

Challenging What We Think:
***How the Sciences Are Questioning
the Christian Faith***

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The Evolution Revolution: *Naturalism and the Question of Origins*

You ask how to fight an idea. I'll tell you: with another idea.

-- Massala (Stephen Boyd), in *Ben-Hur* (1959)

The greatest forces in human civilization are not nuclear weapons or massive armies, but ideas. It was an idea that motivated the great political revolutions of the past, including the French and American revolutions of the late eighteenth century, the Bolshevik Revolution of 1917, and the Democracy Revolution in Eastern Europe in 1989. Ideas are the source of both the weapons with which men wage war and the reasons for which they fight in the first place. The ideas we entertain about ourselves and our place in the world shape our decisions in every facet of life from how we spend our money to how we cast our votes.

Among the most influential ideas in the world today are those which have been developed in the sciences. The term *science* is used here in its broadest sense to refer to

both the natural sciences, such as physics and biology, and the human sciences, such as psychology and history. All of these disciplines have emerged as special fields of study in the past two centuries, and all of them have rocked the world with intellectual revolutions no less dramatic and significant than the political revolutions mentioned earlier. Indeed, the scientific revolutions have in some cases directly contributed to the political revolutions, as we shall see.

Revolution in the Heavens

The first scientific revolution to challenge the Christian faith is now a part of the worldview of virtually every Christian (and every non-Christian as well). At first, though, this new idea seemed to undermine the Christian view of the place of human beings in God's world. At the center -- if a pun may be allowed! -- of this revolution was the idea that the earth is not fixed at the center of the universe, but instead revolves around the sun along with other heavenly bodies. We take the idea for granted now, but at first the idea was hailed with scorn and evidently some fear.

The medieval view that the earth was the unmoving center of the universe, known as *geocentrism*, was inherited from the ancient Greeks and systematized in the second century AD by the pagan astronomer Ptolemy. Although the Ptolemaic system was not actually taught in the Bible, it was easy for the medieval Christian world to read the idea into various biblical texts. The Scripture most commonly cited to prove the geocentric position was Joshua 10:13, which states that in answer to Joshua's prayer "the sun stopped in the middle of the sky, and did not hasten to go down for about a whole day." The belief that the earth

stood at the center of the universe with all heavenly bodies moving around the earth was correlated with the Christian doctrine that human beings were uniquely related to God as his representatives in the material universe. It seemed so sensible, so obvious, that the most important creatures in the universe would live at its center. This theological perspective, more typically assumed than stated, combined with the obvious fact that the earth *feels* stationary and the heavenly bodies *look* like they are revolving around the earth, made any suggestion to the contrary seem both irreverent and foolish.

Copernicus: A Mathematical Challenge

Not surprisingly, the first book to challenge the geocentric system was released to the public only shortly after the author's death. Nicholas Copernicus, a Polish church official and physician, spent much of his life studying astronomy and working out an alternative to the Ptolemaic system. He wrote a brief treatise outlining his theory as early as 1514 and circulated it privately to a few close friends, but finished his complete book and agreed to its publication only in 1543 shortly before his death. The book, "On the Revolution of the Heavenly Spheres" (*De Revolutionibus Orbium Coelestium*), did not overturn the geocentric system overnight. For one thing, the argument is almost purely mathematical, showing that the paths followed in particular by the planets in the night sky are more simply described in mathematical terms on the assumption that the sun rather than the earth is at the center of the universe. (Even Copernicus did not realize that the sun was only one of billions of similar stars in the universe.) Indeed, Copernicus sought to stave off criticism of his book by describing it as "written for mathematicians."¹ Another reason why

the book did not immediately cause a furor (although it was severely criticized) was that the editor, the Lutheran scholar Osiander, had included a preface suggesting that the book merely agreed with the observed locations of the heavenly bodies in the sky over time and did not necessarily describe their actual movements.

Galileo: Look for Yourself!

What has come to be known as the Copernican revolution was fully set into motion by another astronomer about 70 years after Copernicus's death. Galileo Galilei (1564-1642), an Italian professor of mathematics, in 1609 constructed a telescope (a device he had heard had recently been invented in the Netherlands) and used it to look at the heavenly bodies. What Galileo saw "through the looking-glass" was no less strange to his contemporaries than what Alice encountered in her fictional travels: mountains and craters on the Moon, with shadows cast by the light of the sun (proving that the Moon was composed of ordinary material and not an immutable, heavenly "quintessence"); and four moons orbiting Jupiter (proving that not all heavenly bodies were orbiting the earth).

