrant atheistic belief reared its ugly head again during this time once the cultural conditions were ripe, so, too, did the notions of human perfectibility and progress. Only this time, atheistic beliefs emerged together front and center with these notions and found a highly persuasive and notably credible confirmation in scientific renditions of evolutionary thoughts and ideas all sitting within a rather inviting cultural petri dish. As our cursory review above suggested, God variously conceived as unnecessary in the understanding of human nature and the origins of the universe were already flourishing in European culture long before Laplace proclaimed God to be an irrelevant conjecture in a conversation with Napoleon Bonaparte in 1802.

The cultural ascendancy and dominance of secular notions about human progress and the perfectibility of humanity had already made considerable headway in repudiating and displacing traditional biblical notions of the origins of humanity and the university especially among the elite culture. Once these traditional biblical notions about the divinely ordained relative permanency of human nature and the universe came under suspicion and gradually came to be pushed aside, the conceptual void came to be filled by human notions of progress and perfectibility. The universe and even human biology itself came to be understood in terms of very lengthy piecemeal phases of progress and perfectibility, an idea that had re-emerged in the 17th century from the cultural bowels of ancient Greece and Rome (Edelstein, 2019).

**Leibniz: Religion Employed to Legitimize Atheistic Views**

A perfect example of how earlier and distinctly traditional religious views about the nature and origins of humanity and the universe can be employed many years later under different cultural conditions to legitimize secular and atheistic views are the evolutionary ideas of the great German polymath, Gottfried Leibniz (1646-1716), a lifelong Lutheran. During his time and long afterwards, Leibniz was renowned for his genius in mathematics, philosophy, and science, inventing calculus and a host of other major inventions. In fact, he made so many other major contributions in such a great variety of fields that he is regarded today by many scholars as the last genuine genius of our times (Dunne, 2022).

Among the major philosophical contributions are evolutionary ideas applied to the origins of the universe and human biology, very much in line with some of the Renaissance thinking of his time. In his 1697 book entitled, De Rerum Originatione Radicali, he argued that all of the works of God increased in beauty and perfection over time. This divinely ordained tendency constituted an unstoppable, continual, and unrestricted progressive movement of the entire universe

towards ever advanced or superior forms including all life forms on earth.

In other words, evolution as conceived by Leibniz was a spiritual process initially put into place by the divine biblical God. Natural and human evolution was a progressive unfolding of divine programming, the final outcome of which was somehow contained within it from the very start of Creation. It is evident that Leibniz's evolution was a theistic evolution, not an atheistic one, based on his religious stance that belief in God, meaning a biblical Genesis Creator God, must have a rational basis and should not subsist on faith alone. God had created the best of all possible worlds and instituted a harmonious natural and biological world using the simplest laws that were at once noticeable, discoverable, and intelligible.

As suggested above, it is well-known that Leibniz was not the only thinker at the time to apply the notion of evolution to the perfectibility and progress of the universe and to all life forms including human beings. It is less well-known, however, that the 'evolution' term itself, taken from the Latin 'evolution' meaning to unroll like a scroll, first appeared in the 17th century in particular reference to the orderly unfolding of events towards a predetermined built-in outcome.

**Evolution 40 Years Before Leibniz**

Almost 40 years earlier than Leibniz's use of the term, Sir Matthew Hale (1609-1676), a highly regarded English barrister, judge, and jurist at the time, applied evolutionary ideas to fathom the universe and human beings. Hale used evolutionary notions mostly to argue against the widely popular theory of atheistic atomism at the time, derived chiefly from ancient Greek and early Indian philosophers. Atheistic atomism argued that the constant vibrations and collisions of invisible elements over time had somehow, without any supernatural assistance or intervention whatsoever, resulted

in the formation of primitive seeds. In turn, these seeds had spontaneously produced all life forms on earth including human beings, animals, birds, and fish (Goodrum, 2002).

Raised a strict Puritan, it is understandable why Hale would label this godless mechanistic view of the universe and humanity as ludicrous. Puritanism did not allow for the emergence of humanity and all life forms from the chance collision and coalition of dead atoms. More importantly for our purposes here, Hale's apologetic use of the evolution term to signify a divinely guided spiritual process illustrates a bit more than a simple puritanical defense against a perceived attack on the biblical view of creation. It conveys the ascendance and widespread dissemination of mechanical machine-like secular views of evolution that would later become staples of the scientific revolution (Bowler, 2003).

Even if God-ordained, evolutionary notions of human progress and the progressive perfectibility of human beings easily played into atheistic worldviews spreading across elite culture from the Renaissance up to that time. After all, the secular philosophical notion of perfectibility meant ever more advanced or superior forms of life in a universe believed to be progressively perfecting itself either by itself or under divine guidance or both. It didn't take long before the entire history of the human species came to be viewed in like terms as the simple outcome of an extremely protracted biological process of improvement from simple to complex.

**Human Progress and Perfectibility: Biology vs. Divinity**

In other words, evolutionary ideas whether spiritual or secular eventually came to lay the foundation for human progress and perfectibility at the doorstep of biology, not a biblical divinity. The traditional biblical worldview emphasized the permanent or fixed nature of human beings due to a sinful fall from grace, not a natural or spontaneous unfolding of human perfectibility and progress over a long period of time. Biblically speaking,

genuine human perfectibility and progress could not be reached through humanity's own efforts and standards. The Bible is quite categorical on these philosophical issues.

It specifically counsels human beings against striving for perfection or seeking approval from others by chasing after credentials of earthly status. In a manner of speaking, human beings are enjoined to accumulate the spiritual currency of righteousness, holiness, justice, and love rather than the material currency of earthly wealth, power, and prestige. Given unchanging sinful human nature, the only way human beings can be made perfect is through faith in Christ, and that perfection wasn't going to be attained in one's lifetime. God's calling to humanity in the biblical worldview is not a calling to perfection but, rather, a calling to live out in conduct the character of God through faith while living on Earth.

It is true that in Matthew 5:48, as part of the Sermon on the Mount, Christ counsels his disciples: "You, therefore, must be perfect, as your heavenly Father is perfect". Obviously, however, this instruction did not refer to human perfectibility or human progress in secular Renaissance or Enlightenment terms. Equally evident is the fact that it is a demand quite beyond the rational capability of even the most righteous human being on earth, all religious clergy included.

Still, since human beings cannot reach a biblical God's level of perfection, it is reasonable to believe that this biblical command must be interpreted literally. The fact that it is repeated several times across many other parts of the Bible also suggests the veracity of a literal interpretation. Perhaps there is a different lesson to be learned in Christ's divine injunction to his disciples during his sermon.

Since it is impossible to attain within earthly life, at least according to a biblical worldview, then it is reasonable to conclude that it should be construed as wise advice to humanity in general. Perhaps the veiled warning is to remain

humble and faithful to God rather than for humanity to fashion themselves as their own gods in a never-ending process of material perfectibility on Earth. Undying faith in and love of God in the context of obedience to God's commandments throughout all trials and tribulations of earthly existence is how human beings overcome imperfection and sin in order to enter the Kingdom of God. Therefore, viewing evolution as a spontaneous never-ending sequential progressive process of biological movement from lesser or inferior to more advanced or superior forms of life is clearly not only not biblically unfounded but, much more profoundly, firmly anti-biblical.

**A Panoply of Progressive Philosophers on Human History**

If it wasn't acceptable on biblical grounds, it certainly was palatable on long held philosophical grounds. Long before Lamarck, Leibniz, de le Place, Darwin, and other scientific notables came to apply the notion of 'progress' in biological terms, a veritable panoply of philosophers had already forged a progressive view of human history from lower to higher forms. In doing so, they deposited within the established European cultural petri dish choice philosophical morsels which could be accepted and readily applied to human biology. Many examples abound to illustrate this connection, but let's review a small sample.

Early in the 18th century, the great German philosopher, Immanuel Kant (1724-1804), himself born and raised into a pietist Lutheran family, had already defined human progress as a natural movement from barbarism to civilization without the intentional pursuit of progressive goals (Reiss, 1991). For Kant, human beings can only progress collectively as a species, so human progress is at once both social and worldwide. Although it is not predetermined, this progress is conditioned by rational and social capacities in human nature.

The 18th-century self-proclaimed atheist philosopher and mathematician, Marquis of Condorcet (1743-1794), wrote what is perhaps the most profound and impactful formulation of human progress upon the Enlightenment while in hiding during the French Revolution. In a book entitled, Sketch for a Historical Picture of the Progress of the Human Mind, Condorcet argued that the past revealed a human history constituted by the progressive development of human capacities and progress in the natural sciences.

Quite emphatically, he viewed humanity as necessarily passing through progressing stages of perfection on the way to the achievement of a perfect utopia, all of this progress and perfectionism having absolutely nothing to do with a biblical God whatsoever or any other religion, and with great hostility towards Christianity in particular. In what is perhaps a bizarre twist of fate given Condorcet's undying faith in humanity, he was captured and imprisoned by French Revolutionaries in March 1794. Four days later, he was found dead in his cell from an apparent suicide (Williams, 2004).

The views about human progress of the prominent Lutheran German philosopher, Friedrich Hegel (1770-1831) are fairly well-known. Basically, humanity was conceived as continuously passing through various cycles of political leaders, religions, wars, and ideational contradictions better known as the dialectical method. More specifically, Hegel believes that human history passes through various cycles in the realm of ideas which he called thesis, antithesis, and synthesis.

In the realm of ideas within human society, different idea systems struggle against each other for dominance, and out of that struggle emerges a dominant system of ideas that governs historical periods. In human history, this is a process which Hegel conceived as unintentional and largely accidental, like for Kant. As humanity moves forward through history reason, logic, sociality, justice, freedom, individuality, and other

human capacities move to ever more advanced forms (Beiser, 1993, 2005).

Born into a Catholic monarchist family, the great French philosopher, mathematician, and writer, Isidore August Comte (1798-1857), who actually formulated the doctrine of positivism later used in science and now regarded as the first philosopher of science, also developed progressive notions of human history. In a book entitled, The Religion of Humanity, Comte expressed the belief that in a future science-based society founded upon positivism, there should be a secular religion that would function to provide cohesion between individuals and groups once held by the steadily declining traditional religious beliefs, although on the basis of moral force alone (Davies, 2008).

As can be expected, these ideas about a secular positivist religion based on humanism to replace traditional Christianity greatly contributed to the emergence and development of ethical societies and secular humanist organizations. The fact that Comte developed this kind of fervent secular thinking was partly the result of his rejection of the Catholic Christian faith of his birthhood under the dominant influence of his first teacher, the Protestant pastor and mathematician, Daniel Encontre, in the Faculty of Sciences at the University of Montpellier. Among other things, there he likely learned that theological interpretations of natural creation were the most repugnant and primitive sort of thinking which humanity was surely destined to discard as it matured over time.

Of all the previous thinkers to philosophize and theorize about evolutionary ideas who had preponderant impact upon Darwin and scientists of his time, the eminent English polymath Herbert Spencer (1820-1903) surely stands out from the rest in many significant ways. He was intensely active as a biologist, psychologist, anthropologist, and social scientist, among many other active scholarly interests and pursuits. He is perhaps best known for applying evolutionary thoughts and

ideas to philosophy, psychology, and especially to the study of human nature and human conduct in society.

Coining the phrase 'survival of the fittest' after reading Darwin's Origins book, he proceeded to apply evolutionary principles and doctrines including natural selection to understand the history of human societies, the existence and development of social classes, and the behavior of individuals, a doctrine known as social Darwinism. Basically, this doctrine held that particular kinds of human beings would become more powerful than others over geologic time because of the race or ethnic group to which they belonged. In others words, just like in the biological world, only the fittest survived in the human world. Some species of human beings are more powerful and more fit to survive and govern over other human beings and over society in general than other human species.

Just as biological species emerged and developed over geological time weeding out their weakest links, he argued that humanity as a whole and human societies in particular also developed in similar ways (Acton, 2024). In essence, his application of biological principles to understand the emergence and development of human beings and human societies can be viewed as social evolutionism. For Spencer, then, evolution became the ultimate determining factor which governed all change in the known universe.

Since he believed that humanity can never know whether a 'God' exists or not, his thinking was grounded in a firm agnosticism which expressed itself as an unrelenting criticism of all religions especially traditional Christianity. For him, the existence of God was a statement of faith, not a matter of known fact or certain knowledge. The underlying cosmic force which many believe to hold together the process of evolution in the universe is emphatically unknown and unknowable. All that can be known about biologic and human species is that they are governed by a universal impersonal natural process which makes them develop from simple lesser homogenous

organisms to increasingly more advanced and more complex heterogeneous forms of life over geologic time periods.

The obvious implications of such an evolutionary theory long before, during, and after Darwin for acceptance of religion in general and a biblical understanding of the origins of humanity and the universe in particular are rather startling by any measure. Along with Darwin, Huxley, and several others, it is not at all surprising how Spencer became irremediably entangled in the heated controversial debate at the time between proponents of the Genesis-based biblical worldview of human origins and those who championed the simian ancestry of humanity, with Spencer firmly rooted on the simian side.

Further, like biologic and human species had evolved from lesser to superior forms through natural selection and survival of the fittest, so, too, did religions. Religious evolution complimented biologic and social evolution. Primitive religions among primitive human species had not really evolved at normal rates, the religions found in most of the advanced civilizations did show significant signs of progress such as the Greco-Roman, Hindu, Hebrew, and Muslim religions. Along with these greater religions and superior civilizations, Spencer placed the relative advancements and improvements of the Catholic and Protestant religions on a progressive scale of religious human consciousness. Tellingly, he placed his own agnostic scientific beliefs as the progressive penultimate point in human history (Duncan, 2012; Fitzgerald, 1987).

**The British Cultural Petri Dish and Scientific Gaps**

It should be relatively clear at this point that agnosticism and atheism were among the dominant intellectual trends within elite British scientific and philosophical culture quite before the emergence of Darwin's major work on evolutionary theory and science. The elite British cultural petri dish was already brimming over with all types of challenges to the traditional

Genesis-based Judeo-Christian views on the origins of humanity and the universe ranging from poets, painters, and artists to scholars, scientists, political leaders, and beyond.

Yet, what is even more remarkable than the long-established elite British cultural petri dish of agnosticism and atheism brewing in tantalizing philosophical and scientific stew up to Darwin's time that provided a welcome home for evolutionary thoughts and ideas is the equally dumbfounding dearth of conclusive empirical scientific evidence in the fossils records to justify the validity and reliability of evolutionary theory. Even at that time, the fossil record essentially failed to expose the transitional stages of development between organisms and creatures absolutely required to legitimate Darwin's evolutionary theory.

In other words, there were such telling gaps in the fossil record that frustrated the validity of evolutionary theory especially since it was known that the environmental conditions to create fossils on Earth have been extremely rare since life started. Perhaps under the influence of his early training in geology under Adam Sedgwick, even Darwin himself recognized that the paleontological scientific work at that time simply failed to support evolutionism. Sedgwick was a pioneer in geology in Britain at that time, an ordained clergyman who had been appointed to the Chair of Geology at Cambridge.

Along with several others, Sedgwick wasted no time in building up the university's scientific reputation by engaging in extensive fieldwork and providing regular lectures. His own scientific research focused upon Britain's older rocks, and in this way his work became pivotal in working out the divisions in Britain's geological columns between the Cambrian and Devonian eras. Darwin came to know Sedgwick informally rather than through attending lectures at Cambridge. Through this informal meeting, Sedgwick invited Darwin on a comprehensive three-week tour of older rocks in Wales, some

of which bore fossils, and for which Darwin remained forever delightfully indebted all of his life.

They remained friends even through times when events and circumstances would test that friendship. For example, Darwin sent him a fresh first-edition copy of his Origin book even though it was well-known in elite British scientific and philosophical circles that Sedgwick was a fierce public adversary against evolutionism. Sedgwick had long argued that the theory of species transmutation was speculative hogwash that only undermined the biblical view of humanity. Although he accused Darwin of deserting the absolute truth of solid physical evidence, they managed to remain friends, exchange letters, and even go on a long tour of Cambridge's expanded geological collections in 1870 (Secord, 2004).

The question now becomes: why did Darwin in particular and elite British scientific, philosophic, and cultural opinion in general favor evolution as categorical historical truth when the empirical scientific paleontological evidence at the time pointed in the opposite direction? After all, neither the evolution of earth nor of humanity were scientifically-confirmed historical fact by any stretch of the imagination. The argument here is that the prevailing agnostic and atheistic beliefs, sentiments, and opinions long circulating and brewing within the petri dish of elite British culture at the time provided ripe conditions for the formation of a general consensus towards evolutionism despite vehement objections in varied places from a host of theological and other opponents.

Within these powerful elite British scientific, theological, and social circles, there was very little debate on the veracity of evolutionism per se. The real question in these elite circles was about the mechanism or agency through which evolution transpired, not if it happened. Further, many if not most theologians and clergymen of all religious stripes essentially agreed that progressive development to ever higher forms of

life seemed to be a fact of human history. The cultural and scientific discussions and debates were not so much about the wholesale denial of the existence of evolution as it was about how it actually took place.

**Controversy About How Evolution Happens, Not If It Occurs**

That's why many scientists even prior to Darwin's time were already trying to figure out the agency through which evolution occurred. As we learned earlier, that's why the French naturalist, Jean-Baptiste Lamarck (1744-1829), argued a full generation before Darwin and his contemporary biologists that biological evolution was an historical reality, and started to think about and investigate the possible mechanisms through which evolution might take place. As a postulated agency for evolution, he argued that it was the fluids inside organs that inherited more advanced forms and functions for those organisms, and through these fluids these advanced traits and functions were passed on to descendants (Gillispie, 1960).

Although Lamarck's evolutionary agencies eventually came to be disproved, his work shows that the effort to find out how evolution took place within and between living species had already begun in earnest much earlier than Darwin, largely based upon accepted beliefs about the factual status of evolutionism itself. Even natural selection as a primary vehicle enabling evolution to take place had been argued by some scientists well before Darwin used it in his Origins book in 1859.

The celebrated Scottish-American physician and printer, William Charles Wells (1757-1817), made what is now believed to be the first known statement on natural selection (Green, 1957). Since he was very much interested in the sensitive

issue of the origins of different racial species of human beings, he applied the notion of natural selection to the origin of different skin colors. In his work, he seemed to apply the idea of natural selection even more widely in his comparison of the equal efficiency of artificial selection among domesticated animals and the natural selection mechanism in nature which he believed more slowly forms of human racial varieties well-fitted by nature to suit the environment which they inhabit (Wells, 2022).

The famed Oxford-trained Scottish geologist, Sir Charles Lyell (1797-1875), argued in favor of natural causes to explain the origins and development of the Earth. He argued that the Earth was shaped into formation by natural processes acting slowly over geologic periods of time but still in evidence today, not sudden or abrupt geologic changes perhaps caused by supernatural or divine actions. In terms of the emergence and development of new species, Lyell was fairly clear in various communications with notable scientists and others at his time. In his 1833 book, Principles of Geology, he argued that the origin of fresh species was the result of natural causes in explicit opposition to miraculous causes and processes.

**Heretic in Darwin's Court**

Although he expressed enduring deep troubles with accepting natural selection as the chief force of evolution due to his own staunch Anglican religious beliefs, he did express conditional and qualified acceptance of that doctrine in later editions of his book. Unlike Darwin, however, his religious faith could not go as far as Darwin's faith had regressed.

For Lyell, his geological work did nothing to undermine his fervent Christian belief that any science, let alone his own, could possibly fathom the full mysteries of God's creation. Faith and science were two separate things for Lyell. The special status of human beings and reason in the biblical worldview took center place in his thinking throughout his life.

More details will be provided later about Lyell's religious-based criticisms of evolution (Bynum, 1984; Desmond, 1982; Wilson, 1973).

Even Lyell's qualified, begrudging, but respectful friendly support for the role of Darwin's natural selection in evolution went a long way towards confirming the legitimacy of related ideas and beliefs about human progress and natural causes. Along with the unconditional support of many other scientific British elites, it was surely significant enough to corroborate the central ideas and values contained in the dominant political and philosophical movements of the Enlightenment, such as Progressivism and the naturalistic bent of science.

**Wallace: Darwinian Friend or Foe?**

Let us not forget a dominant pathway towards the acceptance of Darwin's evolutionary theory that had been paved by the famed English naturalist, biologist, anthropologist, geographer, and explorer, Alfred Russell Wallace (1823-1913), who independently formulated a theory of evolution based on natural selection ahead of Darwin. At the time, not only had he engaged in extensive fieldwork similar to Darwin's, but he was also known as one of the world's foremost experts on the distribution of animal species across different geographical regions, among many other major contributions to science. What's more, in 1904 Wallace published a book called, Man's Place in the Universe, which speculated on the likelihood of extraterrestrial life, even considering the possibility of life on Mars in a paper published three years later.

Although his relationship with other scientists was no doubt strained by his fervent advocacy of spiritualism and mind-body dualism, the Bible did not hold any privileged revelatory status in Wallace's religious views at least in the early years of his scientific career (Fichman, 2001). In actual practice, therefore, he seemed to be a lifelong agnostic and not really a theistic thinker, or at least that's what it seemed like. The fact

that he believed in the evolution of conscious thought involving messaging from the spirit world doesn't necessarily mean he believed in a Genesis-based Creator God of humanity and the universe, even though that belief itself went through many changes during his life.

