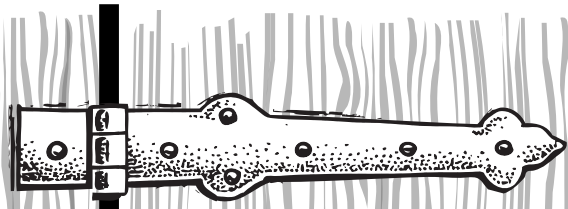


THE HINGE

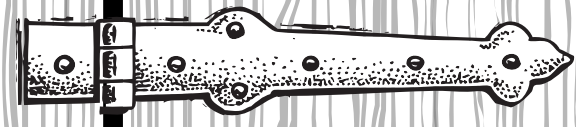
INTERNATIONAL THEOLOGICAL DIALOG
FOR THE MORAVIAN CHURCH

Darwin and Divinity

by The Rev. Dr. Nelson Rivera

With responses by:

The Rev. Dr. Deobrah Appler
The Rev. Dr. Reed Acheson
Dennis Fort
The Rev. Dr. Wally Yarborough



Vol. 24, No. 2: Spring 2020

THE HINGE
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The Hinge is a forum for theological discussion in the Moravian Church. Views and opinions expressed in the articles published in *The Hinge* are those of the individual authors and do not necessarily reflect the views of the editorial board or the official positions of the Moravian Church and its agencies. You are welcome to submit letters and articles for consideration and publication.

One of the early offices of the Moravian Church in Bethlehem, Pennsylvania, was that of *the Hinge*:

> The office of the Hinge requires that the brother who holds it look after everything and bring troublesome factors within the congregation into mutual accord without their first having to be taken up publicly in the congregational council.
>
> —September 1742, *The Bethlehem Diary*, vol. 1, tr. by Kenneth Hamilton, p. 80.

The Hinge journal is intended also to be a mainspring in the life of the contemporary Moravian Church, causing us to move, think, and grow. Above all, it is to open doors in our church.

Notes from the Editor

Dear Readers,

Never has a *Hinge* article related to a controversial scientific topic seemed more appropriate. Of course, we did not plan it this way, but I will take it as a sign of God's providence in the midst of a very difficult time. Responses to the COVID-19 have raised a host of theological, medical, scientific, economic, social, and political questions. And in our next issue, we will answer them all!

Actually, the Hinge editorial board has agreed that we will focus the next several issues on COVID-19, the church's varying responses to it, and suggestions for the life and ministry of the church as we respond to the challenges brought by, or brought to light by, these ongoing developments.

First, however, this issue's lead article invites us into a topic that is controversial for many, for it takes us back to a person that has led many people of faith to raise questions about the relationship between faith and science. Our lead author and the respondents are people who have wrestled with these questions, and for them, faith and science are not incompatible. In fact, all of them have lived their lives and answered their calls dealing, at least in part, with the intersection of these. I trust you will find their work stimulating.

As we move ahead into an unknown future, I hope that we will hear from many people of faith who are seeking mutual understanding between faith and other areas of experience and expertise that can help us on the way, and I hope we will be wise enough to heed them.

— Riddick Weber

Darwin and Divinity

The Rev. Dr. Nelson Rivera, Associate Professor of Theology at Moravian Theological Seminary, is ordained in the Evangelical Lutheran Church in America. He has written books and numerous articles for the church, and on the intersection of science and religion.

> "To conclude, therefore, let no man out of a weak conceit of sobriety, or an ill-applied moderation, think or maintain, that a man can search too far or be too well studied in the book of God's words, or in the book of God's works; divinity or philosophy; but rather let men endeavor an endless progress or proficience in both."
>
> Bacon: *Advancement of Learning,* 1605[1]

Introduction

Most people have an idea of who Charles Darwin (1809-1882) is and the theories he developed. Thousands and thousands of words have been written about him and his contributions to science. Over years of reading about Darwin and reading what Darwin wrote himself, I have learned the importance of letting the man tell his own story. I believe that we need to take him at his word. Darwin created a vast body of work (letters, journal entries, essays, and books) in which he displays his humanity: his intellectual curiosity, ability to let new information change his mind, and his struggle to understand his own beliefs about God in the face of his ideas. I am personally attracted to Darwin's unique intellectual depth and honesty, broad learning, and his spiritual journey as well.

Darwin was often ambiguous about matters of religion, changing his mind at crucial points in his life. If anything can be said, it is that he gave the matter serious consideration. Despite his reluctance in making public statements about the possible bearing of his work on the Christian faith, he often replied to correspondents' questions regarding the impact

of evolutionary theory on questions of belief. From his early theistic views—consistent with his studies in divinity—to his denial of atheism and self-declared agnosticism later in life, Darwin held to selective doubts on matters of religious belief. Still, his impact on religion and theology are strongly felt to this day.

Who Was Charles Darwin?[2]

Darwin was born in Shrewsbury, England, a child of Victorian wealth. Both his grandfather, Erasmus Darwin, and father, Robert Darwin, were physicians. Erasmus was a natural philosopher, poet, and published writer. Robert, a practicing psychiatrist and land owner, was married to Susannah Wedgewood, daughter of Josiah Wedgewood I, head of the fine-pottery industry that bore his name. Thus, Charles Darwin inherited fortune from both sides of the family, which he furthered by marrying another Wedgewood, his cousin Emma.

Charles and brother Erasmus were sent to study medicine at the University of Edinburg. Charles spent a year and a half there, eventually withdrawing from medicine, perhaps due to an aversion to the painful practices of surgery on (non-anesthetized) patients. On his father's charge, Charles then began studies in divinity, moving toward a career in the Church's ministry. He completed his divinity degree at Cambridge University in 1831. As part of his divinity program, Darwin read William Paley's *Evidences of Christianity* (1794), a required reading at Cambridge University, with attention. Paley's book was particularly strong on adaptations as signs of design in nature. In fact, Paley did not shy away from bringing natural science into his theological thought and apologetics. While at Cambridge, in addition to an arrange of scholarly works from natural philosophy to the classics, Darwin also pursued his interest in botany, geology, and beetle collecting.