Wallace's well-documented fascination with and belief in the occult world at first glance seems quite contrary to a biblical worldview. Both Wallace and Darwin shared an aversion towards Judeo-Christianity in general and Christian ethics in particular. However, many of these claims are largely false impressionistic accounts of his spiritual views that Wallace himself would qualify many times over, as we shall see later. Both Wallace and Darwin shared an aversion towards Judeo-Christianity in general and Christian ethics in particular. However, many of these claims are largely false impressionistic accounts of his spiritual views that Wallace himself would qualify many times over, as we shall see later.

Still, the overwhelming primary focus at the time was on improving the human condition through social, scientific, and scientific advancements, and in practice that invariably meant a veritable break from traditional biblical doctrines. British elites believed that European civilization was advancing due mainly to new scientific empirical knowledge, not divine or supernatural input or guidance (Mah, 2003). As a result, they believed that European peoples were becoming more civil and enlightened, even more than all other cultures.

As Kant had put it, humanity was moving from barbarism to civility. Condorcet had argued that political progress meant the end of poverty and slavery, increasing literacy, and decreasing sexual inequality, among many other social advancements. These progressivist beliefs were so strong that British elites believed they had universal application, and it came with an attached moral duty to spread the progressivist mandate to all human societies dotting the Earth.

Key classical liberal political philosophers of the 19th and 20th centuries, such as J.S. Mill (1806-1873), a close friend of August Comte, claimed that human beings were in essence progressive beings. As a well-known agnostic and sceptic, such a view of human nature made perfect sense although he took care not to publicly mock Christianity too much for fear of severe repercussions (Gregg, 2017). But he did make clear that thanks to modern science, most intelligent or enlightened people no longer believed Christianity's claims.

He came to argue for the complete removal of conventional religious, social, political, and philosophical obstacles to economic and social modernization. Progress meant rapidly modernizing the entire society by modernizing the economy, and modernizing the economy meant completely free movement of peoples and free markets. Indeed, modernizing of the entire society could not really take place without replacing traditional supernatural religion with an Earth-bound religion of humanity.

**Naturalism and the Origin of Humanity**

Just like progressivist thoughts and ideas seemed to be authenticated by Darwin's evolutionary theory in the eyes of the established British elite, so, too, were the central contentions and suppositions of naturalism. As we learned earlier, naturalism claimed that the origins and development of humanity and the universe can be entirely explained by natural laws and forces without any reference to supernatural, mythical, or divine beings. Only the laws of nature operate in the universe, not supernatural forces. All of reality is contained within nature; there is nothing beyond nature. That is why naturalism is also defined as anti-supernaturalism (Papineau, 2007).

When such naturalistic beliefs combined with empirical scientific method, it constituted a powerful addition to the dominant progressivist philosophy of the times. Within the

British cultural mindset, the dominant belief that nature is all there is in reality with no supernatural reality existing beyond it intersected nicely with the belief that the scientific method encompasses and addresses all claims made about nature.

Although it may not have been the only cosmological position associated with natural science at the time, it fitted in nicely with other beliefs floating about in the petri dish of British elite culture such as human beings are fully and completely only a part of nature, no reality can exist or be known other than what is in nature, and science can only explain things that fall within the scope of natural laws, forces, and processes (Vardiman, 1997).

**Naturalism Thrown into the British Cultural Petri Dish**

The concurrence of atheistic and agnostic beliefs along with naturalistic values and beliefs within that same elite British cultural petri dish also almost certainly presented great pressures for the acceptance of Darwin's evolutionary theory. Although it is true that some naturalists at that time probably also believed in a Genesis-based God the Father Creator of the universe, that doesn't mean at all that there was no progressive forward movement towards increasing atheism within the ranks of the British scientific elite. In any case, most God-fearing naturalists tended to believe that God doesn't interfere or intervene in human affairs nor in the operations of nature (Chen, 2009; Rea, 2002).

The uncanny conjunction of all these powerful belief systems at Darwin's time vying for cultural dominancy with traditional Judeo-Christian doctrines and beliefs about the origins of humanity and the universe is most assuredly something to marvel at. It almost seemed like no matter what theoretical speculations on whatever topic emerged at this time, they could somehow be fused or conjoined with Darwin's evolutionary theory through natural selection. Darwin himself

partook in much of these efforts to integrate them into his own work.

**Malthus Fused into Darwin**

The population growth argument of the English economist, Anglican cleric, and scholar, Thomas Malthus (1766-1834), is an unmitigated case in point. Malthus' general argument was that all animals have an inherent tendency to multiply faster than their available food sources, including human beings. This fact could be observed in his own country which possessed advanced technology for food production. But when food production increased, this increased the well-being of the population which, in turn, increased the population.

This subsequent increase in the population, in turn, negated the gains that had been made in food production levels. Only severe physical hardship, war, famine, and disease could put an end to this cycle of population growth. Real societal progress and human perfectibility were not achievable, something Malthus believed was divinely ordained to convey to humanity the necessity of living a virtuous life (Malthus, 2022).

The Malthusian population argument is also a good example of how religious thinkers and clergy can unwittingly contribute to the acceptance of belief systems totally at odds with a biblical worldview. Perhaps the greatest abomination was that often times such theories were created in the name of Christianity itself. Darwin was not about to swallow Mathus' population theory whole, but he did read it attentively as did Wallace and many other scientists at that time. What Darwin did was draw from it some essential philosophical and theoretical morsels which could be used to justify the validity of natural selection.

Since animals and human beings multiply faster than their food supply even given higher levels of technological development in food production, it follows that a struggle for existence occurs among them as a direct result. Like for animals, the human beings most likely to survive in this war of nature are those who acquired or inherited highly useful traits, also known as the survival of the fittest.

In this way, nature selects or endows certain individuals and human species with the capacity to further develop over time those same traits all leading, of course, to the emergence of superior biological species. Generation by generation, therefore, natural selection produces human species that are increasingly perfected. In other words, there is an inherent tendency within nature towards perfectibility and progress (Darwin, 2022).

Understandably, this particular biological view of human life on Earth as a competitive struggle for existence under conditions of a state of war against nature where the weak were weeded out and the strong survived was tremendously appealing to a great variety of liberal thinkers and upwardly-mobile socio-economic groups. If social groups survived and became economically successful, it was because they were biologically blessed, so to speak, while the unsuccessful were viewed as weaker human specimens that faded away or could be eliminated.

**Socialist Champions of Darwin**

Most radical socialists at the time, like Karl Marx, championed these Darwinian ideas of biologically-rooted perfectibility in the human species partly because it suggested that human nature itself could be biologically perfected, and partly because it provided implicit support for the eventual revolutionary establishment of a perfected utopian human society. This was good news to Marx and to all socialists in general because it seemed to confirm that natural biological

tendencies towards perfectibility were driving the human species towards a penultimate utopia reachable within human existence and not in what was believed to be some mythical biblical afterlife.

In the main, socialists throughout a great deal of the 19th century venerated Darwin's evolutionary theory as advancing the ideas and goals of progressive social change. In this manner, Darwin's theory became absolutely critical for the development of socialist and communist thinking. Even Marx himself was a dogmatic Darwinian who explicitly built his economic theory upon evolutionary premises, and he was quite happy to recognize Darwin's contribution despite Darwin's lackluster doubt.

It could be easily argued with considerable force and veracity that Darwin provided for Marx the scientific basis for rejecting the traditional Genesis-based biblical view human nature and creation so widely disseminated across European civilization and especially throughout British elite and popular culture at the time (Bergman, 2001). In like manner, but not as well known among biblical scholars these days, is that Darwin himself explicitly confirmed in a subsequent book, Descent of Man, that he wrote his Origins book to counter this Genesis-based view of the divine origins of human creation (Darwin, 2011).

It stands to reason that if human history is characterized first and foremost by a relentless war within nature for mere existence that subsequently determines human thought and behavior, then a Genesis-based creation of humanity and the universe by a biblical God is essentially portrayed as mythical and nonsensical. What's more, if natural processes and forces spontaneously produce human beings and afterward govern human thought and behavior by making survival the primary goal of human existence, then free independent human thought becomes a highly questionable attainment. The idea of a free independent human mind applying reason and logic

in the pursuit of truth becomes just another fairy tale aside many others.

**Reason and Logic Becomes a Fairy Tale**

The idea of a free independent human mind applying reason and logic in the pursuit of truth becomes just another fairy tale aside many others. In a manner of speaking, surely it doesn't take a rocket scientist in logic to see where this story leads. First and foremost, biological forces and processes in nature determine the essential features of human thought and direct it to secure survival above all other potential goals. Ideas and thoughts, beliefs and values, all human thinking and conduct fall under the direction of this sovereign survival instinct. The obvious inescapable and fatal denouement of Darwin's evolutionary theory, then, is that human rational thought itself is essentially unattainable.

If free human thought is unreachable, then the scientific quest for true knowledge is poppycock. Rational human thought, science, and truth itself are here dealt a decisive coup de grace. After all, from the Darwinian perspective, the products of superior human minds had initially derived from lesser simian minds. In this kind of thinking, even so-called 'great' human minds come under dark suspicion. It becomes a near impossibility to believe anything that anyone says as representing or indicative of the 'truth'.

In essence, what this means epistemologically is that all truth claims by any thinker on any topic whatsoever fall into a massive dark cloud of irredeemable skepticism and pessimism. By logical extension, of course, that includes the deterministic biological truth claims of Darwin himself and other great thinkers following in his footsteps, although they rarely if ever see themselves in this way. It is little wonder that Darwin spent the greater portion of his life (more than 40 years)

suffering from hypochondria and depression exacerbated by, ironically enough, an inherited lactose intolerance (Campbell and Matthews, 2005).

Strictly from a logical point of view, if instinct to survive in a natural war of all against all for existence determines thoughts, beliefs, and values for everyone, then there is no logical reason to consider that any thought, belief, or value is truthful. The whole notion of objective 'truth' becomes a non sequitur or a statement that does not logically follow from its premises. When logic and reason themselves become the handmaidens of biological instincts, then that throws Darwin's own truth claims into sharp dubiety, not to mention Marx's and Freud's, too.

**Free Human Thought is Not Free**

Human beings are not free to determine the contours of their own ideas and thought processes. For Darwin, they are simply the clueless robotic vehicles of powerful instinctual drives operating below the level of rational thought. For Marx the thoughts, conduct, and beliefs of human beings are determined by material circumstances, particularly socioeconomic circumstances. For Freud human thoughts, feelings, and behaviors are governed by unconscious psychic processes. The inevitable conclusion from following these trains of human thought is that there is no significantly independent free human thought to speak of.

In all three cases, human thoughts and beliefs are enslaved by causal factors operating below awareness, so free and independent human thought is firmly rejected. Seen from this vantage point, it is absolutely bizarre that these three great historical thinkers all claimed to be liberating the human mind from the damaging clutches of traditional religious mysticism, obfuscation, and illusion when they themselves denigrated the human capacity for independent rational thought and belief beyond salvation. Denial of any free human

thought by these thinkers can also be seen in other aspects of their own work.

**Darwin Compares Humans to Insects**

When we stop to think seriously and logically about Darwin's comparison of human beings to insects, we are left absolutely stunned and dumbfounded at how a reputable and respected scholar could stoop so low in his view of the human species. Just as insects follow blind instinctual dictates uncharacterized by 'free' thought or free will, so, too, do human beings, Darwin assumed. In fact, Darwin's Origin book itself contained nearly 50 references to insects as models to understand the nature of human behavior, the significance of which is rarely recognized.

In his subsequent book, The Descent of Man, Darwin actually cited more than 80 entomologists across the world with the same purpose in mind. Needless to say, from both a logical and religious point of view, it is absolutely astounding to consider that Darwin greatly relied upon entomological work to support truth claims about human thought and conduct in general and about his own theories on species origin and sexual selection (Allmon, 2022; Kritsky, 2014).

All of these well-known facts beg the question: what was it about the insect world that so enamored Darwin to make comparisons with the human world? It seems that Darwin's argument was relatively straightforward. He appeared to use the examples of insect behavior to demonstrate that the severity of the struggle for existence in a natural war of all against all can be mitigated or diminished by collaboration and teamwork in order to promote species survival. The implication is that if human beings cooperate with more than compete against each other, then the survival of the human species is more likely to result.

**Logical Flaws in Darwin's Human-Insect Comparisons**

This is a gem of Darwinian wisdom, to be sure, although logically speaking, the human cooperation argument can be advanced without any kind of reference to the insect or animal world whatsoever. What is really interesting to notice about Darwin's claim is its adverse impact upon the logical coherence of his evolutionary perspective in general. Darwin's starting point is a struggle for survival spontaneously rooted in nature as individual organisms and species compete for resources to survive. The struggle for survival is, in essence, a competitive struggle, not a cooperative one.

However, he also argues that cooperation can achieve the same ends which effectively casts doubt upon the instinctual drive of competition. Further, among other deleterious biological effects, cooperation may very well impede biologically endowed individuals from inaugurating new species, a central idea of his evolutionary theory. The logical question follows: How can struggle for survival possibly explain the opposing ideas of both competition and cooperation between human beings? Answer: it doesn't.

Ostensibly, that is why Darwin was compelled to argue that cooperation, like competition, operates mainly if not wholly at the level of individual organisms within the same species, not between different species. Logical problems present themselves here, too, however, because a biologically rooted competitive drive to survive cannot obviously be limited to intra-species operations or, in a manner of speaking, programmed mainly to dictate competition between individuals within the same species.

Strictly from a logical point of view, it is highly doubtful that competition for resources to enable survival is mainly an intra-species function. If biological instincts are to operate in robotic deterministic fashion, then the battle for survival operates between different human species as much as it does within them. Darwin's own frequent commentaries on the welcomed extermination of what he explicitly deemed to be the inferior aboriginal species in his ranking of world human species makes this point vividly clear (West, 2022, 1938).

**Darwin's Hierarchy of Human Species**

Like many scientists and thinkers before him, Darwin believed wholeheartedly that the human species could be categorized or divided into biologically distinct sub-populations called races. Not only could all of humanity be biologically divided into separate racial groups but, in addition, specific mental and physical traits could be assigned to each racial group in ascending order on a hierarchy from inferior to superior races. The explicit scientific racism here is beyond question.

Generally, this view of the human population was quite common from the 1600s to World War II within elite culture and became especially prevalent within European and American academic circles from about the 1850s to the early 20th century. It eventually came to be discredited after World War II and soundly rejected in the second half of the 20th century by modern genetic research (Bannister, 1979; Himmelfarb, 1959; Hofstadter, 1992). The reference here to World War II is quite revealing, to say the least.

**Hitler: Applied Darwin.02**

Hitler's holocaust, in fact, represented in no insignificant measure the systematic application of Darwin's evolutionary thoughts and ideas about humanity and the ranking of human species into inferior and superior subpopulations or taxa (Weikart, 2022, 2016, 2009, 2004). It was not an

improper or otherwise wrongful use of Darwinism, as some are wont to assert (Richards, 2013a; 2013b). Hitler and the Nazi regime systematically and self-consciously sought to apply major components of the doctrine and principles of Darwin's evolutionary view of humanity against particular socio-ethnic groups including thousands of its own. What's much worse, Hitler received the wholehearted backing of the German Christian church at that time (Bergman, 2024; Ericksen, 1985; Ericksen and Heschel, 1999; Heschel, 2008; Weikart, 2004).

In a vicious attempt to exterminate perceived inferior ethno-racial groups believed to be restraining the greater glory of the German nation and the real global success of the biologically-endowed superiority of the Aryan ethnic stock, millions of Jews were slaughtered, many thousands of Gypsies and homeless people, Black people, Catholics and Jehovah's Witnesses, communists and other political opponents, homosexuals, and even several thousand German mentally and physically handicapped people.

Hitler and the Nazi regime were self-consciously attempting to use Darwinian evolutionary theory to purify the genetic makeup of the German population to attain the superior or what they deemed as the 'pure' German Aryan race. In doing so, Hitler turned Darwin's evolutionary theory into a national religion that explained the ailments afflicting the German nation and, therefore, justified all manner of human atrocity against perceived selective enemies.

The terrible course of Hitler's widespread extermination program across and beyond the Jewish people was to a great extent the direct result of conceiving the origin and development of humanity in an amoral Darwinian war of all against all in nature in order to acquire indispensable food and reproduction resources. In this natural battle for species survival, only the strongest species and individuals survive. For Darwin as for Hitler, there was nothing particularly religious nor moral about this natural process, not in the

animal, plant, or insect world and, therefore, not in the human world.

The animal struggle for survival is just that, animalistic, not moralistic. Moral agency has nothing to do with natural processes and, in fact, directly derive from the same biological instincts if they do. Indeed, at least in his communications with Wallace, Darwin himself made clear that whatever moral senses may or may not exist in the human species can also be attributed to natural instincts. In other words, the foundation of humanity's morality or moral sentiments were not located in Judeo-Christian ethics founded upon a Genesis Creator God who made human beings in His own image. Rather, it was founded upon spontaneous impersonal natural processes and forces within material matter.

**Questions About the Origins of Moral Agency**

Although Wallace expressed extreme discomfort with rooting the origins of humanity's moral agency within an animalistic competitive struggle for existence, Darwin appeared to have little trouble in doing so. But Wallace wasn't the only one having difficulty with deriving the moral sense of humanity from basic social survival instincts. There were just too many established empirical examples of consistent human cooperative behavior to achieve notable moral goals even at that time such as soldiers sacrificing their own lives to save the lives of comrades or long-term consistent efforts of faith-based organizations and groups to help the needy and redress material deprivations.

Further, these examples were well-known in popular culture, not just elite educated circles. Consequently, they were a constant source of consternation and criticism among Darwin's critics, and not just from religious opponents. In the minds of many of these critics, instances of cooperation to achieve higher moral goals like justice or freedom from political tyranny or protection from criminal behaviors, among

countless other examples, didn't readily lend themselves to biological explanations in the minds of many people.

That is a significant reason why rooting humanity's moral sense solely within the realm of biological instincts made absolutely no sense at all to many people at the time. Although other parts of evolutionary theory could be very well accepted or at least entertained as conditional possibilities by those same critics, the idea of including moral agency under the aegis of evolutionary theory was very discomforting. They found it extremely difficult to explain moral conduct through instincts.

Many initial objections to Darwinian evolutionary theory tended to be associated with incorporating all cooperative collective and individual human behavior under the biological rubric or deriving the moral senses of humanity strictly from biological instincts. But these were by no means the only logical criticisms laid at Darwin's doorstep when Origin appeared. There were many logical problems associated with natural selection theory itself, and certainly with arguing that it caused evolution, that were perceived by many scholars and scientists even within Darwin's own academic bailiwick. Scholarly and scientific critics were among the most vocal ardent critics during Darwin's time, again not simply religious adherents.

However, there were also many staunch supporters within the highest elite circles of British academic and popular culture. The well-known Cambridge-trained British mathematician and philosopher W.K. Clifford (1845-1879) and the eminent English biologist and anthropologist T.H. Huxley (1825-1895) were probably the two best-known and strongest supporters of evolutionary theory in the 19th century. Later shown to have anticipated Einstein's theory of relativity by several decades, Clifford's stature as a premier philosophical thinker at that time was well recognized.

By the same token, his relative hostility to established Judeo-Christian religious beliefs was also well-known across many writings, particularly his 1877 essay titled, The Ethics of Belief. Acknowledging Darwin as an inspiration, Clifford argued resolutely that it is literally immoral to believe anything which lacks empirical evidence to support it (Clifford, 1877; Nottelmann, 2020), a view thoroughly shared by Huxley and many others. That meant that believing in God based upon insufficient empirical evidence, that is, entertaining this belief solely as a matter of faith, is not only wrong, but immoral.

As for Huxley, he later came to be such a staunch Ivy-League advocate of Darwin's evolutionary theory that he was dubbed 'Darwin's bulldog'[2], although the nomenclature seems to be

[2] Actually, there is an interesting story behind this nickname that needs to be related for it touches upon the central theme of the present study. Briefly, Huxley first earned this nickname initially from his vehement defense of Darwin's evolutionary theory during a heated public debate with the eminent clergyman, Bishop Samuel Wilberforce during a meeting of the British Association for the Advancement of Science in 1860 at Oxford University, a debate that spilled over into published articles afterwards. When asked pointedly by Wilberforce whether Huxley thought he was descended from a monkey on his grandfather's or his grandmother's side, Huxley proceeded to condemn Wilberforce for scientific ignorance, religious prejudice, and aimless rhetoric. When we take into consideration that Wilberforce was one of the few people during his time who argued against slavery on moral and religious grounds, his devastating attack on early evolutionary theory can be well appreciated, admired, and respected. As an Anglican prelate, educator, and outstanding orator during his life, most scholars today agree that he was absolutely pivotal in the banning of the British slave trade in 1807 and the British legislation that finally emancipated Britain's slaves in 1833. For the most part, and understandably so given the hierarchical racial tinge

vastly misplaced for more reasons than one. Presumably, as the president of the Royal Society, he wielded a great deal of academic and political power, and that would surely impact upon the manner in which he would convey the authority of his opinion to others. It is without question that such social clout wielded enormous influence over the thought of other eminent thinkers at the time.

At the very outset of Darwin's ideas, Huxley expressed qualms about the role of sterility in Darwin's view of species variation. At first, such criticisms made it appear as if Huxley would turn out to be a resolute opponent of Darwinian evolutionary theory. As they say, appearances can be deceiving. As time progressed, Huxley would turn out to be the fiercest and staunchest Darwinian supporter. But in the early presentational stages of Darwin's theory, he had a few questions.

He noted that when they are crossed, species are not sterile, whereas it had long been recognized by naturalists is a key criterion of species differentiation. More importantly, however, when Darwin first presented his work, Huxley made some interesting critical observations and suggestions which tended to imply that there was simply a lack of empirical evidence to justify the broad claims Darwin was making (Huxley, 1860).

To address this problem, he persistently advised Darwin to arrange an experiment to prove his theory of natural selection as the primary or sole causal mechanism of evolutionary change, but to no avail. In Huxley's mind, it seemed entirely plausible that new species of organisms could be created

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characterizing evolutionary classification of living beings at that time, scientists in general and evolutionary scientists in particular tended not to be among those anti-slavery forces (Berra, 2013; van Wyhe, 2019; Wilson, 2017).

under carefully controlled laboratory conditions within an accelerated period of time.

As well, Huxley believed that natural selection tended to point outside of the human organism into nature a bit too strongly as the source for the production of new species. Instead, he proposed to Darwin to search for an interior source for this variation. For some reason, Darwin wouldn't bite on that suggestion although he was acutely aware of the scientific experimentations taking place all around him attempting to address that very question.

Despite Darwin's failure to follow up on Huxley's advice, Huxley remained Darwin's ardent supporter throughout his life although there were adamant disagreements between them at least regarding the classification of living things especially but not solely the idea of categorizing human beings. Overall, he viewed Darwin's nature-based foundation for evolution as fitting nicely into his own ideological, political, and academic agenda.

**Huxley's 'X-Club' is Born**

As we learn below, he wanted to put together a community of crackerjack scientific elites with the expressed purpose of cutting off the traditional Judeo-Christian chains he believed imprisoned and limited the human intellect and had hamstrung the whole of humanity for millennia. This was a sentiment which Huxley himself had made explicitly clear in several different venues (Blinderman, 1963; Harvey, 2013; Huxley, 1992).

Soon enough, he formed an exclusive 'X-Club' by the end of 1864 to get this job done, and staffed it with some of the most renown scholars and scientists of his time such as Herbert Spencer, Francis Galton, J.D. Hooker, and John Tyndall. If they were not all open self-professed agnostics or atheists, they were certainly leaning ideologically and politically on the

liberal side away from traditional religion. Regardless, all club members made a public pledge to rid science of any and all religious trappings since they steadfastly viewed religion as an impediment not only to the progress of science but, more importantly for our purposes here, widespread social acceptance of evolutionary views about the origins of humanity and the universe.

Viewed Individually and collectively, the infamous X-Club had tremendous influence over elite academic and cultural communities in Britain quite beyond their own local establishment and even across Europe and the world. In the Creation-evolution controversy of the time, Huxley stood proudly on the simian evolutionary side along with his club cohorts and compelled his colleagues and other scholars and scientists far and wide to do the same.

Given Huxley's commanding stature in several notable academic seats of authority and his recognized fame as the premier spokesman for 'pure' science and evolutionary theory in the 19th century at least for the English-speaking world, it is surely no overstatement to assume that other elites everywhere knew there were consequences to be faced if they chose not to comply to Huxley's dictums in this regard.

Evidently, he was a 'bulldog' for the dominant liberalist ideology of the time just as much as he championed Darwin's evolutionary theory over the Creation doctrine in the Bible. Together with like-minded anti-religious scholars, scientists, and thinkers, Huxley played a central role in advancing fierce criticism of religion and religious doctrine and practice whether or not they could be shown to hinder scientific thinking or development. The protection-of-pure-science argument that Huxley and others employed was in the main simply an effective rhetorical strategy that camouflaged palpable hostility to Judeo-Christianity.

As Huxley himself made clear in all his efforts even before initiating the X-Club, concerted self-conscious effort to make evolutionary theory a significant part of the new 'religion' of science itself was intimately associated with the desire to displace traditional Judeo-Christian views of human origins. That means that the doctrine of natural selection as a cause of human evolution at that time was just as much a matter of conjecture, political rhetorical strategy, and personal anti-religious beliefs as it was anything else.

**Gray: Natural Selection is Just an 'Hypothesis'**

Presumably, that's why the famed 19th century American botanist and Harvard professor, Asia Gray, labeled natural selection as simply a hypothesis rather than an empirically proven theory in his 1860 review of Darwin's Origins book, although he provided conditional support for Darwin's evolutionary theory within the context of a theistic evolution governed by a biblical Creator God. They became very good lifelong friends, but Gray never stopped trying to persuade Darwin to see the inherent intelligent design in all forms of life on the planet and in the known universe, pleading with him to return to his birthhood faith. For a devout Presbyterian like Gray, God Himself was the irreducible source of all natural laws and evolutionary change. But Darwin felt that combining theology with evolution was literally ludicrous (Moore, 2002).

Not only for Darwin, but for Huxley and all the others who championed evolutionary theory by natural selection, there was little if any possibility of entertaining the notion of intelligent design within 'natural' evolution. Natural laws and forces were just that, 'natural, not supernatural. After all, it was well-known even at that time that Huxley explicitly used the doctrine of natural selection to displace the biblical worldview of human nature and creation while presenting it for public consumption as a purported protective mechanism to maintain scientific purity.

**Darwin's Ongoing Withdrawals and Revisions**

Given the severe lack of incontrovertible and unassailable supporting evidence at that time, it is difficult to maintain that natural selection could have been much more than rhetorical appeal. Even most theories of heredity appeared to be irreconcilable with Darwin's view of inheritance via random variation, and knowledge about genetics was very limited at that time (Bowler, 2003, 1983). Darwin himself was quite aware of this fact but, curiously, his off-the-shoulder first response to this criticism was usually to claim that science had not advanced far enough yet to identify the hidden causes but, rest assured, the hidden causes were there.

More significantly, he would then proceed to continually withdraw and revise previously made knowledge claims over all subsequent editions of his initial 1859 Origins book to take account of these criticisms, but without changing his evolutionary theory based on natural selection whatsoever. The implication is that the objective truth of Darwin's evolutionary theory is always hidden and, therefore, cannot and should not be refuted. It is simply true because it is true in theory; if it is true in theory, it is true in fact. It doesn't take a rocket scientist in wisdom to perceive here that Darwin is simply claiming a monopoly on truth regardless of any evidence or criticism to the contrary.

However, when confronted with mounting theoretical and empirical evidence presented by scientific critics which questioned the doctrine of natural selection as the cause of evolution and evolutionary change, Darwin and his supporters could not brush them aside as easily as those presented by religious critics.

**Scientific Critics: A Mendelian Case in Point**

A case in point is the now famed Austrian biologist and monk Gregor Mendel (1822-1884), which surely presents a hammer blow to the anti-religious zealotry of the Huxley crew. Having read Darwin's Origins as an interested contemporary scientist, Mendel was intimately familiar with his works on evolutionary theory and natural selection. However, he strenuously disagreed with Darwin's proposed blending ideas about how animals or plants passed down traits to subsequent generations. In his mind, Darwin's assertions seemed to conflict with his own observations during experiments.

Although Darwin was supposedly unaware of Mendel's empirical work on heredity in plants, he was aware of similar work carried out by other scientists. Knowing that his theory of natural selection could not explain heredity, Darwin speculated that parental traits simply blended or mixed with all the other traits as they moved on to offspring. But critics of this blending notion of trait inheritance argued that, if that was the case, it seems that the opportunity for mutated traits to be passed on would be severely curtailed by the plethora of existing immutable traits. In most if not all of these cases, it could not be expected that mutated traits would be passed on to offspring even if they had acquired advantageous elements.

By contrast to Darwin, Mendel hypothesized that parental traits themselves were located within particles along with other elements invisible to the naked eye and then passed on as a whole to subsequent generations. He proved this by carefully and meticulously breeding and cross-breeding thousands upon thousands of pea plants to try to determine how specific traits were inherited by offspring, such as height.

When he cut a tall pea plant into a short one, the result was always tall offspring. There was never any great blending range of short-to-medium-to-tall pea plant offsprings that might be expected by the operation of some kind of blending

mechanism. Then he continued experimenting by breeding the offspring together resulting in the production of a short offspring 1 out of every 4 times. Mendel concluded that plant height over time likely depended upon the random combination of parental traits which offspring inherited from generation to generation.

Mendel also criticized several other features of Darwin's views on inheritance such as his developmental of heredity dubbed pangenesis. The pangenetic approach suggests that all cells within any organism can shed tiny particles which he named 'gemmules' that enter into general circulation and end up in the testicles. Darwin's argument was that parental traits are passed on to the next generation in this manner. Other Darwinian notions that Mendel disagreed about were his view of the impact of life conditions on genetic variation and how pollen functioned in the process of fertilization. Despite all of this disagreement, however, in the end Mendel pretty much swallowed the bulk of Darwin's basic tenets of evolutionary theory, but with important theological provisos as we will learn below (Fairbanks, 2020).

**Darwin Undercuts His Own Evolutionary Views**

Darwin's half-cousin, the famed Cambridge polymath and geneticist, father of modern statistics, and infamous pioneer of eugenics, Francis Galton (1822-1911), had conducted a series of blood transfusion experiments on rabbits with varied pigmentation which conclusively falsified Darwin's pangenetic explanation, so it was abandoned. Despite the findings against Darwin, Galton remained from the beginning to the end of his life a fervent supporter of Darwin's evolutionary perspective even though in other regards, his efforts to champion Darwinian evolution via eugenic efforts completely nullified the essential principle of Darwin's theory.

The whole point of Darwin's theory was to underline the principle that human survival resulted from the unconscious

and unintended effects of a natural struggle to obtain the necessary resources for existence. In his application of Darwin's evolutionary theory in practice, however, Galton claimed to be intentionally interfering with evolution with the expressed aim of producing its effects more rapidly. He wanted to improve the human stock of what he deemed to be 'superior' families through interbreeding and other eugenic measures, with all the racist overtones that notion suggested.

For his part, Darwin seems to have given the green light to this kind of human interference in the evolutionary process. While expressing a few doubts in mostly a demur manner, Darwin himself appeared to lend his support for this kind of human interference in the evolutionary process. It is difficult to interpret labelling it as a grand effort and the only workable choice among zero options in any other way. Darwin doesn't seem to have realized that he was undercutting the logic of his own view of an evolutionary process independent from both divine and human designs (Himmelfarb, 1996, pp. 425-426).

**A Creationist View of Species**

As for Mendel, in his mind and in practice the evolutionary process was never conceived as independent. So, then, he was by no means a Darwinian, instead holding firm to his view of biblical creation in his understanding of evolution throughout his life despite the efforts of some scientific scholars to portray him as a secularist. Mired in their own fervent secular views, this is probably because opponents of a creationist view commonly fail to fully appreciate or understand what it means to view species or even species change from a strictly creationist point of view.

Due perhaps to a long process of educational indoctrination coupled with ideological and cosmological biases, these scholars typically come to think that the biblical view of species creation means that God created all species in a fixed form exactly as we see them today. Therefore, species creation

in evolutionary theory which emphasizes constant variation over time comes to be viewed as fundamentally at odds with the biblical Genesis story. A divinely established or guided evolution or theistic evolution simply doesn't cut the mustard for them (Castro, 2017; Scott, 2008).

However, this view of what creationists think couldn't be further from the truth, and Mendel is a case in point. If the conditions of the life of a plant are altered, Mendel himself believed that the plant possessed the ability to adapt to its changed environmental conditions, but only within a limited range of variation. Species fixity does not exist since there is variability within the different types of plant species, but this variability did not mushroom endlessly into extremes as to later become unrecognizable forms of life.

For Mendel, species variation occurs indeed, but only under strict limits set by an omnipotent divine power. It is clear, then, that these Mendelian ideas about evolutionary change are wholly compatible with the biblical view of Creation (Sanders, 2020), later confirmed by many notable scholars. Even as early as the 1960s, for example, the great German-American evolutionary biologist, renowned taxonomist, ornithologist, philosopher of biology, and historian of science, Harvard professor Ernst Mayr (1904-2005), also claimed that there is basically nothing greatly incompatible between evolutionary theory and the Bible regarding species creation (Mayr, 1963).

**Atheists are Religious?**

Yet, as an interesting sidebar, it should be noted here that such a claim must be understood within the context of Mayr's repeated self-declared atheism. He didn't believe in a personal God because there's no empirical evidence to substantiate it (Shermer and Sulloway, 2000). Mayr's avid atheism goes a lot deeper than that, as revealed in an interview with The Scientist magazine at the ripe old age of 99 (Bahls, 2003). In

that interview, once again he declares Darwin as his hero because he had the greatest influence on contemporary society.

Comparing Darwin's influence over many historical periods to that of Luther and Calvin on the Reformation as well as Voltaire and Rousseau on the Enlightenment, Mayr makes a very telling comment about his own atheism and the atheism of biologists in general. Coming from a lifelong academic atheist, his surprising statement should be writ large in every university class on biblical theology because of what it appears to imply about the evolution-creation debate: "All of the atheists I know are highly religious; it just doesn't mean believing in the Bible or God. Religion is the basic belief system of the person. Mankind wants the answers to all unanswerable questions".

Other comments Mayr made during that interview make quite clear where he stands vis-à-vis the Judeo-Christian God of the Bible. Darwin proposed an alternative to the worldview provided by Genesis on the great questions about life-s origins. "We still treasure these stories as part of our cultural heritage," he quips, "but we turn to science when we want to learn the real truth about the history of the world". Even in subsequent statements, he reveals just how much he detests those who adopt a Genesis-based view of Creation, namely, Judeo-Christians, basically portraying the Southern U.S. as anti-science idiots since they overwhelmingly reject evolutionary theory by 86%.

**Secularists: God and Evolution Are Incompatible**

Unlike both Mendel and Mayr, it should also be noted that one of the most highly regarded German evolutionary biologist of the 19th century, August Weismann (1834-1914), one of Darwin's contemporaries and today considered by many scholars to be second-to-none in evolutionary theory at that time, also thought evolutionary theory inherently incompatible

with what he declared to be a rather puzzling biblical view of creation (Weismann, 1868).

Weismann's own scientific work on the germ-plasm theory of heredity sought to advance Darwin's evolutionary theory by demonstrating how inheritance works in practice, hoping to fill the recognized gap in Darwin's theory even by Darwin himself. In an essay published just a couple of years after Darwin's death in 1883, he argued that the cells of an organism can be divided into two separate types, somatic and germ cells. Somatic cells make up the body, while germ cells produce gametes or reproductive cells. Weismann confirmed that they do not exchange information, implying that the variation in an organism must be explained by germ cells. This insight effectively wielded a death blow to both Darwin's pangenesis and an earlier Lamarckian claim about acquired characteristics unconditionally passed on to offspring, as we reviewed earlier.

Weismann was much more unequivocally sold on the marketing pitch of evolutionary theory at the time than the veiled religious criticisms of Charles Lyell mentioned earlier. On the other hand, Lyell was well known for playing both sides of the evolutionary poker table when it came to personal commitment. After all, the well-known accomplished Oxford-trained Scottish geologist had actually championed the explanatory power of natural causes in the geological history of the Earth in his Principles book, which made him only appear in the eyes of proponents as a stalwart defender and faithful believer in evolutionary theory with all its philosophical and theological underpinnings.

To strategically divert criticisms from the diehard pro-evolution camp, he had even claimed that his goal in writing the book was to free the science of geology itself from the clutches of a biblical Moses. In practice, however, he played cultural, scientific, and spiritual politics, wavering and hesitating unendingly to provide full, unqualified, explicit

commitment to evolutionary theory. Of course, this kind of political and rhetorical strategy never ceased to annoy and aggravate Darwin and his supporters. But Lyell was being true to his own personal faith in doing so, and made that clear in his writings and letters.

**Lyell's Qualms About Darwinian Evolution**

Even though he was one of Darwin's closest personal friends about whom Darwin spoke very highly, and even though he had helped both Darwin and Wallace to publish simultaneous papers on evolution in 1858, it must be admitted that Lyell did indeed entertain grave irresolvable qualms about Darwin's evolutionary theory despite the efforts of many proponents then and now to portray him as a member of the cold evolutionary camp.

In fact, when Lyell went to Oxford, he attended many of William Buckland's lectures on geology where evolutionary theory was openly and heavily expounded. But that didn't necessarily mean that he was a personal evolutionary believer at the gut level. Helping Darwin and Wallace to publish papers on evolutionary theory was also not based upon personal commitment to the evolutionary faith. He simply felt that every theory with supporting evidence should receive a fair hearing in the public arena.

Still Lyell's biblically-based reservations about Darwin's evolutionary theory remained throughout his life. For example, he only offered a rather lackluster endorsement of Darwin's theory in the 10th edition of Principles. Again, over and over again to the consternation of Darwin and his followers, Lyell demonstrated great difficulty accommodating natural selection with his deeply religious notions about the special status of humanity and human reason in the biblical worldview (Bynum, 1984; Cannon, 1961; McPhee, 1982).

Like Lyell, what we find are scientists of faith even at that time objecting in calculated rational ways to the explicit use of scientific findings to make grandiose claims about human origins in order to displace biblical authority. Very few, if any, of the religiously-oriented opponents of natural selection as the sole physical cause of spontaneous evolution, scientist or not, were out-of-control religious fanatics, as it were. They weren't foaming-at-the-mouth, Bible-toting, sword-bearing evangelical crusaders attacking proponents without rational cause in dehumanizing ways. unlike the many insulting, demeaning, and condescending attacks that tended to emanate from the evolutionary camp even at the highest levels.

In fact, Himmelfarb (1996, p. 255-9) points out that of the three main proponents of evolutionary theory during Darwin's time – Aldous Huxley, Joseph Hooker, and Charles Lyell – by far, it was Lyell who consistently expressed the greatest resistance to Darwin's evolutionary theory by natural selection. Always there was an explicit or cleverly-worded Genesis-based reservation Lyell placed on the validity of Darwin's theory. For Lyell, there was always a way to incorporate the Creator God of the Bible into the origin of the human species according to the latest evolutionary findings. When it came to Creation, the Bible was the final seat of authority, not human beings.

**Darwin's Response to Lyell**

From Darwin's point of view, however, the intervention of an almighty Creator of the universe would completely nullify natural selection. It was always a matter of total conversion to evolutionary theory or no conversion at all. For his part, as a political strategy for fending off criticisms by Darwin and other fervent proponents, Lyell argued that he is gaining more converts to evolutionary theory by equivocating than he would be by attacking evolution. But he just couldn't go as far as Huxley and Darwin in placing total all-or-nothing faith in the spontaneous physical process of natural selection.

Despite this all-or-nothing pressure, however, Darwin also realized that his own theory owed a great deal to Lyell. In letters, Darwin expressed sincere gratitude to Lyell for inspiring him to develop his evolutionary theory based on natural selection over eons of geological periods in Earth's history rather than short bouts of supernatural creational intervention. Darwin always claimed that most if not all of his ideas were taken by picking at Lyell's brains, so to speak, such as the gradualism of natural selection over immense spans of geologic time. The essential difference between them is the extent to which they were willing to employ the Bible as the final arbiter of what is acceptable 'theory' in evolution or natural selection and what is not.

**Enter Wilberforce Against Evolutionists**

The eminent Bishop of Oxford and one of the greatest orators of his day, Samuel Wilberforce (1805-1873), now idolized for his successful spirited arguments against slavery, was perhaps as witty, sarcastic, and biting a religious critic of the evolutionary view of human origins as existed at that time. For Wilberforce, a heavily implied positive view of both slavery and poverty contained in Darwin's evolutionary theory itself was just one of many severe criticisms he laid at Darwin's doorstep in the Oxford debate against him in 1860, not to mention the implied racism and justification of slavery implied in the last subtitle of Darwin's Origin book: "or, the Preservation of the Favored Races in the Struggle for Life".

**Prelude: The Owen-Huxley Clash at Oxford**

In the same venue two days earlier, Darwin's bulldog, Huxley, had clashed vehemently with the highly respected English biologist, comparative anatomist, zoologist, and paleontologist, Richard Owen (1804-1892), on the denigration of independent human reason and the inferior status of humanity's position in nature implied in evolutionary theory. At that time within the scientific community, Owen was greatly lauded for

producing a vast amount of significant scientific work in many different fields of study, even coining the term 'dinosaur'. He was also considered a great naturalist with an impeccable gift for interpreting fossils with near-perfect accuracy.

Such a prolific and knowledgeable highly-ranked scientist had proven to be every bit as formidable on the Creation side of the debate as bulldog Huxley had established himself to be on the evolutionary side, at least temporarily until the vengeful Huxley later countered. Once again, the Owen example illustrates that complaints against the pre-planned anti-biblical approach and over-reaching tendency of Darwinian evolutionary proponents were also a serious matter for scientific men of faith, not simply reserved for higher-level religious clergy.