After finishing his degree but before pursuing ordination (holy orders) in the Church of England, an invitation came to Darwin to join the HMS *Beagle* on an expedition. The ship's mission was to chart the deep seas around the coast of South America. Although initially planned for two years, the *Beagle's* expedition lasted almost five, from December of 1831 to October 1836. Darwin's primary reason for joining the crew was to be a dinner companion to Captain Robert FitzRoy (1805-1865) of equal social class. Due to Darwin's education and interests, he was also considered as second naturalist on board.

For the long journey, Charles brought along the Bible and Charles Lyell's *Principles of Geology* (1830). During the voyage, Darwin collected nearly 1,500 organic specimens: animals, plants, and fossils. He sent those specimens to England from ports along the way. Upon his return to London, Darwin spent years closely studying and thinking about the

specimens and fossils, exploring the evidence and asking questions about differing species within families of animals, and elaborating his own brand of evolutionary explanation.

Darwin made public his theory of evolution by natural selection 20 years after the end of his exploration trip, and only after he felt forced to by the arrival in the mail of an essay by Alfred Russel Wallace, a naturalist, with a similar theory. Wallace had sent his essay to Darwin for his review. The essay took Darwin by surprise, prompting him to write at length and prepare for publication a full statement on his findings and theory.

Several reasons have been given for Darwin's apparent reluctance to go public with his evolutionary ideas beforehand. First, he needed as much evidence as possible, building his case from the ground up piece by piece. Second, he may have been aware of the implications of his views for the science of his day and traditional religion. Third, he often experienced health challenges, making him to feel uncomfortable in social situations, including scientific gatherings.[3] Fourth, there may have been family reasons, for example, he may have wanted to avoid offending or embarrassing his wife, her devout faith. And, last but not least, as has been argued more recently, he probably had a case of sheer procrastination.[4] Maybe all of the above contributed to the delay.

Darwin's Evolution

With the publication of *On the Origin of Species*[5] in 1859, Charles Darwin transformed science or natural philosophy, as it was known then, from an academic pursuit into a respectable, full-time, and public profession. However, ideas about evolution already had a history of their own. Thus, arguments about the transformation of species did not originate with Darwin.[6] Before Darwin, others had written about the evolution of species, including his own grandfather, Erasmus, and French scientist Jean Baptist Lamarck. Darwin did, however, convert evolutionary thinking into a systematic program of biological research.

Darwin's basic formulation is simple enough for the common person to understand. Darwin provided more than a theory; he offered a "bundle of different—yet related—ideas."[7] It all begins with the assertion that life on Earth has evolved. Species, whether plants, animals, or bacteria, are not static organisms but change continually. Those changes can be confirmed by the fossil record (historically) as well as by observation (experimentally).[8]

Darwin argued that struggle and competition contribute to these changes. Organisms struggle to secure their sustenance. Organisms struggle to reproduce. They seek to leave the greatest number of offspring, even though, at any given time, there are more individuals of any species than could actually survive. By his own admission, Darwin adopted from

Thomas Malthus' *Essay on the Principle of Population* (1798) the idea that competition for food gets harder with every generation as organisms tend to produce more offspring than the environment can sustain. There are not enough resources for all and, therefore, they cannot all possibly thrive and live long enough to reproduce.

Given those conditions, some organisms are better equipped than others for survival. Those with advantageous traits are therefore said to be better adapted to present conditions. Those that better adapt are said to be "naturally selected" for survival. In Darwin's view, this indicates that evolution lacks specific design or direction and is instead more akin to "trial and error," an unintended consequence of a random process. Due to their success, organisms pass on adaptive characteristics to their descendants. The fundamental principle at work is "descent with modification," meaning, that those advantageous traits that survive are preserved and then passed on to the next generation. Darwin calls this principle of preservation "natural selection."[9] This explanation of natural selection is, properly speaking, Darwin's main contribution to the theory of evolution.

It is important to stress that, as understood by Darwin, natural selection is not a conscious "force" or "creator" in any sense of the words. It seems to be a blind and mechanical process driven by chance. In the way that philosopher of science Daniel Dennett (1942-) explains it, natural selection is an algorithm, a repetitive process, an unconscious and natural device that has proven effective in the almost endless generation of new organic forms.[10]

Another tenet of Darwinian theory is time: evolution through natural selection requires incredible amounts of time. The process is gradual and constant. During Darwin's lifetime, the science of geology had developed enough for people to understand that the Earth was much older than previously thought.[11] Dating the Earth had become customary, and scholars kept pushing the date back again and again. It was clear to Darwin that only a very old Earth could account for the great variety of organisms, extant and extinct.

Finally, Darwin believed that variations or mutations that are needed for organisms to better adapt to changing circumstances and, therefore, to survive and reproduce were random rather than purposed. Naturally, some variations will be adapted by their survival rate. Therefore, by relying on a naturalistic understanding of these processes, Darwin had no need for either supernatural or teleological explanations in his science.

Darwin was a bottom-up thinker, building his theory up from the facts available to him. He accumulated many specimens, fossil and organic, which he then studied with attention to detail, first, during his five-year trip aboard the Beagle through the east coast of South America and up to the Galapagos Islands off the South American west coast, and then

after the voyage, as a naturalist studying different organisms—barnacles, earthworms, beetles, pigeons, orchids, etc.—through years of intense dedication. Darwin wrote treatises on a number of such species: finches, barnacles, and earthworms being the best-known cases. Through extensive correspondence with farmers, breeders, and fellow scientists, Darwin sought information about the behavioral patterns and reproductive habits of many animals in their own environments.

Early Controversies

Right from the publication of the first edition of *On the Origin of Species*, controversy courted Darwin's ideas and proposals. Our tendency is to believe that reactions were due strictly to the possible religious implications of Darwin's theories, their perceived negative impact on a doctrine of creation, and especially to the assumed centrality of humans in the created order. In fact, many of the critiques came from fellow scientists, concerned, on one hand, with Darwin's interpretation of the available evidence and, on other hand, with the concept of "natural selection" itself. To some scientists, Darwin's ideas sounded more metaphysical than naturalistic. Others raised questions about "gradualism," or how far in time do we have to go in order for species to evolve and new ones to be created. Also, liberal clergy, those who otherwise would support a naturalistic explanation, were concerned with the social ramifications of the theory, including Darwin's use of the "favored races" language, which has been misunderstood to this day.