Owen was already well known within scientific circles as a highly respected capable critic of Darwinian evolution caused by natural selection strictly on scientific grounds. Owen concurred with Darwin that evolution did indeed occur, but he claimed that Darwin's view simplified it with ulterior motives in mind that he couldn't agree with such as humanity derived from descent with the apes, the so-called simian view of human origins. Further, if there was evolutionary development of species then such species were divinely ordained to a process of continuous becoming from one species to another starting from species archetypes. From Owen's viewpoint, the Bible was still the arbiter.

His scientific studies showed that it was anatomically impossible for bestial apes to ever be capable of standing erect and becoming like human beings. He engaged in additional anatomical work on primate brains to prove scientifically that the structure of human brains could not have possibly evolved from apes because they had much larger brains proportionate to body size, and therefore human beings must be placed in a separate species category. After this previous Oxford debate, Huxley went on a solid two-year slur and smearing campaign

to 'slay' Owen by destroying his reputation within the scientific community (Cosans, 2009)

Needless to say, the Owen-Huxley debate at Oxford was keenly followed by and widely talked about within elite scientific, editorial and religious circles. No doubt that Wilberforce was already well aware about Huxley's slaying plan for Owen even before his own debate against Huxley two days later. Everyone was well aware before Oxford about Huxley's extreme zealotry for Darwin's evolutionary theory, his merciless purging approach towards religion within the scientific community, and his political agenda for ousting the biblical worldview from science by hook or by crook from the very beginning of the X-Club days.

**Wilberforce Confronts Huxley at Oxford**

Perhaps it was thought that Wilberforce was going to enter into the debate with prejudged issues and argue against bulldog Huxley on strictly religious grounds. It turned out to be anything but the case. After reading Darwin's book, Wilberforce had been waiting for the opportunity to criticize it on extensive scientific and theological grounds especially the simian view of human origins. After all, he had written a lengthy comprehensive 40-page critical review of Darwin's book just before the Oxford debate. It had been published in the highly reputable literary and political journal Quarterly Review (Wilberforce, 1860), and it questioned its validity chiefly in scientific terms. And that was exactly the way he conducted himself during the actual debate (Lucas, 1979).

Contrary to popular imagery and expectations then and now, Wilberforce did not prejudge issues. He argued that Darwin's theory was not supported by the facts, throwing out a slew of great scientific names at that time that had come to the same conclusion, not notable religious clergy. Unfortunately, he is chiefly remembered in that debate for challenging Huxley's

stubborn resistance to consider the legitimacy of any scientific evidence countering evolutionary theory by selection.

He is especially remembered for sarcastically soliciting Huxley's view on what he thought was his own simian ancestry, the grandfather's or the grandmother's side. For his part, Huxley contented himself in the sarcastic reply that he was proud to be of any simian side. Huxley has been intentionally but falsely portrayed since that time by both scientific and popular imagery as having utterly devastated Wilberforce, the ignorant religious fanatic. Yet another myth conjured up over time to demean and nullify the religious side in the evolutionism-creationism controversy (Livingstone, 2009).

What is much more apropos for our purposes here are the constant insinuations to the utter dishonesty of the Darwinian evolutionary side including Darwin himself and stretching back to his grandfather's work. He declared Darwin to be quintessentially aware of the wildly conjectural basis of his own evolutionary theory just by the disingenuous hypothetical terms, phrases, and expression that he used such as 'it is conceivable that', 'it is not incredible that', 'I do not doubt that', and 'it is not impossible that'. These are expressions that were not only dishonest but also inflicted grave dishonor upon the integrity of scientific pursuit.

Under the sway of this kind of conjectural thinking, Wilberforce asserted, Darwin and his followers can say anything they want about the laws of nature and believe anything they want about the origins of humanity and the universe. Furthermore, Wilberforce continued, the stain of dishonesty was very much in line with the worst speculations, interpretations, and even similar dishonest phraseology also employed by his grandfather, Erasmus. Wilberforce then proceeded to make word-for-word comparison between Darwin's vocabulary and expressions employed by his grandfather.

The unmistakable tenor of Wilberforce's argument was that anyone could speculate ridiculously about any part of nature such as, 'It is not inconceivable that some human beings were derived from the fittest species of turnips' or 'It is not impossible that mushrooms may have been humanity's distant cousin'. But such deliberately hypothetical speculations and wild conjectures have no factual basis no matter how entertaining they may be to some minds.

**Whewell: Famed Polymath on Darwinian Gaps and Overreach**

Another shining example of how many scientific men of faith could not accept the deliberate overreach of Darwinian evolution and the many gaps in that theory on strictly rational-scientific grounds was the famed Cambridge-trained English polymath, scientist, historian, philosopher, theologian, and Anglican priest, William Whewell (1794 – 1866). His remarkable credentials deserve extended focus here.

To begin with, perhaps the most astounding feature of Whewell's abilities is the sheer breadth of investigations and contributions spanning across a large number of academic and personal leanings: mathematics, geology, astronomy, physics, mechanics, economics, poetry, translation, sermons, theological tracts, ocean tidal studies, and more. It is well known among biblical scholars today that he very likely belonged to a small group of people who existed in an earlier era that investigated wide swaths of human, material, and spiritual realities, eschewing dominant trends and pressures towards specialization.

These learned investigators do not stick to a particular area of knowledge but, rather, possess an inherent intellectual capacity and curiosity to dedicate themselves to wide expanses of knowledge. Contrary to historical trends of specialized academic learning, Whewell was an old-school natural philosopher who exhibited the unique ability to take

advantage of emerging opportunities to understand and achieve excellence of learning in several different areas of knowledge, an ability which is aptly and accurately described in the term 'polymath'.

Human history is dotted with such highly capable intellects from Copernicus, Galileo, and Newton to Descartes, Voltaire, Rousseau, and even Thomas Jefferson, and many more in between and since. For at least this reason, the particular views of polymaths towards Darwin's theory of evolution must be taken with much more perspicacity than those of other capable intellects, and they should not and cannot be glossed over so readily for any reason.

During Darwin's brief education at Cambridge, Whewell was one of the many dons that he met and was strongly impressed by. In fact, when Darwin returned from his Beagle voyage Whewell convinced him to take charge of the Geological Society of London, the oldest (founded in 1807) and largest (more than 12,000 fellows) geological learned society in the world at the time based in England. Darwin gratefully accepted the post, and later acknowledged Whewell's profound influence over his own thinking in a variety of different ways. Whether Darwin's public and professional acknowledgments for Whewell were merely political expedience, rhetorical strategy, or genuine respect may be open to some consideration given his inferior circumstantial position as Cambridge student relative to Cambridge dons and professors.

**Whewell in Origin:**
**Genuine Affect or Keen Marketing Ploy?**

One keenly strategic way in which Darwin advanced his own theological agenda about the spontaneous origins of humanity over eons of geologic time was by opening the title pages of his renowned Origin book with a quotation from one of England's most recognized and respected steadfast public champions of the position that argues for the existence of the Genesis-based

biblical God on the basis of observed natural facts. For Whewell, the claim was that natural phenomena are divinely ordained, so the complexities of nature themselves must be viewed as evidence of a divine plan (Chignell and Pereboom, 2020).

It is surely not out of the realm of strategic possibilities to posit that Darwin was perhaps hoping to win over as many converts as possible on the biblical side of the ledger to his own non-biblical view of human origins by publicly recognizing Whewell's influence on his own thinking. It is surely very likely that Darwin knew with the shrewdness and cunning of a fox circling the henhouse the political payoff of including Whewell in the theological marketing ploy for his book.

Whewell's stamp of implied approval at the very start of Darwin's book would enable access to the minds of many fervent religious proponents to his godless evolutionary theory, at least some of whom may be counted on for support and others perhaps to become full-fledged converts to his evolution cause. Regardless, it would almost certainly increase the marketing appeal of his book. Darwin was certainly not incapable of engaging in such shrewd theological and marketing ploys.

Accordingly, he very strategically placed Whewell's quotation right at the beginning of the title pages of his book, a quotation supporting the view that the goal of science, its fundamental raison d'etre, was to uncover the laws by which a biblical Creator God founded the universe. It was not a quote condoning the spontaneous godless birth of humanity. By the time he installed it, Darwin knew full well Whewell's opposition:

> "But with regard to the material world, we can at least go so far as this – we can perceive that events are brought about not by insulated interpositions of

> Divine power, exerted in each particular case, but by the establishment of general laws".

Therefore, it can be argued with considerable veracity that Darwin knew way before publishing his Origin book in 1859 that Whewell was publicly and vociferously opposed to evolutionary theory, let alone from his Cambridge student days, and would never condone an impersonal material cause of human origins.

As discussed earlier, when Chambers' initially anonymous book first came out, Vestiges of the Natural History of Creation (1844), Whewell was among the first of the scientific and theological elite at the time to oppose it openly and categorically. He had quickly put together many different abstracts from his own earlier writings into a separate new book one year later, Indicators of the Creator, precisely to counter its increasing popularity among faithful biblical believers (Whewell, 2019). Later, Whewell came to unequivocally oppose Darwin's theory of evolution (van Wyhe, 2021).

**Buckland: Geology and the Bible Reconciled**

As briefly alluded to earlier, the celebrated Oxford-trained geologist, paleontologist, and English theologian who became Dean of Westminster, William Buckland (1784-1856), was yet another scientific man of faith who opposed evolutionary ideas. He received a prestigious medal for providing the first full account of a fossil dinosaur highly praised for its scientific analysis in the reconstruction of very distant past events, and accomplished many other recognized scientific contributions such as in mineralogy and the reconstruction of ecosystems.

He reconciled scriptural accounts of creation and Noah's flood with emerging geological discoveries suggesting the Earth's older age by ascribing to the belief that there were two widely distinct episodes of creation in Genesis, not one, a view known

as Gap Theory. There was a gap of time, as it were, between two separate creations contained in the first and second verses of Genesis which, in turn, explains many puzzling scientific observations such as the age of the Earth. Unlike those elites in favor of evolutionary theory, Buckland's main response to new scientific discoveries was to genuinely attempt to see if they could be harmonized with biblical accounts, not to automatically or impulsively reject biblical accounts as part of a politico-ideological agenda (Scott, 2008).

Although Buckland lent support to some of Darwin's papers upon his return from the Beagle voyage, such as the paper outlining the role of earthworms in soil formation, he flatly rejected many of Darwin's other evolutionary suggestions. In the early 1830s, Buckland had been approached to contribute one of the eight Bridgewater Treatises, with the stated aim of each study to be guided by the theological principle, "On the Power, Wisdom and Goodness of God, as manifested in Creation".

**Buckland and the Bridgewater Theses**

The Bridgewater Theses were commissioned by the President of the Royal Society in fulfillment of a bequest of 8000 pounds by the 8th Earl of Bridgewater, Francis Henry Egerton. Accepting the commission, it took Buckland nearly five years to complete the volume finally published in 1836 with the title, Geology and Mineralogy with reference to Natural Theology. (Robson, 1990; Topham, 2022). It was hardly a commission that any author would even entertain refusing for any amount of money, let alone l,000 pounds. After all, the Royal was and still is the oldest national scientific society in the world, founded by leading scientists at the time (at least one of whom was a Bishop scientist, John Wilkins) near the mid-17th century as the premier national agency for the advancement of scientific research in England.

Buckland was one of eight selected to fulfill the terms of Egerton's last will and testament. Although nearly forgotten in the subsequent liberal reform movement within the Royal Society itself, the exquisite caliber, reputation, and expertise of the eight committee-chosen candidates was beyond serious reproach, many of whom were famed scientists at that time: Thomas Chalmers, D.D. – Scottish professor of theology, political economist, and Presbyterian minister; John Kidd, M.D. – English physician, chemist, and geologist; William Whewell, D.D. – English polymath,, scientist, philosopher, theologian, historian, and Anglican priest; Sir Charles Bell – Scottish surgeon, anatomist, neurologist, physiologist, and philosophical theologian; Peter Mark Roget – British physician, lexicographer, and natural theologian; William Buckland, D.D. – geologist, paleontologist, and English theologian; William Kirby – English entomologist and parson-naturalist; and finally, William Prout, M.D. – English chemist, physician, and natural theologian.

Needless to say, it is certain that Buckland must have felt quite proud and privileged to have been independently chosen among such esteemed company to contribute a volume for the Bridgewater Treatises. In his Bridgewater volume, he argued that the fossil record of successive generations of fauna revealed not one, but a series of continual divine creations that evidently were undertaken to prepare the Earth itself for human inhabitants, and he was by no means alone to make the same argument. The hand of divine providence was at work (Cadbury, 2001).

**Scientific Evidence Indicates Divine Design**

Straight away in the Introduction to his text, Buckland argued that the scientific evidence indicated divine design. The families and phyla of biology he examined were, in his mind, contrived clusters of species evidently divinely ordained and organized. We need to quote him at length in his own words to

fully convey what scientific men of faith tended so strongly to believe at that time:

> "The myriads of petrified Remains which are disclosed by the researches of Geology all tend to prove that our Planet has been occupied in times preceding the Creation of the Human Race, by extinct species of Animals and Vegetables, made up, like living Organic Bodies, of 'Clusters of Contrivances, which demonstrate the exercise of stupendous Intelligence and Power. They further show that these extinct forms of Organic Life were so closely allied, by Unity in the principles of their construction, to Classes, Orders, and Families, which make up the existing Animal and Vegetable Kingdoms, that they not only afford an argument of surpassing force, against the doctrines of the Atheist and Polytheist; but supply a chain of connected evidence, amounting to demonstration, of the continuous Being, and of many of the highest Attributes of the One Living and True God"

It was very clear in his writings, then, both before and after his Bridgewater contribution, that Buckland did not consider himself aligned behind Darwin's atheistic evolutionary version of human origins. It is no wonder that the inscription on Buckland's tombstone memorialized by his deputy dean of Westminster at the time reads in part: "…he applied the powers of his mind to the honor and glory of God, the advancement of science and the welfare of mankind". For most scientists of faith during Darwin's era, there really didn't tend to be an insurmountable incompatibility between science and the biblical God of Genesis.

**Yet Another Great Polymath Opposes Darwin**

The highly influential and prominent English polymath, geologist, botanist, writer, philosopher, art critic and historian, ornithologist, and political economist, John Ruskin (1819-

1900), was another scientific man of faith who attacked certain features of Darwinian theory with increasing vehemence over time. Although he lost and regained his religious faith many times throughout his life as he struggled illness and depression, in the end he remained among the faithful. Despite all of his personal troubles, he became known as one of the greatest polymaths of the Victorian age. As a polymath, the nature and profundity of his criticisms are well worth noting in some detail.

We find Ruskin's explicit and inferential criticisms of Darwinian evolutionary theory scattered here and there throughout many of his writings especially in the last of his 5-volume 1860 masterpiece titled, Modern Painters, a 17-year-long labor. In that 5th volume, Ruskin develops a ruling principle which he believes painters operate by and compares it to how nature operates and even human beings themselves. Just like a painter blends the different parts of a picture into a coherent whole, so, too, does nature. Removing any one part of a plant, for example:

> "… injures the rest. Hurt or remove any portion of the sap, bark, or pith, the rest in injured. If any part enters into a state in which it no more assists the rest, and has thus become "helpless", we call it "dead". The power which causes the several portions of the plant to help each other, we call life. Much more is this so in an animal".

Ruskin then goes on to claim that this part-helping-whole principle which operates in nature to sustain the life of an organism applies with even greater veracity and force to human beings and to society, and finds its source in the holy biblical God the Creator in Genesis. Contrived by God the penultimate 'Helpful One', the first and greatest law of the universe, he declares, is the simple law of 'help':

> "A pure or holy state of anything, therefore, is that in which all its parts are helpful or consistent. They may or may not be homogeneous. The highest or organic purities are composed of many elements in an entirely helpful way. The highest and first law of the universe - and the other name of life is, therefore, "help". The other name of death is "separation". Government and cooperation are in all things and eternally the Laws of Life. Anarchy and competition, eternally and in all things, the Laws of Death".

Even though the publication of such words about natural organic life in a masterwork about art could be interpreted as a solemn genuflection to the beauty and majesty of the natural world so typical of many Victorian writers at the time, the argument here is that it represents much more than that. Darwin's Origin had just been published the previous year, it must be recalled. It is apparent that very early on, Ruskin was identifying and coyly responding to the most despicable core atheistic foundation of Darwin's theory.

The idea that the universe and all organic life on Earth including humanity itself had spontaneously evolved without divine input was totally revulsive to Ruskin. In subsequent writings on society, it becomes clear that his comments in the 5th volume of Modern Painters were neither romantic statements about nature nor pure happenstance. They were only the beginning of his vicious attacks on the anarchy and chaos of unbounded free-market capitalism which he believed Darwin's evolutionary theory had unleased upon the world. Evidently, Ruskin took Darwin's second subtitle about 'Favored Races' very seriously, and it didn't sound to him like it reflected a love of the biblical God at all (Wilmer, 2024).

The utmost validity of this interpretation is surely magnified many times over by Ruskin's own religious and educational history. It was not only the fact that a godless Darwinian evolution revulsed him as a Christian, but also dishonored his

close relationship at Oxford with none other than William Buckland, his teacher of Bridgewater fame reviewed earlier. At Oxford, Buckland had taught Ruskin all about the profound subtleties and beauties of nature that had been majestically painted by the Creator God of Genesis. And Ruskin introduced this image of God's artistic design of nature into his own description of human paintings, providing the theological fuel for a vast 5-volume masterwork.

**Ruskin and Darwin: Perhaps a Lukewarm Friendship**

Despite Ruskin's fierce attacks on Darwin, however, they developed a warm and courteous friendship when they first met at Oxford that lasted over the entire expanse of their lifetimes. Despite severe differences in their points of view on God, the universe, human origin, and the interrelationships between them, there were apparently many sympathies between them that motored a lifelong friendship.

It was just that for Ruskin, the inevitably degrading and dehumanizing denouement of Darwin's godless evolutionary position made life itself pointless and senseless. Extracting a biblical God from human existence was emphatically not like going to the dentist and pulling out a tooth. If negating the divine meaning of human existence on Earth was a sign of the new 'modern' times to come, Ruskin wanted no part of it. He seemed to grasp the long-term social implications of Darwin's godless evolutionary theory all too well.

There are several indications that Ruskin understood this long before the publication of the 5th volume of Modern Painters. He knew all too well all the geological work up to his time that provided a large part of the foundation for Darwin's evolutionary theory and which could be employed to place the biblical truth of creation in dire jeopardy such as the works of Lyell, Lamarck, Cuvier, Agassiz, and several others. As a polymath, he would have been keeping up to date for sure.

For example, in 1851 he made a telling statement in a letter to a friend, Henry Acland, which no doubt foreshadowed how Darwin's godless evolutionary theory would be used by many professional scientists including geologists and where it would all lead to in terms of future social developments: "If only the geologists would let me alone, I could do very well, but those dreadful Hammers! I hear the clink of them at the end of every cadence of the Bible verses." (Landow, 1971).

**Ruskin and Biblical Language**

Even though Ruskin had already by that time lost his Christian faith and regained it a few times, and even though he would go on to lose and regain it again, he would maintain throughout the compatibility of science and religion although admit that biblical language was not intended to be scientific in the modern sense. Still, for Ruskin there was no logically necessary opposition nor intrinsic irreconcilability between evolution and the Bible, between science and the Bible regardless of how it could be used by secular forces. Processes of nature are not detailed by the Bible, but that doesn't mean they weren't evolutionary in the non-Darwinian sense of that term. The mystery of Creation in the Bible was intended to remain as such, a divinely-ordained mystery.

For Ruskin, perhaps, the Bible describes a rather mysterious process of creation in a language that is hardly detailed and scientific, but that doesn't mean it isn't true. We should stick to the language of the Bible and not our own, for the further away from the Bible we sojourn, the further away we stray from belief in a divine Creator God of the universe and humanity. What the Bible is designed to do is describe a mystery to be kept on the basis of faith which science itself cannot explain with certitude (Leon, 1949; Van Akin, 2008).

**Wollaston Against Simian Ancestry**

Yet another scientific man of faith whose biblical beliefs could now allow him to support Darwin's godless evolutionary theory but who, like Ruskin, remained a close corresponding friend of Darwin at least until the shock of the Origin publication wore off in 1860, was the Cambridge-trained English entomologist and malacologist Thomas Vernon Wollaston (1822 - 1878). Malacology is simply the branch of zoology that studies mollusks (snails, slugs, clams…). Between 1843 and 1877, Wollaston had published more than 60 papers on insects in a variety of scientific journals, making him a very well-respected scientist of his time. Although we will have more to say about Wollaston later, here we should consider the apparent paradoxical nature of his anti-Darwinian criticisms.

The interesting nature of Wollaston's friendship with Darwin is reflected in the fact that he published a book in 1856 which seemed to presage Darwin's evolutionary theory by at least three years, however demurely it might have done so since he was an orthodox religious believer. Wollaston's book, curiously titled, On the Variation of Species, vaguely anticipated many of Darwin's own evolutionary ideas if not the title to Darwin's own infamous book itself. Whatever else it might have been, Wollaston's earlier book surely appeared to be a manifest paradox in the history of Darwin's evolutionary theory especially given his noteworthy biblical views of creation and the universe.

However, the fact that Wollaston the religious man did concur with several aspects of Darwin's evolutionary ideas in his own personal and professional writings before and after the publication of Origin did not automatically mean that he was anywhere near a full-fledged evolutionist in the Darwinian sense. In his review of Darwin's book in the Annals and Magazine of Natural History, for example, Wollaston explicitly raised a critical issue that would become a central part of the

platform on the opposing side, namely, the simian ancestry of humanity.

Even though Darwin's book did not explicitly state the simian connection, perhaps more for purposes of strategic defense against anticipated criticisms than for careless oversight, the implications of his theory for human ancestry were readily perceived by scientists and others at the time as an obvious logical consequence. Darwin's heavily implied argument of common ancestry was that there was a straight line of continuity of humanity with the animal kingdom. In other words, humanity was a descendant of the apes, not divinely created.

Darwin had confronted this issue before because it was a core component of Lyell's failure to accept his evolutionary theory. Darwin's manner of deflecting this criticism was to condescendingly label it as a fanatic religious issue, thinking it would fade away in significance with time. But it kept reemerging time and time again among the varied criticisms of his book and general evolutionary ideas such as the Oxford debates reviewed earlier. Many scientists on both sides of the theological divide were not too well pleased with the heavily implied simian ancestry of humanity in Darwin's evolutionary scheme.

**Geologists Against Darwin, One More Time**

However, scientific criticisms of Darwinian evolution were not restricted to simian heritage. Even many of Darwin's favored geological supporters found real problems with his theory. Darwin's theory didn't seem to explain the multitude of simple forms of life still in existence that were not in any kind of intermediary stage of mutation to another species of organism. Additionally, geological evidence indicated quite clearly that earlier geological formations already contained at that time relatively well-advanced forms of life which did not appear to be in any kind of evolutionary stage of development.

As well, Darwin's evidence failed to demonstrate any transitional or intermediary forms of species between related groups. Among the geological criticisms was the obvious conclusion that the vast multitude of the Earth's present organic inhabitants could not have evolved from one or several original primordial forms in the short amount of geologic time the Earth existed. Along with these and other similar criticisms, critical geologists perhaps wondered why Darwin would bother to publish a scientific book that could not, in fact, explain large categories of scientific facts in the natural world, but implied so much that was unproven by the evidence provided in the book such as the origin of life itself or simian ancestry.

**Scientific Critics Far Outnumber Religious Foes**

The extreme difficulties that members of the scientific community were having trouble within Darwin's Origin in the first two years of its publication were not restricted to the lack of hard evidence for simian ancestry nor opposing geological evidence. The long list of scientific critics went quite beyond those outlined above and far outnumbered vocal religious critics. So, then, it is likely that the proportional portrayal of opponents and proponents by academic scholars in general and by many biblical theological scholars in particular has not always been an accurate and comprehensive reflection of historical reality.

In most cases, these critics expressed themselves in highly regulated ways in professional peer-reviewed scientific journals related to their academic field of expertise which, in turn, governed the tone of their criticisms to a considerable degree. To appeal to scholarly palates, criticisms had to be phrased in a relatively muted manner and restricted to the range of applicable empirical evidence other scholars were predisposed to accept. For the most part, religious critics of Darwin's evolutionary ideas didn't benefit from this particular limitation.

## Von Baer's Comprehensive Critiques

The comprehensive criticisms that emanated from the renowned king of embryological scientific research during this time, Karl Ernst von Baer (1792-1876), must be added to this impressive list of scientific critics. Indeed, his scientific credentials extend way beyond the field of embryology, so we must engage an in-depth review and discussion of his central ideas. In this way, we can also highlight the finer nuances of previously identified anti-Darwin critiques and illuminate newer ones.

Born into a German noble family, this Baltic naturalist and explorer was also a highly respected physician, biologist, and geologist, among other scientific pastimes such as zoology, anatomy, physiology, and ichthyology – to name but a few. Additionally, due to his standing as a member of the Russian Academy of Sciences, co-founder of the Russian Geographical Society, and the first president of the Russian Entomological Society, von Baer was considered by most scholars at the time to be the most distinguished among Baltic German scientists.

Clearly, his opinions and criticisms of Darwinian evolutionary theory must be accorded a considerable degree of validity and explanatory power simply on the basis of scientific credentials (Groeben, 1993; Stieda, 2010). To begin with, it is little known that in 1859, the year of Darwin's Origin publication, von Baer published a highly influential quasi-evolutionary work of his own on human skulls, formulated completely independently from Darwin's work.

In that scientific work he seemed to imply that human stocks now distinct might have originated from one form, an idea which impressed Darwin enough to include consideration of some of von Baer's work in his own book. Evidently, Darwin had positively assessed von Baer's work on the evolution of embryos because at that time it seemed to fit rather nicely with his own theory of descent with modification (Gilbert,

2000). Later, we will discuss in more detail how Darwin included von Baer's scientific work in his Origin book and counted him among adherents to his own broad evolutionary views.

The inclusion of von Baer's work, however, turned out to be a bit premature on Darwin's part. Perhaps in the excitement to include as much supporting evidence from the scientific world community as possible to support his own fledgling evolutionary ideas, Darwin tended to assume that supportive scientific findings equated to general agreement with his own cosmological views. In regards to von Baer, he could not have been more mistaken in making this assumption.

Already by this time, von Baer expressed disbelief in the doctrine that present humanity was originally transformed or evolved from one common form or ancestor. It may be the case that very similar animals like goats and antelopes evolved from a more common form or species, he was willing to grant Darwin, and even then, with extensive provisos. But von Baer emphatically refused to entertain the notion that all living creatures including human beings had initially evolved or transformed from one or a very few common ancestors over vast geologic eons of time or otherwise (Oppenheimer, 2024, 1986, 1969).

For him, nature should not be seen as phases or forms in modern evolutionary terms; rather, it should be seen as a whole, all organisms and the cosmos itself must be viewed as having developed together, and certainly not in an impersonal spontaneous non-purposive way. Therefore, it can be seen that even early on in the evolutionary controversy, von Baer was steadfastly opposed to Darwin's doctrines of common ancestry and descent with modification over time.

**Darwin Fails to Explain Embryological Purposiveness**

Generally speaking, von Baer strenuously opposed Darwin's evolutionary theory mainly because it failed to explain the purposiveness of embryonic development, the scientific study of which he was a recognized world authority (Hull, 1973, pp. 257-261). But his scientific opposition goes much deeper than this. The Russian scholar, Alexander Vucinich, devotes a large number of pages in his book to synthesize von Baer's anti-Darwinian arguments. We need to review some of those key arguments here at length in order to fully appreciate the force and profundity of his scientific mind and critical insights into Darwinian evolutionary theory (Vucinich, 1988).

To begin with, in Russia at that time von Baer's criticisms of Darwin were by far the most powerful and influential for two main reasons beyond those already mentioned: first, von Baer's critical commentaries added many newly insightful logical and substantive analyses that had tended not to be expressed so cogently in the established critiques up to that point in time; and second, based on these logical and substantive critical arguments, von Baer then pushed for the immediate adoption of a warfare mentality against Darwin's evolutionary theory (Hull, 1973, pp. 416-427).

**Von Baer Goes to War Against Darwin**

Demonstrating this warfare sense of urgency, even after retiring from the Russian Academy of Sciences in 1862 at the ripe old age of 70, he immediately launched into much more concerted and expansive efforts to integrate anti-Darwinian arguments into his own continuing research activities. In fact, in the year that he died (1876) he published what is still today, as it probably was then, widely regarded as one of the most formidable systematic and comprehensive consolidation of criticisms against Darwin's evolutionary theory based ever penned.

Evidently, he did not belong to that large group of contemporary scientists at the time who worked to advance their own academic notoriety by supporting Darwin's evolutionary views in whole or in part. In that 1876 consolidated critique of Darwin's evolutionary theory, von Baer made clear that biological evolution was much more complex, unexplored, and unverified than the simple picture Darwin's books appeared to convey. So, he put aside his own speculations about organic evolution to devote full-time to critiquing Darwin's evolutionary views.

Along the way, in 1873 von Baer expressed deep bitterness towards Darwin for supporting the unscientific research of two of his German countrymen in a paper where they claimed to have discovered a species which linked invertebrates with vertebrates. In Descent of Man, Darwin had glorified the findings of their embryological research as holding great promise for the future clarification of his own evolutionary theory, contrary to von Baer's unrelenting criticisms of that research.

Prior to the publication of Darwin's Descent of Man, von Baer had consistently claimed that the transmutationist notions contained in that embryological research were absolutely illogical and without scientific foundation. Here von Baer was not denying the validity of organic transmutation as a potential evolutionary principle. He was simply insisting that the bold claims to have discovered an intermediary species between vertebrates and invertebrate was scientifically unsupported. Ostensibly, by that time Darwin knew this, too.

**Science Cannot Explain the Entire Natural World**

Later that same year, Von Baer published another consolidated critique of Darwin's evolutionary theory in Augsburger Allgemeine Zeitung, German's premier political newspaper in the 19th century where he was evidently aiming to appeal to the sentiments of the general German public

rather than the scientific community. Nevertheless, eschewing political and ideological rhetoric, in that article he relied mainly on exposing the logical fallacies in the simian view of human ancestry vis-à-vis the logical strengths of viewing the functioning of the organic world in teleological terms. He also defended the unassailable legitimacy of religious interpretations of the many mysteries contained in the natural world, and he believed that these mysteries would always remain essentially inaccessible to scientific explanation.

The peculiar Darwinian view that evolution was in essence a spontaneous, unguided, blind force in the universe compelling all organic species to compete against each other for survival was particularly disturbing to von Baer. In his mind, logically speaking, for a scientific explanation of evolution to achieve legitimate consideration, it was not necessary for it to adopt such a blind force mechanism. In this regard, evolution and the principle of pre-determined goal-directedness of organisms in the natural world were not necessarily irreconcilable.

The arguments against Darwinian evolutionary ideas contained in this article especially, and reinforced as well in several other writings, make it quite clear that von Baer was interested in doing much more than simply reacting to the logical gaps and scientific deficiencies in Darwin's Origin book or in his general conceptual apparatus. Rather, he was attempting to formulate in his own developing terms an organized coherent powerful argument against the audacious assumption that scientific explanation was even capable of encapsulating all of the complex methods by which creation of the universe and all organic life actually took place. If science was to travel down that troubled road, it would become a fountainhead for materialism and atheism, a position that provides ample support for the present study.

**Von Baer Against Insidious Societal Trends**

As suggested above, elsewhere von Baer was also keen to show his acute awareness of and profound concern for the impact of wider societal trends upon the emergence and development of Darwinian evolutionary theory itself. In other words, fighting Darwinian theory was just a small part of fighting von Baer's war against the dominant ideological trends of materialism and atheism making significant headway into the elite circles of both scientific and popular culture of his time, and he wanted to sound the alarm about he thought would be its long-term implications and societal effects.

Perhaps that's why he felt he had to formulate such an exhaustive, systematic and comprehensive critique of Darwin's evolutionary ideas, always seeking to consolidate and categorize all of the various aspects of anti-Darwinian arguments – not just scientific, but also logical, philosophical, historical, theological, moral, teleological, and so forth. Nowhere did he accomplish this goal more fruitfully than the nearly 250 pages he wrote in Volume 2 of his Reden masterpiece (von Baer, 2019, pp. 235-480). Arguably, those anti-Darwinian commentaries represent some of the most poignant, penetrating, and profound original critiques of Darwinian theory ever written.

As such, the great service von Baer provided to others at the time who were equally concerned about the atheistic shadows hovering menacingly about the scientific materialism of the times. No doubt, he provided great assistance to members of the faith community at the time who were sitting as scholars, theologians, scientists working in every corner of the natural and social sciences, and even some of the icons within popular culture, in their efforts to counter general societal trends towards scientific materialism and atheism.

This is how von Baer interpreted Darwinian theory, that is, as the handmaiden of these larger and much more insidious societal trends. It wasn't just a particular scientific statement about evolution containing a few logical and empirical flaws but, rather, a denial of other equally plausible and probable causal factors as yet unknown. He mentions this point explicitly in Reden, as Oppenheimer noted (1969, pp. 231-232). For him, it appeared to be more likely that an inconceivably overwhelming creative force was at work upon the earth than the relatively weaker and impersonal blind anonymous forces proclaimed by evolutionists.

The increasingly pungent and vehement criticisms towards Darwin's evolutionary theory were, in fact, previously foreshadowed to a considerable extent in the very inclusion of von Baer's scientific work in the Origin book, as intimated earlier. Apparently, Darwin did so in thinking von Baer ascribed to the operations of a strict evolutionary view from common ancestry from within the field of biology. As it turned out, Darwin was referring to an essay that von Baer had published just a few months before Origin appeared on the transformation of certain types of species with indications of descent from common ancestors, but only within strictly limited parameters.

It was a manuscript, by the way, that von Baer had previously mentioned in a letter to Huxley at Oxford, which is no doubt linked to how it got into Darwin's hands (Oppenheimer, 1968). But even in that letter, von Baer was at pains to distinguish his own view of evolution from Darwin's view despite similarities. From the start of the Origin controversy through to his last great critique of Darwin in 1876, he argued consistently that he was not against the evolutionary principle of transmutation, an idea he shared with Darwin.

**Transmutation Occurs Only Within Present Boundaries**

He just claimed that the results of his scientific research indicated that transmutation only operated within preset boundaries, not that it was a boundless natural operation leading to ever-advanced forms of life including human life. In other words, the natural world operated according to predefined thresholds contra Darwinian evolutionary views. In von Baer's mind, his view of limited evolution did not represent any kind of tacit agreement with the doctrine of common ancestry for all animal forms which, in turn, heavily implied the operation of a monogenetic evolutionary process within the natural world a la Darwin.

To be sure, Darwin was explicitly devoted to a monogenetic view of human origins, the view that all species shared common ancestry, contrary to the prevailing polygenetic view at that time (Alter, 2007). The monogenetic claim espoused that species or forms of life that now appear wholly distinct from each other actually evolved from a common ancestor over eons of geologic time. For understandable reasons, it is precisely this particular view of common ancestry in Darwin's theory which greatly embittered von Baer especially when he was mistakenly placed in the same camp by Darwin and others over and over again.

**The Age of the Earth**

At that time, the Judeo-Christian Bible was the leading authority on the age of the Earth. Although there is some debate within biblical scholarly circles about what the Bible actually says on this topic, most scholars at that time agreed that it pronounced the Earth to be about 6,000 years old. By contrast, most scientists believed it was much older than that, some even placing an upper limit of 100 million years old.

This is one important reason why Darwin could not accept the 6,000-year biblical figure. An even more significant reason

why he could not accept it is because his own astronomer son, George, had calculated that it was tens of millions of years old. Regardless, according to his own theory of evolution by natural selection, Darwin just didn't think that 6,000 years would have been enough time to bring about the great diversification of life forms on Earth in the present (Rafferty, 2018).

Indeed, von Baer was engaged in evolutionary embryological research, and many ideas contained in that research identify him as a contributor to the development of evolutionary theory, Darwinian or not. But self-conscious contributor to and supporter of Darwin's openly atheistic rendition of evolution, perhaps not. It must be emphasized that von Baer's notion of evolution was not Darwinian in nature. Despite his many scientific works that contributed to ideas about transmutation and other components of Darwin's evolutionary schema, it cannot be argued that he concurred with Darwin's impersonal godless stance on evolution.

**Unnecessary Denial of Biblical Creationism**

The main reason for von Baer holding this critical position towards Darwin's evolutionary views appears to be because of its radical denial of biblical creationism. For him, this radical denial was not logically necessary and, therefore not a valid inference from evolutionary ideas, since evolutionary processes are reconcilable with biblical creationism. For some God forsaken reason, Darwin simply went too far in making acceptance and legitimacy of evolutionary ideas wholly dependent upon the denial of biblical creationism. For his part, von Baer didn't want to travel that far down Darwin's evolutionary road. And what piqued von Baer's ire in particular is Darwin's own hypocritical claim that his evolutionary theory had nothing to do whatsoever with atheism.

The categories of arguments von Baer assembled and organized against Darwin's evolutionary theory went beyond Darwin's denial of the central role played by atheism. They also included categories of arguments against a common ancestry of all life forms including the simian view of human ancestry; categories against the uniformitarian view of evolutionary processes or the interlocking unity of all evolutionary phases; and categories against Darwin's self-conscious efforts to apply the mechanical laws and principles operating in the physical world into an understanding of how the organic world operates.

The critical spirit guiding these categories of anti-Darwinian arguments appeared to be mainly fueled by adamant objections against the notion that all existing species on Earth are nothing more nor less than simple intermediary phases in the endless impersonal successive evolutionary phases of all organic life forms. Von Baer's arguments against Darwin's alleged application of mechanical laws and principles operating in the physical world to describe the operations of organic life forms are relatively simple to understand in the wider context of societal developments.

**Darwin as the Newton of Biology?**

This particular criticism of Darwin is no doubt intimately related to how Darwin was being celebrated at the time by many well-respected scientists as the so-called, 'Newton of biology', more or less. Ernst Haeckel, for example, had come out publicly in the years immediately following the publication of Origin to idolize Darwin as a 'Newton of the grass blade' on his way to being championed himself through his scientific works as the German Darwin (Kutschera et al, 2019).

However, perhaps few scholars are aware that there is much more history behind the highly questionable Newton-Darwin analogy than meets the eye. It is interesting that this controversy begins at the feet of one of the central

Enlightenment thinkers, the great German physicist, mathematician, and philosopher, Immanuel Kant (1724-1804). In his comprehensive and systematic work in the theory of knowledge (epistemology), ethics, and aesthetics, Kant in turn heavily impacted upon the thoughts and ideas of many other important thinkers such as Schopenhauer, Marx, and Husserl.

**Newton Exploited by Secular Thinkers**

Kant and these other thinkers were themselves greatly influenced by Newton's scientific work. Unlike Newton, however, for these thinkers the new scientific evidence offered by Newton reflected the awesome power of human reason independent of notions about God, and it was used to put into question the traditional authority of biblical doctrines. Newton's scientific advances were not proffered to deny the legitimacy of such doctrines but, rather, to confirm the majesty and power of God the Creator of the universe as explicated in Genesis of the Bible.

Newton's Principia Mathematica or Mathematical Principles of Natural Philosophy professes to describe and explain the mathematical laws of nature by which the Creator God was believed to have created the universe. In this work, Newton makes clear what he is attempting to do with his scientific work as well as the nature, role, and influence of God in the world. From his point of view, it is only with God's assistance that the laws of motion and gravitation function properly in the universe.

At the very beginning of time in the act of Creation, God Himself installed these mechanical laws of nature, reserving for Himself as such the option to intervene and to alter these mechanical laws if needed or desired. In fact, Newton believed that God did intervene at times to correct planetary orbits and paths in order to maintain the stability of the celestial system He had created.

Contrary to Newton's steadfast religious and theological explanations for these mechanical laws of the universe, many secular and atheistic philosophers, scientists, and thinkers after Newton applied his scientific methods and ideas absent of any necessary divine reference points. Worst yet, most scholars in general and biblical scholars in particular of any religious ilk are likely unaware that Newton wrote almost as much on the Bible itself as he did about science, mathematics, and physics (Force and Popkin, 1990; Lliffe, 2017; Newton, 2010).

**Kant's 'Newton-of-a-Blade-of-Grass' Commentary**

Along these regards, then, the role of Kant in forging the Newton-Darwin link is quite perplexing, to say the least. Kant made his Newton comment in Sections 75-76 in the second part of his analysis of teleological judgment within his book, Critique of Judgment (Kant, 1987), where he emphatically denies even the possibility of scientific genius. Kant claims that no scientist can glean the hidden causes of nature's ability to self-organize. That is, Kant claims it cannot be truly known with absolute certainty whether nature is exhibiting mechanical laws or whether its products and processes are, in fact, being directed and shaped by divine providence. In other words, science cannot confirm nor deny an intelligent cause behind nature.

On the basis of this reasoning, Kant suggests it is unlikely that the mechanical laws of the universe can be applied to nature or natural processes. We need to present the explanatory power of Kant's own words in order to properly assess the Newton-Darwin analogy:

> "It is quite certain that we can never adequately come to know the organized beings and their internal possibility in accordance with merely mechanical principles of nature, let alone explain them; and indeed, this is so certain that we can boldly say that it

> would be absurd for humans even to make such an attempt or to hope that there may arise a Newton who could make comprehensible even the generation of a blade of grass according to natural laws that no intention has ordered; rather, we must absolutely deny this insight to human beings".

In other places in the same book (S. 76), Kant is even more explicit:

> "… there will never be a Newton of the blade of grass, because human science will never be able to explain how a living being can originate from inordinate matter"

Like he had previously stated in his treatise on demonstrating the existence of God, here Kant is attempting to strengthen belief in God and in the spiritual meaning of human existence on Earth, not undermine it, as many scholars were subsequently wont to think (Kant, 1994).