Darwin also had his early defenders.[12] Some of them came from the ranks of "lower" clergy—those not belonging among the Church's authorities and hierarchies—particularly Evangelical social reformers. The fact that Darwinian evolution stressed "common ancestry" among humans seemed to strengthen the idea of human original equality. In addition, there was support for Darwin's seemingly "deistic views" among a small group of clergy and theologians, besides the warm reception from "freethinkers."[13]

Darwin's Religious Odyssey

Where did Darwin stand on religious matters? Darwin admitted that the study of William Paley's *Evidences of Christianity* initially created a good impression on him. Darwin studied Paley for his degree exams, and his work was crucial to Darwin during his school years.[14] As mentioned before, Paley's work emphasized adaptations as signs of design in nature. Moreover, Paley did not shy away from bringing natural science into his theological thinking and apologetics. Furthermore, Paley's concern was to draw attention to developments in natural philosophy as an important resource for theological reflection.

Darwin thought of himself as a theist until the late 1860s (after the *Origin* was published), maybe until the early 1870s. Biographers have speculated about Darwin's "loss of faith" as a consequence of the death of his favorite daughter, Annie, at age 10, which no doubt weighted heavily on his mind and emotions. Moreover, questions of theodicy[15] and doubts about a benevolent God assaulted him at different moments in his life. Darwin certainly was troubled by the question of suffering in nature and the human community.

That said, the very idea of a moment of "lost faith" does not take into account the fact that Darwin came from a mix of freethinking ideas from his father's side and of Unitarian beliefs from his mother's side of the family, nor does it consider the depth and complexity of his thinking and questioning of religious matters. Furthermore, in practice, Darwin was a responsible and contributing member of the Church of England, even attending services with regularity and serving his parish in different capacities.[16]

Ultimately, it was Darwin's privately confessed *agnosticism*—a term coined by Thomas Huxley and seen as the "middle way" at the time—that shaped his religious views. In Darwin's *Autobiography,* which he wrote for his family, he stated that he moved from theism to a form of deism and to agnosticism in late life. What he denied time and again, especially in letters, was that he had an atheistic agenda, or even that a proper interpretation to his evolutionary theories was necessarily atheistic.

Generally speaking, Darwin seems to have been ambiguous about religion. In a letter to a Mr. J. Fordyce in 1879, he wrote:

> What my views may be [concerning religion] is a question of no consequence to any but myself. But, as you ask, I may state that my judgment often fluctuates… In my most extreme fluctuations I have never been an Atheist in the sense of denying the existence of a God.

And, yet,

> I think that generally (and more and more as I grow older), but not always, that an Agnostic would be the more correct description of my state of mind.[17]

Darwin combined moments where he acknowledges the probability of some versions of a design argument from nature with moments of deep skepticism about human mental abilities to solve such complex questions. In the former instance, he wrote:

> Another source of conviction in the existence of God, connected with the reason and not with the feelings, impresses me as having much more weight. This follows from the extreme difficulty or rather impossibility of conceiving this immense and

> wonderful universe, including man with his capacity of looking far backwards and far into futurity, as the result of blind chance or necessity. When thus reflecting I feel compelled to look to a First Cause having an intelligent mind in some degree analogous to that of man; and I deserve to be called a Theist.[18]

But then,

> This conclusion was strong in my mind about the time, as far as I can remember, when I wrote the *Origin of Species*; and it is since that time that it has very gradually with many fluctuations become weaker.[19]

At times, Darwin thought that religious belief had played a role, albeit limited, in human evolution. He pondered whether some kind of primitive religious thinking has been in place to make sense of the forces of nature, or more generally, forces beyond human control, as well as making sense of our place in the world.

> "If… we include under the term 'religion' the belief in unseen or spiritual agencies, the case is wholly different; for this belief seems to be universal with the less civilized races. Nor is it difficult to comprehend how it arose. As soon as the important faculties of the imagination, wonder, and curiosity, together with some power of reasoning, had become partially developed, and would have vaguely speculated on his own existence."[20]

It does not seem that Darwin's aim was to try to explain religion away. Rather, he thought that religious beliefs, among other possible roles in human evolution, reinforce moral considerations in people.[21] In this way, religion may be considered part of our evolutionary heritage.[22] J. David Pleins explains Darwin's interest on the question of religion in this way:

> The question of how humans became religious stood at the heart of Darwin's intellectual quest. While the development of Darwin's theory of biological evolution is certainly central, his discovery that religion has evolved is terribly important to grasp, whether we are theists, agnostics, seekers, or atheists.[23]

Religion has also played a role in the emerging properties of consciousness. It has instigated a sense of community, and the value of communal life. Likewise, it has been helped by, and it has helped in, the evolution of social instincts. By stating that religion is part of the human evolutionary process and by insisting on the evolutionary nature of moral values, Darwin was not necessarily arguing for the relativity of religious beliefs. He only intended to put those beliefs in proper perspective from a scientific and naturalistic stand.[24] Nevertheless, his views have been taken as deflating both absolute moral values and religious truth.

In general, for Christian thinkers during Darwin's time, evolution was an acceptable explanation of variety in nature. Despite Darwin's denials that chance was for him a proper explanation but rather a sign of our ignorance of all the causes for variation,[25] the perception of many Victorian-era Christians was that the theory insisted precisely on chance elements as a sort of explanation. Even those open to evolutionary views still hoped that chance explanations could be left out of the theory.[26]. For Christian conservatives, the idea of evolution through random variation without direction or purpose smelled of godlessness, of a theologically as well as teleologically meaningless universe.[27] This objection has not gone away, and apparently never will, since it touches on the nerve of traditional theological understandings of nature.