So, then, Haeckel's comment 70 years after the publication of Origin celebrating Darwin as the 'Newton of the grass blade' can only be understood as a direct thumbs down of Kant's original Newtonian reference as well as to his notion of intelligent cause operating in nature (Haeckel, 1863). Among many historical renditions of Kant's Newton commentaries, Schuster (2011) probably provides an acceptable comprehendible summary and evaluation as any other rendition, although it is ideologically slanted towards modern biological views.

Needless to say, and despite his pounding anti-Darwinian criticisms, it is clear that von Baer and Darwin were the principal proponents of the two main streams of evolutionary thinking in the 19th century. Evolutionists on Darwin's side were firmly based on a mechanistic view of nature and natural processes, whereas evolutionists on von Baer's side argued on

the basis of teleological principles or the imputation of purposeful evolution framed by intelligent cause. Ultimately, von Baer's previously expressed aim to provide a rich resource for anti-Darwinian critics was certainly achieved in spades, notwithstanding the weaknesses some of these criticisms may have contained (Lenoir, 1982, pp. 270-5).

**Some Central Features of Scientific Critiques**

Along with von Baer, as noted before, there were many other lesser-known members of the scientific community who also found serious logical and empirical difficulties in Darwin's scientific work in the first year following the publication of Origin. Although these critiques tended to be brief and technical in nature, unlike von Baer's much more systematic, organized, and comprehensive arguments, altogether they represent a sizable proportion of scientific opinion above and beyond the broad scientific critiques already reviewed above.

They also illustrate the broad range of scientific disciplines out of which they emerged, ranging from biology to chemistry to paleontology to physics to mathematics to geology, and everything in between. It wasn't just a few so-called 'God-fearing' biologists or botanists complaining about Darwin's work; rather, the critiques came from a wide swath of scientists across the entire scientific spectrum. Very importantly, such scientific criticisms also make abundantly clear that a large proportion of anti-Darwinian critiques at that time in fact emerged from the hallowed halls of academic natural science, not simply from fanatic religionists of one type or another as often portrayed in modern times.

It's also important to highlight some of these major criticisms here because they tend to foreshadow the many legitimate scientific criticisms that would eventually surface in the 21st century in scholarly works on both sides of the social science-natural science divide (Axe, 2016; Behe, 2006, 2007, 2019, 2020; Berlinski, 2009; Bowler, 1983; Chandler, 2017; Demski,

1999, 2004; Dennett, 1995; Denton, 2016; Glynn, 1997; Ham and Hodge, 2019; Hitching, 1982; Johnson, 1995, 1997, 2010; Leisola and Witt, 2018; Marshall, 2015; McGrath, 2011; Meyer, 2009, 2013; Miller, 1999; Simmons, 2004; Stolzman, 2020; Wells, 2000, 2017; Wilson, 2017 – just to name a few).

**Bronn & Wedgwood on the Paucity of Scientific Evidence**

The well-respected German geologist and paleontologist, Heinrich Georg Bronn (1800-1862), and the Cambridge-trained British etymologist, philologist, barrister (lawyer), and brother of Darwin's wife, Hensley Wedgwood (1803-1891), were among the elite scientists who questioned Darwin's conclusions on the basis of the paucity of scientific evidence to support claims made about the origin of life. They were most concerned that the evidence Darwin provided to support his evolutionary theory didn't address this point at all, yet broad sweeping claims were being made about the so-called 'origin of life' itself. For his part, Darwin simply responded by shifting it to be an issue pertaining to the origin of species rather than the origin of life. Unresolved, this issue would keep resurfacing over time as the list of critiques accumulated.

Bronn is an interesting figure in the history of responses to Darwin's evolutionary theory for more reasons than one, to be sure. He was not only the first to translate Darwin's Origin, but also introduced many of his own interpretations of Darwin's conceptual scheme completely foreign to Darwin's views. In fact, he even added a critical chapter which, among other things, sought to apply and promote his own ideas about evolution. Even though he had speculated about the evolutionary notions of adaptation and selective breeding well before Darwin himself had done so, Bonn did not fully accept Darwin's views on the transmutation of species (Chrisholm, 1911b; Gliboff, 2007).

For his part, Wedgwood had to be much more careful in his views about evolutionary theory in general and the Origin

book in particular given his family connections to Darwin. While sharing many of the same concerns as Bronn, he was also probably well aware of his sister's published reviews of Darwin's Origin and Descent of Man in which she made clear her tremendous disappointment in her husband's abject failure to accommodate the biblical worldview within his scientific findings.

She was deeply frustrated by his unwillingness to consider both the theological implications of his theoretical claims as well as his adamant refusal to consider how his theory was contributing to increasingly louder agnostic voices. There was really no need to allow the doctrine of natural selection to be used by broader societal trendsetters as weapons against the biblical view of Creation. In her mind, natural selection and biblical Creation were reconcilable (Brown, 2022; Harris, 2004; Wedgwood, 1860-1).

Quite apart from concerns about his sister's relationship with Darwin, and more in line with his professional and political aspirations as an original member of the Philological Society, Hensley was also very interested to get Darwin's feedback about a dictionary he was creating on English etymology. He had suggested to Darwin that there may be linguistic parallels to how dissimilar organisms can come from an original source. Realizing that Wedgwood's linguistic evidence could be used to address deficiencies in his own theory of natural selection, Darwin chose to use his linguistic examples in both the Origin and the subsequent Descent of Man – but only after dropping all of Wedgwood's religious references (Herford and Haigh, 2004).

## Wollaston: Many Other Factors Involved in Species Change

Yet another Cambridge-trained scientist who disagreed with Darwin's evolutionary ideas on both theological and scientific grounds was the prominent English entomologist and

malacologist, Thomas Vernon Wollaston (1822-1878). He supported Darwin's evolutionary theories before the publication of Origin, perhaps without fully understanding how Darwin and adherents were using it to delegitimize biblical notions of Creation. He supported Darwin's view about the shifting boundaries of continental lands over time and some of his ideas about species variation, but without addressing or implying any notions whatsoever about the origin of life.

The basic reason for this early support prior to the Origin publication is largely because he himself was studying organisms on some of the islands Darwin's continental shift theory encompassed. But after 1859, when it became much clearer that Darwin was taking his evolutionary theory in an anti-biblical direction, Wollaston's religious beliefs in good conscience would not allow him to support Darwinian evolutionary theory although they remained close friends in regular communication. Darwin's interest in Wollaston's scientific work was understandable. Three years before Origin was published, he had published his own book titled, On the Variation of Species, in which he appeared to at least anticipate some of Darwin's evolutionary ideas (Woodward, 1900).

Even though Wollaston has either been portrayed as a full-fledged scientific believer in Darwin's evolutionary theory but just couldn't express it publicly due to his religious beliefs OR as a religious fanatic operating under a scientific mask, the truth is that he was neither. Although he did admire Darwin for precise field observations and his views about changing continental borders over time, he flatly and emphatically denied Darwin's godless evolutionary theory on solid scientific grounds, a denial that strained their relationship after the publication of Origin.

Wollaston's own fieldwork observations persuaded him that there were physical, geological, and geographical factors

strongly implicated with particular kinds of variation within species. His firm opinion was that there was no evidence whatsoever that one species 'evolved' into another completely different species. All the species that he observed were understood as adaptations to particular conditions within species, not as species evolving into new species. Speciation did not occur.

**Darwin's 'Monstrous Doctrine'**

From this observation, Wollaston concluded that all species were created according to divine providence, and natural history can only elucidate some of the divine details. Further, Wollaston is at constant pains to argue that his conclusion was not a product of his religious wishful thinking but, rather, from cold hard observation and the inductive scientific method.

It is this severe disagreement with Darwin's godless evolutionary doctrine that led Wollaston to describe Darwin's evolutionary scheme as a 'monstrous doctrine'. Arguably, given the high quality of his taxonomic and field observations as well as the strictly disciplined application of scientific methodology, it is very difficult to write-off Wollaston's hostility and criticisms of Darwinian evolutionary theory as just another instance of religious fanaticism (Cook, 1995).

**Thwaites: Darwin Cannot Explain Beauty in Nature**

The English botanist and entomologist, George Henry Kendrick Thwaites (1812-1882), is another celebrated scientist who had grave doubts about Darwin's evolutionary theory on strictly scientific grounds. For one thing, Thwaites wondered how Darwin's theory could explain the emergence of beauty or beautiful patterns in colorful and striking arrangements among many organisms such as desmids, a kind of green algae in which the land plants emerged. These beautiful patterns are distinctly symmetrical, highly attractive, and come in a great variety of forms such as star-shapes and tube

elongations. When there was no self-evident selective advantage to the organism itself, it appeared that Darwin's natural selection could not explain the production of beautiful intricate arrangements by organisms (Burkhardt, 1993).

**Watson's Criticisms Greatly Concerned Darwin**

The English phrenologist, botanist, and evolutionary theorist, Hewett Cottrell Watson (1804-1881), was still another eminent scientist who found Darwin's evolutionary theory problematic. In fact, Darwin considered his criticisms so important that he devoted a considerable amount of attention and space to them in later editions of Origin. Very early on, Watson had formed very firm views about the want of fixity in species. He also claimed that Darwin's explanation of the convergence of species was not tied to the divergence of species, as it necessarily should be (Boulger, 2004; Burkhardt, ibid.).

**Murray: Blind Cave Animals Left Unexplained**

In an essay published in the Proceedings of the Royal Society of Edinburgh, the famed Scottish naturalist extraordinaire, lawyer, botanist, zoologist, and entomologist, Andrew Murray (1812-1878), argued that Darwin's evolutionary theory by natural selection failed to explain, among other things, the origin and distribution of many species of blind cave animals (Murray, 1860). It is interesting to note that Murray had sent proofs of this article to Darwin himself for his commentaries before publishing it. Darwin responded to this kind gesture by thanking him and acknowledging how rare it was that a 'hostile reviewer' would engage in such a kind behavior (Clark, 2009, p. 113; Glick, 1988, p. 52).

Despite this kind gesture, Murray was a most outspoken opponent of Darwin's evolutionary theory from the very beginning. A key point to mention here is that there were solid scientific grounds upon which Murray disagreed with Darwin's doctrine of natural selection, not simply from some kind of

fanatic religious outburst. From his own observations, he believed that hybridization was a far better explanation for mimicry than natural selection. Mimicry was simply an evolved resemblance between an organism and some other object, often with the result of protecting that organism from predators. Hybridization claimed that offspring resulted from the combined traits of two organisms from different species due to sexual reproduction. Natural selection argued something completely different.

Then Murray went one step further in trying to explain this phenomenon, and that's where he introduced religious factors into the explanatory picture. He asserted that natural processes like hybridization and modification of species had been installed by the biblical God during the act of Creation, and this is what explained the absence of intermediary evolutionary forms of organisms. For example, he noted that there were eyeless insects of the same species that existed in different parts of the world, something that could not be explained by natural selection. Darwin's seemingly incredulous response was to claim that such insects were, in fact, living fossils (Burkhardt, 1993, p. 28).

Even to this day, many academics and biblical scholars believe that Murray only believed in biblical views of the origin of life on Earth. But Murray himself clearly stated what were his objections to Darwin in his own book, The Geographical Distribution of Mammals (1866). In this book, he explicitly asserted that species are not produced by an independent Creator but, rather, result from the operation of general laws upon the germs of living organisms when particular environmental conditions call these laws into action. This is not natural selection at work but, rather, the operation of general laws put into place by the biblical Creator God (Murray, 2015).

**Harvey: Simple Protozoans and Saltatory Change**

Another important scientific critic of Darwinian evolutionary theory was the prominent Irish botanist and phycologist, William Henry Harvey (1811-1866), a highly respected world authority on algae at the time. Though a deeply religious man born into a large Quaker family, he became interested in algae during early teen years and developed keen scientific skills through higher education, a great deal of fieldwork voyaging, and close communication and relations with the very best botanists of the day including the previously mentioned Asa Gray in Boston.

Darwin himself considered Harvey to be such a top-ranked botanist that he would send him specimens to analyze and comment upon on a regular basis from his own Beagle fieldwork voyages (Ducker, 1972). Although he was greatly esteemed by Darwin, Harvey was extremely reluctant based on his own fieldwork experience to accept Darwin's insistence that natural selection was the cause of all species change. Granted, it may be the cause of a great deal of that change, but he was even more reluctant to agree that species arose only through the action of natural selection. In his mind, there were just too many observations that natural selection could not explain. He made his position clear both in writing and in lectures which he gave in numerous places including Gray's home bailiwick, Boston.

To begin with, Harvey wondered how the process of natural selection could ever change or improve upon various simple protozoans that were closely identical to one another which are neither plant nor animal, such as amoebas or paramecia. He just couldn't see how the extremely gradual change process characteristic of natural selection could be more beneficial to species change than other methods such as saltatory.

It was recognized by the scientific community even at that time that some forms of species change occurred as one-step speciation or in sudden and large leaps or jumps (saltation) of mutational change between generations of species, not over elongated periods of time suggested by natural selection. Further, every criticism he presented on natural selection as the cause of species change came with abundant scientific evidence to support his position.

Needless to say, Harvey's prolific and dogged scientific work on algae posed great conceptual difficulties and theological discomfort for proponents of Darwinian evolutionary theory including Darwin himself. Further, every criticism he presented of natural selection as the cause of species change came with abundant scientific evidence to support his position. As usual, Darwin's method of deflecting these challenges was simply to argue that naturalists really didn't understand how natural selection worked, a rhetorical ploy that could not be accepted by scientific critics who were already well-accustomed to studying and understanding complex natural processes (Ducker, ibid.; Parnell, 2009).

**The Fleeming Story: Severe Problems with Variation, New Organs, Timespan, and Inheritance**

The remarkable story of the trenchant criticisms of Darwinian evolutionary theory laid down by the great Edinburgh entrepreneur and Professor of Engineering, Fleeming Jenkin (1833-1885), surely needs to be recounted here among the many eminent scientific critics under review. He was a close friend and partner of the great physicist Lord Kelvin, already reviewed above, and a former religious skeptic turned Christian much later in age.

Despite the fact that he was probably best known at that time as the creator of the cable car, he was also incredibly versatile in ability across the academic divides of knowledge. Not only was he a professor, an electrician, a cable engineer, an

economist, a lecturer, and a linguist, but on the artistic side of life he was also a critic, actor, dramatist, and artist (Cookson and Hempstead, 2000). The wide breadth of his knowledge and abilities made him an impressive critic indeed.

Although expressing doubts about various aspects of evolutionary theory scattered across writings and lectures prior to the publication of Darwin's Origin, it wasn't until he actually reviewed the second edition in 1860 that he provided a systematic, well-organized, detailed and comprehensive critique. Some of the minor criticisms have been somewhat invalidated over time, of course, due to new scientific discoveries. But even those could be deemed incredible perceptive insights in terms of the absence of pertinent scientific evidence. On the other hand, many of the major criticisms have withstood the test of time and remain in force until today.

Out of the many criticisms presented in the review, here we will focus on only three of the most important: unlimited variation; new organ development; and short geologic timespan. Burkhardt (Ibid.) discusses all three of these particular criticisms in some detail. But it should be kept in mind that a good proportion of the total criticisms proffered by Jenkins are just as pertinent today as they were then. In fact, several of them have been pursued by a host of contemporary scholarly investigations already cited above (Jenkin, 1867).

One of Jenkin's chief criticisms of Darwinian evolutionary theory pertained to the assumed unlimited timeframe accorded for variations to occur. For Jenkin, variations of species or new plant and animal forms do not accumulate within an unlimited timeframe but, rather, tend to be asymptotically limited or converge on limitations. Here Jenkin points out that this time-limited variation logically necessitates the complete rejection of common ancestry as a possibility. Darwin's evolutionary theory, on the other hand,

assumes absolutely no limit to the scope of potential differences between descendant and ancestor species.

Jenkin's second major criticism of Darwin's evolutionary theory centers around the inability of natural selection to create or develop new organs. Although he grants that it may improve or advanced existing organs, it is incapable of producing new ones. By contrast, Darwin's theory claims that any advantages benefitting an organism would quickly be lost over time as it reproduces with other similar life forms which may not necessarily share that particular advantage.

Finally, Jenkin claims that there simply was not enough geologic time for Darwin's evolution to operate. In Origin, Darwin had estimated the age of the Earth to be about 300 million years old, leaving the impression that such an elongated geologic timeframe would be enough time for evolution to do its magic, so to speak. But Jenkins had calculated the age of the Earth to be around 100 million years old with an upper limit of 500 million years old, still not enough time for Darwin's evolution to complete its process.

In the end, Jenkins argued, Darwin's doctrine of evolution by natural selection couldn't possibly work because it was tied to a theory of inheritance that made it a logical impossibility. Darwin's evolutionary argument relied upon a model of blending inheritance which assumed that any advantageous changes in species would be continually mixed with all of the other inherited traits over successive generations. In this way, however, advantageous mutations would eventually be lost over time. On the other hand, Darwin's natural selection required a lot more time for passing down advantageous mutations. Jenkins concluded, therefore, that blending inheritance and natural selection cannot both be correct and, most likely, they are both mistaken (Bulmer, 2004; Holterhoff, 2014)

**Bennett's Mathematics and Mimicry Against Darwin**

The well-known British botanist and publisher, Alfred William Bennett (1833-1902), was also an outspoken critic of Darwin's doctrine of natural selection although he agreed that evolution probably did take place (Cantor, 2005). He published an article in the Nature journal in 1870 in which he tried to argue mathematically that it was impossible for small random changes in species to accumulate in any particular direction over time because small changes in organ development would not be beneficial to the survival of individual organisms. In other words, it was mathematically impossible for random variations each one of which were relatively useless to the survival of the organism but yet in the end be cumulatively beneficial and directional in hindsight (Cleevely, 2004).

In his review of a later edition of Darwin's book in 1872, Bennett again raised critical objections to natural selection by claiming that it failed to account for at least the initial phases of mimicry, but strategically heaped considerable praise upon other parts of the book to balance out more profound criticisms. For his part, Darwin responded by thanking him for his generous review given the stark differences of opinion between them. They continued to exchange friendly letters, and Bennett even wrote a very glorifying review of another Darwin book on carnivorous plants (Darwin, 2016).

Bennett was also countering Darwin's evolutionary views indirectly by writing supporting reviews of books written by others at the time who rejected the doctrine of natural selection, and these supportive reviews were not based on shared religious grounds between Bennett and the authors themselves. One such supportive review was written for a book by the well-known English biologist St. George Jackson Mivart (1827-1900) titled, On the Genesis of Species (Mivart, 2012). His matter-of-fact critique of Darwin's assertions at the time are worth nothing here in some detail for a variety of reasons that will become clear below. He was perhaps most

well known as an initial adherent of Darwinian evolutionary theory and later converting to one of its greatest critics.

**Mivart's Suborders of Primates Against Darwin**

Although further below we will delve into much more detail into Mivart's specific arguments against Darwin in this book, at this point we can note some of his broad commentaries by way of introduction. Mivart claimed that Darwin's natural selection failed to explain how some highly individualized suborders of primates that he was studying at the time emerged, developed, and changed over time such as the Strepsirrhines (lemurs of Madagascar, the galagos and pottos from Africa, and lorises from India and southeast Asia) (Beard, 1988; Campbell et al, 2011).

This conclusion, of course, strongly implied that Darwin's doctrine of natural selection was over-reaching beyond what was scientifically permissible. As an alternative explanation, Mivart proffered theories based on organismic individuation and instinct, and started to publish his scientific findings against Darwin in a series of articles long before publication of his 1871 book (Mivart, 1869). In a nutshell, this was Mivart's position vis-à-vis Darwin's natural selection, but much more detail needs to be attached to these general points before the full force of Mivart's argument can be appreciated. It will also go a long way towards explaining why both Darwin and Huxley took his views so seriously.

**Mivart Attempts to Reconcile Evolution and the Bible**

Mivart's life story and fierce critique of Darwin's evolutionary views demand special attention here for a variety of reasons not the least of which was an initial positive view of both natural selection and the reconcilability of evolution with biblical notions about God. A positive initial view of natural selection and evolution would later be overturned, and this

would cause Mivart the greatest degree of difficulty as he sought common ground with biblical doctrine

Mivart was born into a wealthy family of Protestant Evangelicals, but later converted to Catholicism at seventeen after considerable disenchantment with schools he had attended. That conversion, as it turned out, initiated a monumental sea of change in his life and worldview. Although he had been preparing for entrance at Oxford all along, at that time it practiced a stern unmovable prohibition against acceptance of any Catholic students. For this reason, he attended a Catholic school in Birmingham, St. Mary's, where he had developed a fervent interest in natural science.

After St. Mary's, he studied law and fulfilled all of the requirements to obtain a law degree. In the end, however, he refused to practice law and preferred to study the natural sciences instead. He devoted himself to medical and biological studies which he completed successfully over the next few years. Soon he is providing lectures at the medical school of St. Mary's Hospital (1862-1884) and conducting detailed scientific research on the anatomy of carnivores and insectivores.

Very notably, this was an overriding interest that would lead eventually to a major publication in 1881 on vertebrates titled, The Cat: An Introduction to the Study of Backboned Animals (Mivart, 2022), which easily placed him alongside Huxley's own work on Crayfish only one year before (Huxley, 2018). And this is precisely where his life story becomes incredibly famed, to say the least, since he meets who would later turn out to be none other than …. the infamous bulldog Huxley!

**Mivart meets Huxley**

Let's go back and recount in more detail how this occurred. Unhappy with the law profession, Mivart searches for places where he can study natural science, and decides to attend the Royal School of Mines in Imperial College at the Royal

Institution in London in January 1858, one year before the publication of Darwin's Origin. Well, it just so happens that at that time, Huxley was teaching natural history at the very same school.

Mivart must have been very highly impressed with Huxley at that time since he also makes many key life decisions that literally seal his critical relationship with Darwinian evolutionary theory. Within two years of their first meeting, he becomes Huxley's student and starts attending all of Huxley's lectures on a regular basis. But this is an impression that wouldn't last very long given Huxley's open and flagrant anti-Catholicism, which Mivart the Catholic easily comes to recognize (Desmond, ibid.).

From that point onwards, Mivart became renowned for his prolific scientific work on the relationships among suborders of primate species and achieved membership in the most esteemed scientific organizations of the day. To begin with, he published more than 20 articles in scientific journals just in the six-year period between 1864-1870, a remarkable achievement given the infancy and length of primate fieldwork required in any particular research article. He contributed as much to the classification of primate species as he did to the study of relationships between them, even delving heavily into the study of the bones of primates (osteology).

The recognition of his expertise and accomplishments by the scientific community soon followed. In 1849, he became a standing member of the Royal Institution of London. In 1858, he became a fellow of the Zoological Society of London. By the close of 1862, he had achieved the status of Fellow of the famed Linnaean Society of London – a highly praised learned society dedicated to the study of natural history, evolution, and taxonomy.

Established in 1788, the Linnaean is the oldest biological society in the world and the site where the theory of evolution

by natural selection was first publicly presented in 1858. Lastly, in 1869 Mivart became a Fellow of the Fellowship of the Royal Society of London in full recognition of his magnanimous scientific work on the skeletal structure of primates (Chhetri, 2014). These are not shoddy scientific credentials by any stretch of the imagination, to say the least.

**Bulldog Huxley Defends Against Mivart**

Shifting into high gear, Mivart's life story becomes even more interesting and controversial at this point. Obviously, by the time he publishes On the Genesis of Species in 1871, he cannot be casually written off by Darwin, Huxley, or anyone else on the evolutionary side as just another scholar ignorant about the new scientific method or as someone bathing in religious fanaticism. His scientific publishing record demands that his work, views, and criticisms be taken very seriously, and that's exactly how both Darwin and Huxley treated everything he said or wrote, both always poised in scathing attack mode. Huxley wasted no time the same year as Mivart's book was published to come out officially against Mivart's arguments against Darwinian evolution (Huxley, 1871).

It is important now at this point in Mivart's life story to specify his position against Darwin's theory of evolution by natural selection in a little more detail as they are just as valid nowadays as they were back then. Generally, Mivart does not dispute that some kind of evolutionary process is at work in the world. However, like Darwin's partner, Wallace, Mivart refused to belief that evolution applied to human intelligence, not to mention a few other human features.

What's more, Mivart's view on this point was not necessarily new at the time. It had been expressed and argued comprehensively in many previous writings on the relationship between human nature and intelligence in comparison to animal nature (Mivart, 2016a, 2016b). Before we finish this

essay on Darwin, we shall have much more to say about Wallace's exit from the sway of Darwin's evolutionary schema.

**Agassiz Opposes Darwin with Both Science and Theology**

Let us now burrow deep into one of America's most unique contributions to the early history of anti-Darwinian criticism by considering the views of the Swiss-born biologist, geologist, paleontologist, and world-recognized scholar on Earth's natural history, Louis Agassiz (1807-1873). Agassiz's American story starts after he visits Harvard at the age of 40 in 1847 and then subsequently decides to emigrate to the US. Shortly thereafter, he lands a position as professor of zoology and geology at Harvard, and becomes well known for observational data gathering and analysis (Irmscher, 2013; Lurie, 1988).

From the beginning of Darwin's evolutionary theory, Agassiz was cold, unsympathetic, and fiercely critical to such an extent that he easily became America's leading opponent to Darwin (Agassiz, 1860). His view of Darwin's evolutionary theory was flatly and publicly rejected as an 'error' in thinking that had to be fully opposed with maximum power. Worse than that, Agassiz asserted that Darwin was untrue in the evidence he presented and deemed to be 'facts', most assuredly unscientific in the methods he used, and his theory of human origins had an innate tendency to be downright mischievous. To better understand why a world-renowned scholar of Earth's natural history was so adamantly opposed to Darwin's views despite the contrary views of many other eminent scientists at the time, we have to enter into the metaphysical conception of nature which informed his exacting scientific work (Lurie, 2008).

For Agassiz, the organic world was not conceived as an impersonal spontaneous material-physical process as it was for Darwin. A Supreme Being had intervened repeatedly throughout Earth's history conscientiously working and re-

working the complex structures He had made, and there was plenty of evidence of this divine intervention throughout the natural world. These were divine events that could create and alter species, whereas ordinary physical events could not bring about new species although they could bring about extinctions. The steadfast insistence here was that God created immutable species; they were not the creation of godless physical processes (Agassiz, 1874, pp. 111, 118, 122).

It might be the case that the fossil record reveals a sequence of life forms from simple animals and plants in the deeper strata to much more complex organic forms of life found in near-surface strata which might appear to the untrained eye as progressive development. However, those more recent animals and plants contained in the fossil record didn't arise from organic reactions to environmental changes.

Rather, they arose from a series of independent and special acts of a divine Creator. Therefore, hereditary continuity between different types of organic forms was an impossibility. Each individual species type of animal and plant derived from divine thought itself, and similarities between them were nothing more than associated ideas in the mind of the divine Creator Himself. Agassiz viewed both ancient and modern species as fixed representations of divine ideas bearing no genetic connections to each other (Winsor, 1979).

So, then, for Agassiz, there was much more reality in the unseen world than in the natural physical world, in fact more than science itself could ever fathom. Techniques of close empirical study can offer a glimpse into this hidden world existing above and beyond physical experience, but total grasp was beyond the reach of science and humanity. A divine Creator was responsible for all physical processes on Earth.

Even seemingly pure physical processes like glaciation were interpreted as divine acts. The Ice Age was a divine responsibility, not a purely physical 'natural' process, as

Darwin might argue. In fact, claimed Agassiz, in the natural history of the Earth there had been as many as 20 separate divine creative interventions. Each divine creative act was characterized by its own distinctive animal and plant forms, with no relationships to present types whatsoever.

Despite these many allusions to Deity creating, arranging, and re-working natural processes in a long list of divine creative acts, it would be a gross mistake to think that Agassiz's criticisms of Darwin were primarily based on theological grounds. Janet Browne, professor of Natural History and author of a masterful 2-volume biography on Darwin argues strenuously that Agassiz's criticisms were essentially based on scientific grounds, not theological ones.

Theological arguments were simply marshalled to render the widest possible reach for the scientific critiques. Unfortunately, even a scientist using science to reject the theory of evolution at that time was not very welcomed by a scientific community that had largely abandoned theological notions of human origins and the universe (Browne, 2003, 1995).

**Reverend Dunn Speaks Out Against Darwin**

Even though scientists at that time were among the most ardent and vociferous critics of Darwin's evolutionary theory, there were also a few highly respectful religious critics on both sides of the Catholic-Protestant divide, as Mivart's case demonstrates. The British Methodist Episcopalian Minister, Reverend Samuel Dunn (1797-1882), was one of the most highly capable.

A prolific writer and gifted orator, he published more than 70 books in addition to various writings in papers, magazines, journals, and reviews. In most of these writings, he argued against atheism, popery, trinitarian and unitarian Christian beliefs, and in defense of the Methodist religion itself. Despite this impressive production rate and fact that he was expelled

from the Methodist Church for refusing to stop criticizing its governance, and later reinstated, he still found time to pen an extensive 31-page critique of Darwin's book (Boase, 1885-1900).

Reverend Dunn enters the Darwin controversy through his rather respectful critique of Darwin's Origin in the North British Review at the time, where he praises Darwin's great abilities, the "classic beauty of style" in which it was written and arranged, and the wealth of diversified information and knowledge it condensed into such a small number of pages (Dunn, 1860). Before we delve into the criticisms in more detail, however, we need to underline the significance of the publishing outlet. The fact that Dunn chose to publish his analyses and commentaries in that particular journal perhaps illustrates to some extent the nature of his own liberal theological leanings. A brief review of the journal's history can easily demonstrate this point.

It was a Scottish periodical founded in 1844 to function as the agency of the new Free Church in Scotland, and published articles as such only until 1871. It was well-known at the time for an editorial policy that adopted distinctly liberal perspectives on politics and religion particularly in the last decade or so of its existence, and renowned for its anti-conventional and staunch anti-Catholic contributions (Althorz, 1989; Brake and Demoor, 2009). It is no wonder at all why Darwin himself cited articles from this journal abundantly, and openly praised it many times, saying: "It has been of more use to me than any other" (Darwin, 2011, p. 125, note 32).

In any case, to no surprise Dunn pejoratively characterizes Darwin's book as chalk-filled with "morbid views of creation" that reads like a dull melancholic discourse on the origins of humanity and the universe (Dunn's, ibid., p. 476). What seemed to worry him the most about Darwin's book, however, was the enormous amount of positive attention it was receiving in every institutional corner of society from general

public newspapers and magazine to professional academic journals and everything in between.

In essence, Dunn's review consists of a systematic chapter-by-chapter identification and analysis of weaknesses contained in Origin on logical, empirical, scientific, and theological grounds, surely too lengthy and detailed to represent here. All we can do is try to recapture the flavor of some of the review's essential critical ingredients. The general critical tenor of the review is set firmly in the few initial statements by suggesting condescendingly that Darwin likes to "draw illustration" in order to "prove the soundness of his theory", thinking that this is sound scientific methodology. But he doesn't really "shed new light" on the subject he's addressing (Dunn, ibid., p. 455).

Darwin speaks as if he is the last word on truth about nature, but he is only an "interpreter of nature" and, as such, "not infallible". He likes to use what he calls "facts" to make sweeping "generalizations regarding laws of life" rather than just collect facts about nature like most naturalists. For sure, he shows "great ability", but still there is a curious "resemblance between the Origin and the Zoonomia of the elder Darwin". This is a major problem because "in the least attractive pages of both works…, you meet with suggestive remarks, lying…" So, then, in almost every page, we meet with facts useful to an opponent as to an advocate of Mr. Darwin's views (Dunn, ibid., pp. 455-457).

Darwin's propensity to present "proofs" without scientific evidence and supporting references is also noticeable. "We are asked to take proofs without references", quips Dunn. But it's even worse than that. "If they (the 'proofs') are not sufficient…," it is because the author says that he could not "bring out all he has in store". Yet, everything is claimed to be "facts" by Mr. Darwin. There are "so many alleged facts…" that "…are questionable, it is doubtful that readers should…" share Darwin's confidence in these 'facts'. On page 6 of his book, Darwin states as 'fact' that "species are not immutable". But

there are so many contradictory definitions of the term 'species' in his book that it is "enough to provoke suspicion and dissatisfaction with Darwin's theory" (Dunn, ibid., p458).

Darwin's "philosophical system of classification" of species leaves a lot to be desired for in terms of raw scientific proof, suggests Dunn. In fact, Darwin "…does little more than glance…at…(it) near the end of his book", obviously because it was laid down by Cuvier in 1798. Cuvier's principle of classification made clear that species properly defined and understood were indeed immutable, and he proved it by a detailed re view of all the existing paleontological records. Without ever reviewing these records, Darwin simply "declares them to be imperfect" near the end of his book, suggesting that "we must do away with classification" simply on the basis of his declaration (Dunn, ibid., p. 459).

According to Dunn, Darwin's avoidance of paleontological records to justify his evolutionary theory is understandable, although veritably underhanded. This is why Darwin uses "the immutability of species as the dead fly in the precious ointment – the error which vitiates all nineteenth-century scientific generalizations" (Dunn, ibid., p. 462). Leading up to Darwin, "distinct varieties in species have been fixed and classified" (ibid, p. 465), so this is why he didn't want to review the paleontological records with much detail in his Origin book.

And this is also why "Mr. Darwin has not been able to adduce (even) one 'fact' directly" countering or disproving this (existing) classification," Dunn insists. Darwin has not shown us any "transformations of species" whatsoever such as a "tapir…becoming a horse" or "an ambitious whale …to…a polar bear" (ibid.). Cuvier, Buffon, Agassiz, Pritchard, and "many other accomplished naturalists" have shown scientifically that varieties of species become permanent even among humans, notwithstanding Darwin's ridiculous comments on breeding dogs, pigeons, and cows (ibid., pp.

469-471). Man-made variation and natural variation are two different things, but Darwin seems to overgeneralize from one to the other.

What's more, asserts Dunn, and "before leaving the 'facts' of Darwin's book," we may remember that it is simply not true that "the…and bear family do not breed freely in this country in confinement". Like his other comments regarding the domestic breeding of generations of pigeons, dogs, cattle, and other animals, his arguments simply "don't warrant the conclusions he has come to regarding successive variations" (ibid., p. 472).

On this point, Darwin neglects or discounts humanity's "influence of cross-breeding in modifying species structure" over time, which "can alone give the key to variation" under domestic conditions. For Dunn, the strategy of using variation under domestication to "make us swallow the pill of variation under nature falls short of Darwin's aim" (ibid., p. 473). This is a false argument tantamount to alleging that "Mr. Darwin's book is the cause of the zoological arrangements in the British Museum" (ibid., p. 475).

Dunn is dead serious about using this imaginative scenario to demonstrate the logical fallacy in Darwin's use of domestic breeding arguments to justify scientifically unsupported claims about species variation. "As Mr. Darwin proceeds in developing his theory," Dunn goes on to say, "his imagination comes more and more out as the foundation on which it rests". That's why Darwin starts talking about his own dreamlike version of natural selection sitting on a throne somewhere "daily and hourly scrutinizing, throughout the world, every variation". Yet, Dunn quips sarcastically, Darwin shows us absolutely "nothing of these slow changes in progress" which he constantly rants upon to justify his evolutionary theory, not even in his multiple and eloquent illustrations (ibid., 478).

"In a diagram (p. 117) … the author (Darwin) is not able to point to one example, among many existing forms of life, of progress towards change". Again, Dunn reminds readers of the claims made in the earlier work of Vestiges. Essentially, "… the principles implied in the 'Vestiges' are not wholly different from any of that (which) may fairly be drawn from this work (Origin)." On this factual basis alone, let alone the other dubious 'facts' presented in Origin, Dunn asserts "We believe there is good reason for affirming that everything which is false, as to the scheme of life in the worthless development theory, is contained in the 'Origin of Species'..." (ibid., p. 480).

In fact, it is more than simply false, Dunn claims. In Origin, there is "a great deal in addition which is more mischievous and profane than anything to be met in the 'Vestiges'". If Dunn had to choose between these two "terrible alternatives," he confirms, "we choose the 'Vestiges'," even though "both are burlesques on true science". But the 'Vestiges' is "less dishonoring to the Creator". The implication is that Origin is more dishonoring to the Creator and to science itself. "The mode in which illustrative facts are used indicates on the part of the author a bias which, to say the least of it, is very far from becoming in a lover of science (ibid., p. 480).

Although Darwin seems to present his so-called facts in ways which imply he thinks his theory doesn't contain many insurmountable problems or difficulties, Dunn states, they are actually much "more profound and more numerous than he imagines". What Darwin can't explain, he simply discounts or neglects altogether. When the earth's crust "fails to show any transitional forms" he's looking for, Darwin simply stands back and "pleads the imperfect character of the geologic records" rather than declaring the impassible deficiencies in his own theory. Darwin pronounces that those "transitional forms have served their ends, so they are lost" (ibid., p. 481).

The real story behind this cavalier attitude to missing scientific evidence to support his evolutionary theory is that

"…Mr. Darwin shows a not very extensive knowledge of the literature of geology…" The empirical scientific records of many eminent geologists and paleontologists indicate quite clearly that there have been many "great breaks in the building up of the world…" (ibid.) This is what creates great problems for Darwin "with the sterility of true hybrids", a fact confirmed by the geological records many times over and which effectively falsifies Darwin's evolutionary theory. Furthermore, even Darwin suggests that himself in comments on page 252, Dunn claims (ibid., p. 484).

"… in that one department of nature in which we have a right to ask the author to show us the proofs…, not one is to be found in the geological record of fossiliferous deposits…" This is precisely what makes Darwin's Origin fatally deficient. "The purely geological portion" of Origin "is far worse than the feeble value of the 'zoological aspects'…" (ibid.). "… the author has wholly and signally failed to provide even one unquestioned corroborative proof of true transitional variety among present forms of life…" to validate the sweeping claims made by his evolutionary theory (ibid., p. 485).

If we are not careful to make the proper distinctions while reading Dunn's 1860 review of Darwin's work, it is relatively easy either to mislabel him as just another ranting and raving lunatic religious critic or simply to avoid any mention of him whatsoever, as most biblical scholars are wont to do. Only the illustrious Himmelfarb (1959) mentions him explicitly in any kind of significant detail, but even there it is only a cursory glance at his general criticisms in the North British Review. A careful review of over 50 top-flight books on Darwin and Darwinian evolutionary theory even by the most eminent contemporary scholars failed to find even one reference to Dunn.

Even though his scientific critique of Darwin's Origin is peppered here and there with brief explicit references to God, the Creator, Deity, and Divine plan, the essence of Dunn's

criticisms remain firmly planted on logical and scientific grounds, as we have shown above. Even in the last two pages of his review, he draws upon references to God and the Bible only scantily, but he nonetheless adds some theological grounding to his logical and scientific criticisms. And it is worth reviewing these brief allusions here to provide the full-rounded picture of his critical perspective.

As far as the theological portion of his criticism are concerned, he wants to end his essay by referring to "two great questions" implicated in Darwin's work: "The question of breaks in the introduction of life, and the question of miraculous action". He points out that "the question of the presence of miracle…at various points in the history of the Earth…has been…regarded…with suspicion…" by Darwin's work (ibid., 485-6). Darwin himself denies "the exercise of creative power – miracle, miraculous action", he points out. "Mr. Darwin's Deity is…the Struggle for Life" (p. 61). "Little value is attached" by Mr. Darwin to the notion of a "Divine plan in creation" (ibid., p. 459). Darwin says himself that the "doctrine of final causes" is hopeless in page 413 of Origin. "Mr. Darwin has assigned a personality to 'Nature', and banished God from the scene" (ibid., p. 465).

"We conclude, then, that all geology testifies that species are permanent; that they have continued so under all varieties of influence, and that, in every case, they have been introduced by the miraculous power of a personal God…revealed to man in the Bible. While in the foregoing remarks, we have been careful to deal with the scientific claims of Mr. Darwin's book, we have not scrupled to show that we have looked at it also from the point of view of revelation. In both aspects, its publication is a mistake". Evidently, there's a lot more behind Dunn's trenchant comprehensive criticism than mindless religious dissent.

**Re-Enter Wallace, Stage Right**

It is fitting to end this essay on early criticisms against Darwin's evolutionary theory by recounting Wallace's objections here since he shared the initial authorship with Darwin and since it dovetails with a great deal of Mivart's critique, as just noted. It was not only human intelligence that could not be accounted for by natural selection alone but, as well, a whole panoply of distinctly human features such as an aesthetic sense and emotional capacities (Davis and Arnocky, 2022). Wallace also came to seriously doubt the applicability of Darwin's principle of sexual selection (Knotter, 1980). Darwin had posited natural selection as the cause of human evolution with sexual selection operating as a significant contributory principle. For his part, Wallace always doubted the relevance of sexual selection.

**Wallace and Darwin on Human Evolution**

As it pertains to the central concerns of the present essay, however, what is most interesting about Wallace's and Darwin's respective positions on human evolution is how they diverged so strikingly in the roughly ten years that elapsed since the presentation of their evolutionary theory at the Linnaean Society in 1858. Even though they started out along the same strict materialistic path of life's origins, within those ten years Wallace would adopt a genuine spiritual mode of thinking about human evolution.

Indeed, the contrast between his initial cold materialistic position and his deeply spiritual position a decade later could not be more striking. He starts out with an all-humans-were-apes position similar to Darwin, and early on complains to Darwin about how the concept of natural selection should be immediately replaced by the concept of 'survival of the fittest' because it inappropriately implies the existence of a divine 'selector' at work in the world. It took some convincing, but

eventually, natural selection gets deleted from subsequent editions of Origin (Browne, 2013).