Darwin's Doubts

British philosopher Mary Midgley argued that, although Darwin acknowledged that there were reasons for belief that were teleological as well as cultural, he chose to doubt the reliability of any propensity to believe in God. Darwin's was a selective doubt, since Darwin did not put his own choice of disbelief or his own confessed agnosticism under the same suspicion.[28] I believe that the problem for Darwin was that he was convinced that belief in God had its roots first in biological evolution, and then in cultural demands and usage.[29] His assumption about the adaptive value of religious belief would tell him why the God-idea could last for so long as part of the human consciousness of the world.[30]

Darwin thought that belief in God could have come from "the lowly origin of our minds," an idea that seems to have made him doubtful about the truthfulness of religious faith. However, the same "lowly origin" could be argued of many of his other ideas, including his ambiguous faith, or evolution, for that matter. Therefore, according to Midgley, in regard to faith and God, Darwin remained selective on his doubts.[31]

Midgley argues that Darwin's skepticism probably owes more to ideas about reason and Enlightenment ideals than to his own evolutionary theories. Besides, why assume that the idea of and belief in God is as simple, basic, and old—in the sense of primitive—at all? To think that our minds have evolved from lowly origins, or from no minds at all, does not necessarily lead to doubting our current capacities for either scientific or theological reasoning. For instance, Darwin himself did not stop theorizing about biological science because of the evolutionary character of his own human faculties.[32]

Theological Strands in Darwin's Thought

That said, the reverence that Darwin showed for nature and its evolution was remarkable.[33] Darwin organized some notes into the "briefest sketch"

on *Theology and Natural Selection* (fall of 1838) in order to explain special adaptation without need of providential intervention: "I look at every adaptation as the surviving one of ten thousand trials—each step being perfect although having hereditary organization." Nonetheless, Darwin made use of the concept of natural law: "But I do not want to deny laws.—the whole universe is full of adaptations.—but these are, I believe, only direct consequences of still higher laws…." Basically, a creating world follows laws. The world does not evolve by chance or accident alone. This idea was core to Darwin's particular rendition of natural theology.

Ever since Darwin's day, there are questions about what he meant by "nature." In Darwin's *Beagle* diaries, his idea of nature seems to owe a debt to Alexander von Humboldt's theology of nature. Motivated by his teacher John Henslow, Darwin read von Humboldt's *Personal Narrative* (1822-1829) while at Cambridge, especially given Darwin's language of "communion" with a dynamic and creative nature.[34] This view of nature differed from traditional British natural philosophy's emphasis on an external force of some sort, possibly divine in origin, acting over a passive nature. For Darwin, nature has properties; it permeates everything that we experience (and know), and is a source of vitality and consciousness, wonder and beauty, ruled by laws. In addition, he sees nature as the basis for a moral order. Thus, his conception of nature seems more pantheistic than deistic or theistic, properly speaking, especially in his approach to and reverence for nature.

In the 3rd edition of the *Origins*, Darwin wrote:

> Several writers have misrepresented or objected to the term Natural Selection… It has been said that I speak of natural selection as an active power or Deity… [I]t is difficult to avoid personifying the word Nature; but I mean by Nature, only the aggregate action and product of many natural laws, and by laws the sequence of events as ascertained by us…."[35]

That said, Darwin continued referring to nature with an "affective" response, which he himself defined as a "sense of sublimity" in his autobiography, and which still showed in his late writings. According to Darwin's granddaughter, Nora Barlow, "Darwin's faith in Natural Selection as the main agent [of evolution] never wavered, but [his] admission of other causes showed his awareness of difficulties still unresolved."

Evolution and Religious Views

As I see it, evolutionary theory is not necessarily incompatible with religious belief. On this matter, I side with Christian theologian John Haught who states that among Darwin's gifts to theology are the convictions that creation is the realm of novelty and that we belong here, products of

this earthly environment. Haught argues that Darwin's ideas prompted a rethinking about God by giving us a more concrete, down-to-earth approach to matters religious and theological—a view more in accord with an "incarnational stance" in Christian thought..[36]

Darwin's view of nature brought along a more dynamic, rich, beautiful, and complex idea of life and the world: a "tangled web" of organisms, an evolution of "endless forms" open to the future. Novelty is key to understanding the evolution of world and life, the realm of possibilities.

Darwinian evolution challenges traditional theism—normally defined as the belief in one God who is transcendent and yet personal and who creates and preserve all things—by stating that there is no discernible purpose in nature, at least not one discernible through the means of science. In this view, natural explanations suffice to understand the workings of the material order of things. Therefore, no manipulation of a creator is necessary– no need for a "micro-manager," as we would say today.

Darwin's common sense has brought our attention down here to earth where we belong. Most importantly, when the theory is properly assessed, it becomes quite a corrective to human arrogance, as well as to any religion that forgets where our place is: down here with every other creature. In this sense, the theory could be said to be able to contribute to a spiritual if not a religious view of how things really are, us included.

I find it fitting to conclude these reflections by allowing Darwin himself to share his views on the interrelation and interdependence of all organic life, in scientific prose that is poetic in equal measure, words that speak for themselves:

> It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so differently from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us… Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed [by the Creator][37] into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.[38] ■

Endnotes

1 Darwin added this quote from Francis Bacon after the first edition of *On the Origin of Species*.

2 There are a few good and reliable biographies of Darwin, each with its own individual focus, amidst similarities and repetition in the information provided. I can only refer to some that I believe contribute significantly to broaden our perspectives on Darwin. The most comprehensive is the two-volume publication by Janet Browne, *Charles Darwin: A Biography*, vol. 1: *Voyaging*; vol. 2: *The Power of Place* (Princeton: Princeton UP, 1995-1996); an insightful narrative of Darwin's life and thought is by David Quammen, *The Reluctant Mr. Darwin: An Intimate Portrait of Charles Darwin and the Making of His Theory of Evolution* (New York: W. W. Norton, 2006); and one brief and excellent volume by Tim M. Berra, *Charles Darwin: The Concise Story of an Extraordinary Man* (Baltimore: John Hopkins University, 2009).

3 For details on Darwin's bodily maladies, but also on portrait representations of academic figures and public intellectuals, see Janet Browne, "I Could Have Retched All Night: Charles Darwin and His Body" in *Science Incarnate: Historical Embodiments of Natural Knowledge* (Chicago: The University of Chicago, 1998), 240-280.