**About Ten Years Later, Wallace Backtracks**

By 1869, Wallace had completely backtracked on almost all of his earlier agreements with Darwin's evolutionary theory based on an increasingly fervent spiritual view of human evolution and the origin of the universe. Not only did he come to claim that natural selection cannot explain the aesthetic, cognitive, and emotional faculties of human beings, but now he asserts that these faculties emerged from some kind of power emanating from beyond the materialistic boundaries of the natural world. Further, he asserted that there are many other features of human beings that cannot be explained solely by reference to the physical process of natural selection such as the feet and hands, naked skin, voice box and speech, artistic notions of form, color, and composition, morality and ethical systems, geometrical spatial abilities, mathematical reasoning, ability to sing, and even the distribution of hair over the human body (Flannery 2020, 2009).

**More Than Simply Matter in the World**

Unlike Darwin, Wallace came to believe there is more than simply matter in the world, whether it is called a divine 'God" or some kind of spirit. Whatever it is, Wallace argued it certainly played a determining role in human evolution. By the end of his life, he is a firm believer in the Genesis-based God the Creator of the universe. It was evident to him that evolution was not only detectable but also designed, directed, and purposeful. Species didn't just spontaneously happen from natural causes without purpose; rather, species were uniquely created by a divine almighty God (Pemberton, 2017; Smith, 1992).

All of Wallace's anti-Darwinian pro-spiritual notions didn't just emerge out of nowhere in his life only to suddenly

disappear in a few days never to be uttered again. Quite the contrary, although he strayed somewhat from his birthhood faith to become a skeptic and free thinker in his early academic days.

He had been born and raised into an orthodox religious family with parents who were active members of the Anglican Christian Church of England. The Church of England was a Christian church with very demanding daily requirements for the faithful and strict formal features of worship very similar to the Roman Catholic church. So, it's perhaps understandable why he would have an aversion to strict forms of Christianity in his younger days, an aversion shared with Darwin.

**The Limits of Natural Selection as Applied to Man (1869-70)**

However, in many ways, his boyhood faith was never really rejected nor abandoned, notwithstanding a few short years of skepticism. He expressed such faithful beliefs in one form or another across several different writings all along the way. In his 1869-70 essay titled, The Limits of Natural Selection as Applied to Man, he makes it clear that the fact that there are so many features of human beings natural selection cannot explain necessitates the invocation of an overruling intelligence directing life's processes from beginning to end (Wallace, 2010a).

**Darwinism (1889)**

In his book titled, Darwinism in 1889, again he presents clear evidence that the doctrine of natural selection cannot explain many central features of human beings such as musical, mathematical, and artistic faculties, not to mention wit and humor. In Chapter 15, he makes the astounding teleological suggestion that there is something in the unseen universe of

Spirit directing human evolution and the entire created universe.

He goes on to claim that this unseen Spirit had intervened in the natural world at least three times in human history. Most important of all, it had created life from inorganic matter. Then it installed consciousness into the higher mammals. Finally, it had generated the higher mental capacities within human beings. All of these intercessions meant that evolution itself was purposeful, a belief that was not shared by Darwin (Wallace, 2004).

**On Miracles and Modern Spiritualism (1876)**

In his book called, On Miracles and Modern Spiritualism: Three Essays (2009), originally published in 1876, Wallace engaged in an in-depth exploration of the complex interrelationships between science, spirituality, and the supernatural. Evidence supporting the existence of spirits and miracles is presented, and he argues that it is as robust as for any other scientific theory.

Documented cases of supernatural occurrences, clairvoyance, and animal magnetism cannot be so easily dismissed by the scientific community. Even though these are all unconventional ideas, Wallace agrees, the scientist must keep an open mind to the many mysteries that lie beyond the physical world. Essentially, what Wallace does in this book is severely critique the current belief among his scientific colleagues that the supernatural does not exist.

Lastly, at 88 years old, in his masterful work entitled, The World of Life: A Manifestation of Directive Mind and Ultimate Purpose (2010b), Wallace argues that there are powers at work in Nature which, when properly understood, can help humanity to understand the Infinite and Absolute Creator of everything that exists. Not only is there an infinite Creator God of all life but, in fact, it is likely that there may be a whole

hierarchy of demi-gods at work in the universe who function mainly to assist the Deity in guiding and directing the universe, demi-gods like angels to archangels to unconscious cell-souls to every sort of subordinate creator in between. It may indeed be the case that a divine biblical God is the final cause for the organization of the natural world (Flannery, 2012).

It's hard to believe that this is the same man who wrote in a letter to his brother in 1861: "I remain an utter disbeliever in almost all that you consider the most sacred truths…" (Wallace, 2021). Yet, shortly before his death in 1913, he tells an old friend Sir William Barrett during a home visit:

> "…I am…absolutely convinced that behind and beyond all elementary processes there is a guiding and directive force; a Divine power or hierarchy of powers, ever controlling these processes…" (Wallace, 2022, pp. 263-4).

**Reflections**

We have completed a rough sketch of the range and types of complaints that Darwin was facing from the first year or so of publishing Origin in 1859, invariably repeated and added to during the many years that followed up to present times. Our brief survey included some of the most eminent secular scientists as well as scientists of faith at the time, along with theologians, religious adherents on both sides of the Catholic-Protestant divide, and various others.

As our review illustrated, for the most part these critiques were rational, methodical, coherent, reasonable, and ongoing, and not at all the product of spontaneous uncontrolled emotional reflex nor adamant religious fanaticism. Indeed, notwithstanding the philosophical and theological commentaries often accompanying them, the legitimacy and validity of these complaints on logical grounds tends to be

robust. Their credibility is roundly supported by the fact that they can still be found in a great deal of contemporary theoretical, theological and scientific-empirical criticisms of Darwin's evolutionary views, as noted earlier.

Even after modern scholars have gone back and reviewed Darwin's evidence, there is little if any unqualified general agreement on the scientific proof of evolution existing at the time, but lots of bravado about the theory nonetheless. No matter on what side of the evolutionary fence one sits, what is quite clear is that Darwin did not have all of the scientific evidence required to make the broad sweeping claims about evolution that he did nor to imply them, and moreover, he knew it. So, then, the evolutionary claims that were made in the name of science proper were actually founded upon other grounds – theological, ideological, philosophical, and otherwise, as we argue here.

Beyond these general observations, there are many related features of these criticisms that are noteworthy. The overall impression they provided is significant and earnest dissatisfaction with the broad theoretical claims that had been made or implied about the origins of life and the universe, many if not most without any incontrovertible supportive scientific evidence. The general view of these critics was that Darwin's theory was over-reaching, that is, reaching way beyond what was allowable by established scientific evidence.

In fact, in many cases scientific evidence which countered or contradicted Darwin's evolutionary views were ignored or disqualified from consideration, and the theoretical implications of this evidence for the legitimacy and validity of his theory were not explored nor entertained. When this occurred, many times the response was simply to declare the records false or imperfect, as in the case of missing evidence from the paleontological records, or to suggest that there is much more evidence that could be shown but wasn't, or that

later scientific discoveries would inevitably confirm the claims made.

Both religious and scientific critics seemed not to have accepted the logical fallacy of these apologetic and defensive responses. Further, many of Darwin's claims about evolution were either shown to be contradictory or to contain other serious logical problems as to make any discerning reader question the validity of evolutionary theory altogether. So, then, it wasn't just the fact that some important or required parts of the scientific evidence were missing or problematic but, as well, the logical flaws contained in Darwin's evolutionary argument.

The most obvious logical problem characterizing Darwin's evolutionary view was calling evolution a 'fact' when, in actuality, it was not an established scientific fact up to Darwin's time nor did Darwin's work conclusively establish it as such. Granted, it had been argued by a great variety of different thinkers before Darwin, but it was not established scientific fact when Darwin's work emerged. Of course, this benefitted him and other secular thinkers a great deal for a variety of plausible reasons.

Among other things, it often allowed them to counter criticisms about missing evidence by deferring to the slow, grinding process of evolution itself. The argument was that the evidence would soon enough emerge and yield the missing links in the theory as the evolutionary process unfolded over time, gradually, in stages or steps, by degrees, a process with a life of its own that Darwin was not responsible for. For most of the discerning critical minds cited above, be they scientific or not, that argument wasn't good enough.

What's more, nobody could agree before, during, and after Darwin just exactly what constituted 'evolution' itself, which again left Darwin and others with plenty of elbow room to claim it to be whatever they wanted it to be, implied or not.

The term contained a host of implied meanings which were, for the most part, taken for granted by thinkers writing about this topic. It was simply assumed that everyone using the term applied the same meaning to it, so it tended to be left uncritically examined. There was no clear, coherent, confirmed, and widely-accepted and agreed-upon scientific definition of evolution to speak of.

Was evolution really just a continuous reordering or reorganization of pre-existing organisms? Or was it the emergence or development of completely new elements of life with no continuities with past elements? Was evolution continuous or discontinuous from previously existing organic forms? If it was not continuous, could the process still be called 'evolutionary', strictly speaking? If it was continuous, was it an overall rate of slow continuity that applied to all organic forms, or did rates of continuity differ at different historical periods or between different organic forms of life? Along with several other related questions about evolution, these were not at all considered and settled issues at the time.

Another question concerned just how 'gradual' was the gradual process of evolution. Different evolutionary thinkers thought differently about the details. Are we talking about geologic measures of time, or a comparatively quickened solar, astral, or galactic time scale version? Since there was very little if any scientific agreement about time scales involved in the process of 'evolution', Darwin and others could claim or imply it to be whatever was preferred. At times, he seemed to think at least 100 million years was plausible; at other times, it varied. Even calculations of the Earth's age vacillated from the first through subsequent editions of Origin, diluting it from 300 million years to less than 100 million years and beyond. Understanding that he needed a vastly much older Earth age to justify evolution by natural selection, he sent letters everywhere pleading for scientific support for a much older Earth age in the order of billions of years.

On the other hand, when it came to the biblical version of creation, there was a definite rejection of time scale for creation despite the fact that the biblical language itself was by no means unquestionably clear. He was absolutely certain that the proposed Bible view of about 6,000 years was not good enough since he knew he needed billions of years for natural selection to work. However, even that figure differed according to how biblical scholars interpreted ancient biblical language, a very risky and error-prone exercise, to say the least, even by modern standards of biblical interpretation, in many ways even more risky than various ad hoc scientific estimations.

Furthermore, especially then as now, an evolutionary process however defined could not possibly explain a host of organic and material occurrences and observations required to establish its factual scientific status beyond doubt. Still, even under the aegis of a limited scientific understanding at the time about genetics, inheritance, and the precise mechanisms of evolution, Darwin made and implied bold sweeping generalizations that were immediately elevated to the status of scientific fact, and many other notable thinkers and scholars were very quick to follow in those philosophical footsteps. It seemed like no matter what claims Darwin made about evolution, there always appeared to be as many cultural supporters as there were various critics, if not more, a highly salient point that touches upon the central thesis of this essay.

Darwin's theory often conflicted with the fossil record that showed no changes of organic forms over time. In other words, mutations were not accumulating over time in ways perceivable in the fossil records, the opposite of Darwin's claims. Observations of the fossil records indicated creation spontaneously or instantaneously or supernaturally occurring with no changes after initial appearance. Darwin knew that his theory conflicted with some key features of the Earth's natural history such as the fossil record pertaining to the origin of major groups of organic forms.

The fossil record at that time didn't indicate a 'gradual' process at all but, rather, abrupt or sudden appearances of advanced forms of organic life. The sudden appearance of Cambrian fossils was only one of many such fossil records that 'perplexed' Darwin. In such abrupt appearances of advanced organic forms in the fossil record, there was a pronounced and distinct absence of intermediary forms predicted by Darwin's theory. There was absolutely no pervasive continuous pattern of gradualism in the fossil record at all.

In other words, as many thinkers and scholars have argued before and since Darwin, the organic forms of the natural world have been characterized by a fundamental process of discontinuity, not the functional continuity of intermediary forms claimed by Darwin and Darwinian biologists (Denton, 1985, p. 11). Two notable examples out of many that are available may demonstrate this point beyond question.

In Thompson's classic of biology and modern science still as valid today as it was in 1917 when first written, it was proven scientifically that species did not evolve by minor transformations in body parts over eons of time a la Darwinian evolutionary theory but, rather, by sudden large-scale transformations of the entire body (1992). Thompson showed that the process by which patterns and body structures were formed and developed in plants and animals (morphogenesis) was, in fact, not Darwinian cumulative adaptational changes.

As it turns out, the devastating proven criticisms of Darwin's evolutionary theory contained in that book were simply an extended reflection of previous criticisms he had laid out in a paper called, Some Difficulties of Darwinism, presented in 1884 at a meeting of the British Association for the Advancement of Science (Whitfield, 2006, p. 20). The gist of Thompson's criticism of Darwin is that it is inadequate as an explanation for the origin of species because it underemphasizes the governing role of physical laws and

mechanics in the form of species. Therefore, evolution is not the fundamental determinant of the form and structure of all living organisms, and there may even be unseen driving forces characterizing the origin and development of species.

The next example is just as remarkable as the Thompson model. Despite premature wholehearted adoption by contemporary Darwinian biologists, it is less well known that the most prominent naturalist in Britain before Darwin, Richard Owen, proved in his seminal scientific work in 1848, On the Nature of Limbs, that not all features of living things serve specific adaptive functions a la Darwinian evolutionary theory. To illustrate the argument, for example, the shape of a maple leaf appears to serve no adaptive purpose to the organism.

In fact, at Darwin's time, it was fairly well known that many features of living organisms did not appear to serve any adaptive purpose whatsoever, completely contradicting evolutionary theory. What's more, Owen himself was much less of a materialist than his supporters seem to have thought, both then and now, believing wrongly that he advocated a view of the origin of life founded solely upon blind natural laws of nature and the properties of physical matter with no imprint of divine purpose (Denton, 2016, p. 70).

Needless to say, just these two great scientific works by themselves is more than enough evidence to threaten the legitimacy and validity of pure Darwinian evolutionary theory, let alone all of the other available critical scientific works then and now. By themselves, these works strongly suggest that perhaps there were other causal factors operating to shape living things into being other than exclusive Darwinian evolutionary mechanisms.

Yet, despite the limited scientific understanding of inheritance and genetics at the time, and despite the sore lack of supporting evidence of continuity from the geological and

paleontological fossil records, Darwin's evolutionary theory was presented and moved forward as glorified scientific 'fact'. The argument here is that something much more powerful than science was at work at the time that Darwin's work emerged.

Today, we now know that there is much more that Darwin's evolutionary theory could not have possibly explained and cannot now explain such as observations of how gravity operates, the double-helix nature of DNA, the utmost complexity of the human cell, chemical bonds, the descent of all organisms from common ancestors, the origin of life from nonliving matter, and the cosmic microwave background radiation – just to name a few quandaries of evolutionary theory (Ham, 1987; Moore, 1978; Morris, 2012, 2009, 1989, 1982; O'Toole, 2022).

It seems reasonable to conclude that acceptance and promotion of Darwin's inferential theory is at least partly explained by the presence of an evolutionary inertia within the culture at large at that time, and Darwin's scientific work and evolutionary ideas can easily be seen as just another outlet for these pre-existing ideas in the wider society. As we note below, evolutionary ideas had already been expressed prior to Darwin in a wide variety of institutions and through several different mediums such as poetry, philosophy, and education.

Indeed, as we noted earlier, the cultural petri dish had been spilling over with evolutionary ideas for at least a century before Darwin. When that historical record is examined, it shows that at least 60 individual thinkers had published significant writings on the topic of 'evolution' between 1748 and 1859 including biologists, poets, atheists, teachers, horticulturalists, geologists, physicians, clergymen, and philosophers – all largely forgotten long before Darwin came onto the historical scene (Friedman, 2020). If this is true, then surely Darwin's entire body of ideas must be placed within a broader historical context of much wider and more powerful

societal trends of thought as part of the effort to explain the acceptance of a largely unproven theory about life's origins.

For our purposes here, what is most important to consider is how and why this pre-Darwinian evolutionary inertia functioned to push through acceptance of Darwin's evolutionary schema despite multifarious irresolvable logical and empirical inadequacies. In the continued search to establish an unshakeable foundation upon which to propagate favored evolutionary ideas, perhaps the broader societal trends of atheism and naturalism had finally acquired a powerful outlet capable of withstanding any opposition.

After all, the 19th century witnessed the birth of science as a profession specializing in the impartial investigation of all phenomena. At that time, it earned the trust of powerful groups in society by motoring industry and free enterprise. A veritable panoply of new discoveries in every field of study from thermodynamics and physics to mathematics and geometry to chemistry and biology to astronomy, engineering, technology and beyond, occurred which nearly attributed saintly status to science as an institution and to individual scientific investigators. The steam engine, electricity, chemical fertilizers to increase food production, telegraph, telephone, radio, photography, and microbiological advances against pathogenic diseases, were just a few of the marvelous inventions and discoveries that occurred in the 19th century.

As the new saints of the scripture of modernity, scientists themselves were held in awe by an adoring and grateful public and came to hold enormously powerful positions of authority in a vast array or organizations and institutions (Ben-Dzvid, 1972; Shils, 1968). It is not an understatement to declare that the institutional stature of science in the quest for truth and knowledge within the wider society stood at the heights of glory especially as compared to other forms of knowledge in the 19th century. The work that scientists were doing during the 19th century was also intimately linked to the great ideas

and idea systems of that time many of which we reviewed above, ideas like progress, liberty, human improvement, technological advancement, environmental care, human control over human destiny, the struggle for existence, and yes, evolution.

For the central purposes of the present study, the philosophical implications of the achievement of such high levels of social status and power by scientists in general and the scientific worldview in particular are worth underlining. Science had been enlisted in the battle between different worldviews that had begun centuries earlier. It almost goes without saying that the tremendous institutional and organizational positions of power and prestige commanded by scientists both individually and collectively at this time accorded them great sway and dominance in the competition between different worldviews at every level of human interaction within the wider society (Lucier, 2009).

It is safe to say that such commanding positions of social respect, authority, and power surely operated in practice to confront and put into question the authority and legitimacy of other worldviews including the biblical worldview, especially when the hardcore material scientific payoffs could be clearly identified one after the other. It's one thing for a few dozen individuals as individuals in a wide variety of different fields from poetry to philosophy to medicine to astronomy to geology and elsewhere to argue in favor of atheistic and naturalistic notions in the land of the religious faithful.

It's quite another thing altogether, however, to socially legitimize such ideas through the powerful organizational levers of one major institution, science, and to invest such ideas in the minds of one highly organized and educated social group, scientific investigators or (Aronowitz, 1988). It is little wonder that the term 'science' itself was coined in the same century (Snyder, 2000). Arguably, it is also little wonder that the three great godless thinkers of modernity reviewed here

developed theoretical systems precisely in the midst of these ideologically and philosophically favorable society-wide conditions, acknowledging each other along the way (Azzarello, 2018; Colp, 1974; Leser, 1980).

After all that has been said and done up to this point in the course of the present essay, a few additional key reflections can be offered by way of a final summary assessment before tackling the ideas of our next godless thinker of the 19th century, Karl Marx. At least this much should be abundantly clear to the reader, that is, perhaps something more than pristine affection for truth and knowledge explains the widespread social acceptance and dissemination of a system of evolutionary ideas that remains to this day essentially inferential.

Most of the gross deficiencies in Darwin's evolutionary theory outlined above were probably well- recognized at that time even by Darwin himself, as evidenced by the constant revisions, withdrawals, and reworkings of his evolutionary theory. Yet, the wide acceptance of this theory on the street and across the institutional hallways of modern society proceeds to this day unabated much like a sort of cultural storm that never ends but should.

To the honest observer and discerning thinker, it must be admitted that the origins of living organisms and beings is simply not known and will likely never be known with the authority of observed scientific fact, despite how many different geological, paleontological, and other records are thrown into the mix. In actuality, the meaning of 'evolution' remains just as unclear today as it was before and during Darwin's time regardless of the wishful thinking of key institutional gatekeepers and opinion leaders of both past and contemporary society. The fact that there are so many sound, empirical and theoretical critical evaluations and assessments of Darwin's evolutionary theory that existed then and exist today is a significant testament to the validity of this assertion.

After all the years that have elapsed since Darwin, apparently, we know so much but still so little about the origins of living organisms, let alone the universe itself, even not so much more than the initial biblical offerings that were so firmly and confidently rejected at Darwin's time and before. What we do know with a considerable degree of confidence is that the biological nature of human beings as a species has remained relatively fixed over extensive periods of the Earth's existence. The genetic constitution of individual human organisms has remained fairly immutable within a set of relatively fixed parameters. It turns out that the musings and reflections of ancient sages and classical philosophers about the nature of human existence and the relationship of human beings to society were not altogether that distant from historical reality as moderns might assume.

The logical and empirical inadequacies of Darwin's evolutionary theory by natural selection also makes abundantly clear that the naturalism vying for cultural supremacy at Darwin's time was just as biologically unfounded then as it is today. The ideas so well cherished in the 19th century that spirits and deities need not apply to explain any part of human existence and that nature is not teleological or purposive in any supernatural sort of way have not, in fact, been irrevocably established by any stretch of the imagination. The idea that only natural laws and processes operate in the universe (in addition or as opposed to supernatural or divine laws and forces) remains as scientifically invalidated now as it was then. Evolution is still just a 'hypothesis', as Ada Gray at Harvard made clear at the time.

Endnotes

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