4 See, Andrew Santella, *Soon: An Overdue History of Procrastination, from Leonardo and Darwin to You and Me* (New York: Harper Collins, 2018), 1-25.

5 Charles Darwin, *On the Origin of Species by Means of Natural Selection* (reprint ed.; New York: Barnes & Noble Classics, 2008). Darwin dropped "On" from the title beginning with the second edition; the book went through six editions during Darwin's life.

6 See, Edward J. Larson, *Evolution: The Remarkable History of a Scientific Theory* (New York: The Modern Library, 2004), 13-15, 66. Larson argues that during the eighteenth century, ideas about organic evolution were introduced in the writings of the French scientist Georges-Louis Leclerc, comte de Buffon (1707-1788), especially in his treatise, *Natural History*, published in 44 volumes over an extended period of his productive career. Buffon developed his conception of a materialistic origin to life and species as an alternative to the traditional Christian views of creation. After Buffon, it was Erasmus Darwin (1731-1802), Charles Darwin's grandfather, who took the banner of organic evolution and presented it in a highly original and poetic work, *Zoonomia*, published between 1794 and 1796. The problem with both of the predecessors, though not really precursors, of Charles Darwin was that their work contained very little or no scientific research properly speaking. Above all, it was Jean Baptiste Pierre Antoine de Molet, chevalier de Lamarck (1744-1829) who offered a scientifically argued, although not always credible, "transmutation hypothesis."

7 According to Richard Morris in *The Evolutionists: The Struggle for Darwin's* Soul (New York: Henry Holt, 2001), 53; on this point, Morris follows the lead of famed German American biologist Ernst Mayr.

8 See, for example, John Dupré, *Darwin's Legacy: What Evolution Means Today* (Oxford: Oxford UP, 2003), 12.

9 Darwin, *On the Origin of Species*, 108.

10 Daniel C. Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (New York: Touchstone, 1995), 48-52.

11 Darwin's greatest debt on this regard was to Charles Lyell (1797-1875) whose three-volume work, *Principles of Geology*, published between 1830 and 1833, was very influential at the time. Darwin took a copy of this work with him on his voyage aboard the *Beagle*. Lyell's geologic "uniformitarianism" taught that changes in the earth (geological strata, for example) have occurred through a long and gradual process and not through the means of regular catastrophes. This idea was extremely important in the development of Darwin's thinking on evolution. See, Larson, *Evolution*, 46-50.

12 See, for example, David N. Livingstone, *Darwin's Forgotten Defenders: The Encounter between Evangelical Theology and Evolutionary Thought* (Vancouver, B.C.: Regent College, 1984).

13 One prominent example is that of writer Leslie Stephen: "Darwinists are not necessarily hoofed and horned monsters, but are occasionally of pacific habits, and may even be detected in the act of going to church;" from his *Essays on Freethinking and Plainspeaking* (1873), as quoted in John Durant, ed., *Darwinism and Divinity* (Oxford: Blackwell, 1985), v.

14 As in other questions of theology and religion, Darwin describes with characteristic ambiguity his assessment of Paley's work, before and after, by stating: "In order to pass the B.A. examination, it was, also, necessary to get up Paley's *Evidences of Christianity*, and his *Moral Philosophy*. This was done in a through manner, and I am convinced that I could have written out the whole of the Evidences with perfect correctness… The logic of this book and as I may add of his *Natural Theology* gave me as much delight as did Euclid. The careful study of these works, without attempting to learn any part by rote, was the only part of the Academical Course which, as I then felt and as I still believe, was of the least use to me in the education of my mind. I did not at that time trouble myself about Paley›s premises; and taking these on trust I was charmed and convinced of the long line of argumentation…."; see, Nora Barlow, ed., *The Autobiography of Charles Darwin, 1809-1882* (expanded ed. 1958; reissued; New York: Norton, 1993), 59.

15 Theodicy is the way in which one looks to "justify" the existence of suffering and death before the belief on a benevolent and powerful deity.

16 For evidence and explanation on these aspects of Darwin's life, including the myths that have been told about faith "lost and found," see James Moore, "That Evolution Destroyed Darwin's Faith in Christianity—Until He Reconverted on His Deathbed" in *Galileo Goes to Jail and Other Myths about Science and Religion* (ed. Ronald Numbers; Cambridge: Harvard UP, 2009), 142-151. Also, visit the webpage dedicated to Darwin's correspondence with valuable information on Darwin's multi-faceted life and ideas including religious views and ecclesial affiliation: https://www.darwinproject.ac.uk/ in particular the essay "Darwin and the Church" under the section on "Religion" in the site's menu.

17 Francis Darwin, ed., *The Life and Letter of Charles Darwin* (original ed. 1887; reprint ed.; New York: Appleton, 1905), 274.

18 Barlow, *The Autobiography of Charles Darwin*, 92-93.

19 Barlow, 93.

20 Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (2nd ed. 1879; reprint ed.; London: Penguin Books, 2004), 116-117.

21 Darwin, 118-120. One very helpful presentation on this matter of Darwin's impact on religious thinking is John H. Brooke, *Science and Religion: Some Historical Perspective* (Cambridge: Cambridge UP, 1993), especially 280-282.

22 One of the best works for its detailed analysis and thorough presentation of the textual evidence is by J. David Pleins, *The Evolving God: Charles Darwin on the Naturalness of Religion* (New York: Bloomsbury, 2013).

23 Pleins, xi.

24 Brooke, 281.

25 See, Darwin, *On the Origin of Species*, 170-172.

26 Brooke, *Science and Religion*, 283.

27 Consider, for example, the public declarations of Roman Catholic theologian Christopher Cardinal Schönborn, archbishop of Vienna, a known sympathizer of evolutionary ideas, but now reverting to a kind of "design argument." He has said that "evolution in the sense of common ancestry might be true, but evolution in the neo-Darwinian sense—*an unguided, unplanned process of random variation* and natural selection—is not." And, "the evolution of living beings, of which science seeks to determine the stages and to discern the mechanism, presents *an internal finality* which arouses admiration" (emphases in italics are mine); from *The New York Times*, Thursday, July 7, 2005, opinion page.

28 See Mary Midgley, *Science as Salvation: A Modern Myth and Its Meaning* (London: Routledge, 1994), 101-102.

29 See, for example, Barlow, *The Autobiography of Charles Darwin*, 92-93.

30 Midgley, *Science as Salvation*, 102.

31 For more on Midgley's interpretation and why it matters, see my book, *The Earth Is Our Home: Mary Midgley's Critique and Reconstruction of Evolution and Its Meanings* (Exeter: Imprint Academic, 2010), esp. 156-157.

32 Midgley, *Science and Salvation,* 105.

33 Midgley, 106.

34 On this point regarding possible influences of von Humboldt's philosophy of nature, see Phillip R. Sloan, "The Sense of Sublimity: Darwin on Nature and Divinity" in *Science in Theistic Contexts: Cognitive Dimensions*, Osiris 16 (2001), 251-269.

35 As quoted by Sloan, 262; see note 29 above.

36 See, John Haught, *God after Darwin: A Theology of Evolution* (Boulder, Colo.: Westview, 1995), especially 45-56.

37 Darwin entered the phrase "by the Creator" in the second edition.

38 Darwin, *On the Origins of Species,* 384.

Response: Deborah Appler

The Rev. Dr. Deborah Appler, Professor of Old Testament/Hebrew Bible at Moravian Theological Seminary, is ordained in the United Methodist Church..

I find Nelson Rivera's discussion on Charles Darwin's theories and their relationship and impact on our understanding of God and creation helpful, especially dispelling many misconceptions about Darwin's religious background and scientific theories. Rivera unpacks this information in a way that helps those who are both people of faith and science reconcile their acceptance of evolution with their belief in God's creative role.

Darwin's work on natural selection and evolution is ground-breaking and still central to modern debates about God's role in creation as depicted in biblical sources like Genesis and the book of Job, versus evidence from science that, at times, conflicts with biblical accounts, particularly concerning creation chronology. Contemporary conversations concerning evolution have evolved from those chronicled in the Scopes Trial (The State of Tennessee vs. John T. Scopes, 1925). This case sought to overturn the Butler Act preventing educators from teaching evolutionary theory in the classroom because they believed it erased God's role in the formation of the universe. While there are still those who align Darwin's theories with evil and ungodliness, today the conversation about creation has become more complex. Proponents of Intelligent Design explore nature and illuminate intricate processes (like the circulatory system or complex solar systems) that point to a grand designer's plan rather than some random creative process.[1] Rivera points out that even Darwin believes that evolution relies on laws to guide it. Rivera writes that for Darwin: "The world does not evolve by chance or accident alone." While Darwin does not interject God, there is space for God's presence in his understanding of evolution.

Rivera points out that the first objections to natural selection and evolution are scientific rather than religious. Some scientists critiqued Darwin's work as unscientific or as dangerous as they thought that it might unintentionally promote "favored races." The latter, Rivera suggests, is "misunderstood," but some still worry that racists or supporters of genocide might co-opt natural selection to justify their actions.

I find interesting that Darwin considers religion itself to be part of the evolutionary heritage as values change over time. The Hebrew Bible provides several examples of such changes in beliefs. For example, the Deuteronomist emphasizes the importance of righteous behavior that results in blessings and good things (works-righteousness); unrighteous

1 It is important to note that Intelligent Design theory is not considered by most as equivalent to creationism.

behavior brings curses. Centuries later, the Wisdom tradition (e.g. Job and Qoheleth) recognize that the righteous often suffer in a world that is not always just and recognize that following God might not lead to earthly blessings. Yet, is this evolutionary thinking or the result of culture, experience, and education? Or are culture and evolution intertwined? Rivera's article gives me much to consider as my own understanding of Darwin and his theories evolve. ■

Reponse: Dennis Fort

Dennis Fort grew up in Winston-Salem, N.C., and was strongly influenced by the Moravian church. He spent his career at JHU / Applied Physics Lab, working on NASA planetary science missions. Throughout, the church provided an invaluable moral compass and a focus on essentials. He also is a gifted musician, currently serving as the interim music director at Unity Moravian Church in Lewisville, N.C.

I enjoyed reading the article, "Darwin and Divinity," and I applaud the author's commitment to using Darwin's own words to convey his ideas. The *Origin of the Species* remains a seminal work despite monumental scientific changes over the 160 years since its publication. I am not a biologist, but I know that evolution is now well accepted and supported with overwhelming evidence. Specific details of how evolutionary change happens, however, are as hotly debated as ever. Science is continually tested against observation, and more recent ideas abound including: "punctuated equilibrium" (short periods of rapid change), average fitness leading to increased complexity, and so forth. Darwin himself was aware that there was evidence of complex causative factors other than the gradualism and natural selection that was the foundation of his theory.

For many, though, there is a question of greater significance. When I am invited to science classes to speak, I always encourage questions, and I will never forget this one: "How do you resolve the conflict between science and religion?" A very perceptive question that gets to the heart of the emotion that Darwin's work sometimes invokes. I would love to hear more of the author's opinions on this matter; it was addressed briefly at the conclusion of the article, and perhaps space limitations did not permit extensive discussion of such a complex topic. I do appreciate his introduction to the topic: "As I see it, evolutionary theory is not necessarily incompatible with religious belief."

Since my space is also limited, I will share one personal experience. In January of 1986, I was at Cape Kennedy preparing the Galileo spacecraft for its upcoming mission. On January 28, the day of the Challenger

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launch, I went to the observation stands to watch. I was witness to the tragedy that took place that day as seven astronauts lost their lives in the shuttle explosion while their families looked on. I was left in shock and disbelief, and it took time to process my feelings. I was reminded yet again of a truth that has permeated my life. I realized that my studies of science and engineering had prepared me quite well to design space instrumentation for the exploration of our amazing universe. My religion had not. And yet, nothing in those science courses prepared me to handle the tragedy that unfolded that day. Nearly everything in my Moravian upbringing did. So my answer to that student's question was simply this: Science and religion are not in conflict. They are complementary. They represent two very different and, ultimately, imperfect and incomplete ways of understanding the Creator. "For now we see through a glass, darkly; but then face to face. Now I know in part; but then shall I know even as I am known." (I Corinthians 13:12) ■

Response: Reed Acheson

The Rev. Dr. Reed Acheson earned a PhD in Biological Sciences in 1970 and worked as Professor of Biology at several universities before answering the call to ordained ministry. He earned his MDiv from Moravian Theological Seminary in 1986 and served by call and appointment to several congregations throughout the Eastern District of the Moravian Church Northern Province before retiring in 2015.

Professor Rivera has provided a clear and concise summary of the many influences which impacted the climate of inquiry during that time Charles Darwin engaged in his self-appointed task of finding a reason for the variety of extant life, fossilized relationships, and the 'changes over time' which we know as organic evolution. The genius of Darwin was the ability to synthesize, from vast amounts of observable data and facts, a theory which furnished an explanation as to the cause of biological variety and change, namely, natural selection. Darwin's subsequent personal religious struggle, as a consequence of his own theory, is a matter of public record, and also well-summarized here.

Professor Rivera makes a few comments which tend to distort the subtleties of the biological evolutionary process. For example, the statement "those (organisms) that better adapt are said to be 'naturally selected'," is not precisely correct. In fact, natural populations of organisms are made up of individuals possessing genetic variations which lead to often very subtle differences in morphology, physiology, or behavior of the individual. The action of natural selection is to favor those variations

which enhance survivability and reproductive success of those among the population. Individual organisms do not adapt in an evolutionary sense. Individuals are selected from among the population, and these selected survivors then sustain the population. But I understand that this paper is not intended to be about the biology of evolution. Such considerations can be dismissed so as to address the several issues where I must disagree with what Professor Rivera proposes.

My first problem is with the statement, "when the theory (evolution) is properly assessed, it becomes quite a corrective to human arrogance." So as not to be misunderstood, I also believe humility is an attribute to be embraced, especially as we enter into discussions of ultimate meaning. However, as an animal with cognitive ability, the capacity for thought and reason, and contemplation and planning, the concept of humanity as *'created co-creator'* must be considered. First proposed by Lutheran theologian Philip Hefner in his book *The Human Factor,* it is argued:

> "Human beings are God's created co-creators whose purpose is to be the agency, acting in freedom, to birth the future that is most wholesome for the nature that has birthed us - the nature that is not only our own geneticheritage, but also the entire human community and the evolutionary andecological reality in which we belong. Exercising this agency is said to beGod's will for humans."

Additionally,

> "The human being has emerged as a creature that can understand itself and that possesses the ability both to define nature and itself and to act responsibly upon that definition."

and additionally,

> "Because we are created, we are reminded that we are dependent creatures. We depend on the creative grace of God...we are also creators, using our cultural freedom and power to alter the course of historical events and perhaps even evolutionary events. The term 'created co-creator' connotes the fact that we have a destiny."

The human is not divine as we might regard God to be divine, and the role of *created co-creator* is obviously burdened with human fallibility. Ignorance and vulnerability, moral imperfection and outright evil, offer considerable balance to thoughts of creative inspiration and good judgment that humanity possesses. Thus, the real need for humility.

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That we act as *created co-creators* is realized in our introduction (through our efforts) of such life as antibiotic-resistant bacteria, pesticide-resistant insects, herbicide-resistant noxious weeds.

We have enabled increased population through the creation of new varieties of grain with which to feed many and prevent starvation throughout the world. Through our genetic manipulation, we have introduced genetically modified food. We have created great art, built great cities, begun the exploration of the cosmos. We have even created for ourselves a new climate, one which threatens all that has been accomplished in the name of culture. We have created good and unleashed monstrous evil. We have acted on our best instincts, and have not yet learned to master what might even endanger the survival of humanity itself. We have much to do, things to fix, and much to create.

My second issue is related: the suggestion that we simply find our place, "down here with every other creature" is simply wrong. Human evolution has allowed us much more. Most realize that, of all the creatures "down here" through time, fully 90 percent of all those that have ever existed are now extinct. We are now currently undergoing what some believe to be the new period of great extinction by changing ecosystems and destroying habitats.

A final thought: the human brain, and its many capacities for good or evil, really is an evolutionary biological experiment. Never before has such a capacity to modify circumstances for life been evolved in sentient creatures. Rather than risk extinction by simply "finding our place," perhaps employing our gifts is now absolutely necessary.

Equally, huge size, as in the time of reptiles of yore, late of 65 million years ago, was also an evolutionary biological experiment, one of dominance and brutality. And we all know how that turned out. ■

Philip Hefner. *The Human Factor: Evolution, Culture, and Religion*, Augsburg Fortress Press, Minneapolis, 1993, p. 264.

Philip Hefner. "Biocultural Evolution: A Clue to the Meaning of Nature", in Robert John Russell, William J. Stoeger, S.J., and Francisco J. Ayala (editors): *Evolutionary and Molecular Biology: Scientific Perspectives on Divine Action,* Vatican Observatory Publications, Vatican City State/Center for Theology and the Natural Sciences - Berkeley, CA. 1998, p. 336

Philip Hefner. "The Evolution of the Created Co-Creator", in James B. Miller (editor) *An Evolving Dialogue: Theological and Scientific Perspectives on Evolution*, Trinity Press International, Harrisburg, PA, 2001, p. 410.

Response: Wally Yarbrough

The Rev. Dr. Wally Yarbough was associate professor of Solid State Sciences at Penn State University before answering the call to ordained ministry. He graduated with his M.Div. from Moravian Theological Seminary in 2000 and served congregations in the Southern Province before retiring in 2010. He currently does supply preaching and teaches Sunday school at Village Point UMC in Shallotte, N.C.

I wish to thank Br. Rivera for his challenging and interesting article sharing his thoughts and reflections on Darwin and the theological implications of Darwin's ideas. I also want to thank Br. Riddick Weber and the editorial board of the Hinge for the opportunity to share a response to Br. Rivera. It is an honor to be given this opportunity.

Much changed as Darwin's ideas merged with modern genetic microbiology to form what today is often called *neo*-Darwinism. Nevertheless, it is true that Darwin's major contributions, the ideas of gradualism and natural selection, remain the orthodox view. However, it also must be noted that debates in the scientific community continue to challenge Darwin's ideas. Moreover, our science will continue to change as more discoveries are made, especially in the fields of microbiology, genetics, and the complex biochemistry of life. One wonders what Charles Darwin might say about how science today understands the evolution of life. It is interesting to ask how, or even if, Darwin would identify with much of the theory that still carries his name today.

Whatever we might think or say about the science of evolution, with its debates over genetic drift vs. natural selection, or what role micro-evolution may play in the emergence of new species; of more immediate interest, at least for the readers of the Hinge, may be what theological implication, if any, does any of this hold for us? In brief, what import does any of our science, evolution included, have for our understanding of who God is, why we are here, or what life, any life, can be about? Is the emergence of life, let alone consciousness, simply some kind of great cosmic "accident" as some, e. g. Richard Dawkins, Daniel Dennett, or Ernst Mayr, have argued? Or rather, does evolution teach something more about God's continuing creative activity in the material world, as I understand Br. Rivera, and those he references, notably John Haught, to suggest? If God's creativity is revealed in Darwinian theory, then what kind of divine "novelty" (to use Haught's word) does this suggest?

In his concluding remarks, Br. Rivera describes evolution as a "corrective to human arrogance" and says, it teaches us "where our place is: down here with every other creature." This raises important questions, questions that are not only theological but also ethical in nature. These

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issues are not just for scientists or theologians, but for all of us. I confess I wanted to hear more about how Br. Rivera understands "where our place is."

In closing, I suggest, with some sadness, that as the simplistic reductionism and deterministic materialism of 19th century science gave way to the multifaceted and more enigmatic view of reality revealed by 20th century science, our theological discourse largely failed to keep pace. My hope is that, with the help of Br. Rivera and others, we will grow to better understand what the things we think we know say, or don't say, about God. ■

Response to the Contributors by Nelson Rivera

One of the pleasures of academic research, teaching, and writing is the ability to enter into conversation with students, colleagues, and the public. One of the risks is to be misunderstood or quoted out of context. Thus far, I can count myself among those who have found a predominantly receptive public, interlocutors that have been graciously engaging and respectful for the most part.

The contributions from responders to the "Darwin and Divinity" article are both insightful and illuminating. I am sincerely grateful as well as humbled by their comments. They are the kind of conversation partners that anybody would want to have. I would like to engage them in mutual edification and learning.

As I hope it becomes clear to all readers, the intent of my essay was to write about Darwin the man—the thinker, the genial naturalist—the person who struggled with questions of faith and theology. On the latter, Darwin often opted for, with rare exceptions, a cautious approach and moderation. In my appreciation, Darwin's intellectual honesty should be amodel for us to contemplate and possibly follow.

Dr. Appler's insights from biblical traditions and her long-standing study and reflection on questions about creation, theodicy, and the meaning of wisdom are among the concepts that I hope came across as important in my assessment of Darwin's work. The consequences of Darwin's ideas for the ongoing conversation between the Christian faith and natural science are as relevant today as they were yesterday. I could not agree more with her statement "While Darwin does not interject God, there is space for God's presence in his understanding of evolution." Dr. Appler gets at what the dire implications of misunderstanding or misapplying aspects of Darwin's ideas and his metaphorical language may entail. In addition, she wonders about the relation between culture and (biological) evolution. I think that these two realities are intertwined in a number of ways and that, as some believe, cultural evolution may have the "upper hand" in the present time.

Br. Yarbrough goes to the heart of the matter by raising concerns about our place and role in the world along with questions regarding divine initiative, including divine activity in the realm of novelty. God seems to be involved in the evolutionary process in ways that are becoming more apparent gradually, at least for people of faith. Br. Yarbrough wonders about the use of "our place" in my writing. By that I mean to emphasize our connection with nature and every other creature; that earth is an active participant in life processes ("let the earth produce" declares God in Genesis chapter 1) as well as being home for us all. Moreover, that "earth is home" is an epistemic statement, like saying that good thinking begins "from below," from the realms of nature and history.

I appreciate how Br. Fort highlights that I use Darwin's own words and testimony: I do it in order to convey an insight into the man's complexity of ideas, including his struggles with questions of faith and theology. Moreover, Br. Fort's answer to the student's question is one that I myself can own, with its emphasis on complementarity between religion and science. I would also add mutual admonition, a reminder about the limits to all human knowledge and the role that faith plays in our trust on the reality and ultimate goodness of the world, made so by God's own utterance.

In regard to Dr. Acheson's comments, what I find most interesting is that I do not really disagree with the subtleties to which he points out. It is probably a question of the language used, his own, perhaps, a more refined one. The reference to Phil Hefner's work, someone I met and had conversations with many years ago and whose work I have studied, particularly his book *The Human Factor*, is a good reminder.

That said, I admit having difficulties with the "created co-creator" term. I am not convinced that it is necessarily the most reliable metaphor to describe humanity. And yet, insights provided by Hefner's work are sound. One may say that my own "pessimistic" anthropology gets in the way of a greater appreciation. In any case, we believe that this creation and its creatures reflect something of the character and traits of their creator, including those capacities and opportunities mentioned by Acheson, which are imperfectly, incompletely, and vaguely manifested in us.

Sadly, the statement "tend to distort" gives me pause. In the essay, my aim was to present as much as possible Darwin's views on these matters, the way he understood his science and its possible relation to his own struggles with theology (his formal university training), questions of theodicy, and changing views on faith. Darwin's willingness to respond to the questions of his many correspondents on matters related to his science and beyond, including religious questions, conveys a respectful concern for others. I believe that the man should be taken at his word.

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As someone who is not a scientist but loves science, whose training is in philosophy of religion and theology, I depend on the writing of experts, which I continuously follow to the best of my abilities. Thus, I welcome all and any additions and corrections to this work. I can only be grateful to all who lend their expertise to this task. ■

Nelson Rivera

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FOR THE MORAVIAN CHURCH

Colophon

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