Galileo published his findings in 1609 in *The Starry Messenger*, a short, popularly written book that immediately provoked a storm of controversy that in some respects has not yet completely dissipated. The reactions from the intellectual establishment to Galileo's findings are notorious. Some critics claimed that the moons of Jupiter were mere illusions, or suggested that there was some design flaw in Galileo's telescope. Such excuses became difficult to sustain as more and more people began constructing their own telescopes and using them to look for themselves.

Unfortunately, the intellectual community raised the stakes by accusing Galileo of false doctrine as well as erroneous science, and goaded various religious leaders into attacking Galileo. One priest, Caccini, reportedly preached a sermon against Galileo using a slightly twisted version of Acts 1:11, “Ye men of Galileo, why stand ye gazing up into heaven?”² The main text, though, used against Galileo was the reference to the sun standing still (Joshua 10:13), mentioned earlier.

Galileo responded to these theological criticisms in the *Letter to the Grand Duchess Christina* (1615), one of the classic writings on the relationship between science and theology. Galileo argued in this letter that biblical passages such as Joshua 10:13 spoke in ordinary language and described physical events as they appeared to human observers. That the event in Joshua occurred and was a miracle, Galileo did not doubt; but that the Bible meant to specify precisely how the event occurred, and to teach a particular system of astronomy, Galileo pointedly denied. In his view “the holy Bible and the phenomena of nature proceed alike from the divine Word,” so that God is no less “excellently revealed in Nature’s actions than in the sacred statements of the Bible.”³ Galileo pleaded eloquently for the freedom to study the facts of nature unhindered by theological interpretations of the Bible. To disallow such inquiry, Galileo warned, “it would be necessary to forbid men to look at the heavens,” and would implicitly impugn the many Scriptures which teach that God is revealed “in the open book of heaven.”⁴ Throughout his life Galileo upheld the complete truth of the Bible and its authority.

The religious aspect of the debate soon led to the Catholic church authorities ordering Galileo not to defend Copernicus’s views as scientific fact (though he was allowed

to discuss the issue hypothetically). His eventual end-run around this order was to write a book entitled *Dialogue on the Two Principal World Systems, Ptolemaic and Copernican* (1632). The *Dialogue* presented three characters — one defending the Ptolemaic system, one defending the Copernican system, and a third neutral participant — so that technically the book does not directly advocate the Copernican view. Of course, the Copernican system emerges triumphant, and the book was eventually banned by the Catholic church and Galileo forced to confess that he had taught error. It would be over three hundred years before the Catholic church would officially admit that it had erred in condemning Galileo's opinion.

Secular Heavens?

This first round in the growing conflict between science and theology is often seen by non-Christians as having undermined the very foundation of the Christian world view. Robert Funk, the founder of the Jesus Seminar (a society of radical scholars who publicize an extremely skeptical rejection of the biblical accounts of Jesus' life and teachings), speaks for many critics of biblical Christianity:

The Christ of creed and dogma, who had been firmly in place in the Middle Ages, can no longer command the assent of those who have seen the heavens through Galileo's telescope. The old deities and demons were swept from the sky by that remarkable glass. Copernicus, Kepler, and Galileo have dismantled the mythological abodes of the gods and Satan, and bequeathed us secular heavens.⁵

This opinion of the significance of the Copernican revolution would have come as a surprise to Copernicus, Galileo, and Kepler (another astronomer working out significant

details of the Copernican system at the same time as Galileo). All three were devout Christians who fervently believed in the Bible and in Jesus Christ. Copernicus was a Roman Catholic church official who saw himself as fulfilling his duty to seek the truth. Johannes Kepler (1571-1630) was a German Protestant who retained his pious faith in Christ despite a very difficult life and rejection from all sides. As we have seen, Galileo was a faithful Catholic who was very knowledgeable about the Bible and Christian theology as well as mathematics and astronomy.

Funk's assertion, though, does have some truth in it. Before the revolution in astronomy that began with Copernicus, the physical heavens were viewed in essentially supernaturalistic terms. Comets, shooting stars, and other celestial phenomena were regarded as miraculous signs from God. Absolute unchanging perfection — in effect, divine qualities — were attributed to the sun, moon, and other heavenly bodies. The new science resulted in a humbler view of the physical universe, but it did not diminish the glory of God, and certainly did not imply his nonexistence.

On the other hand, another revolution in science was coming that would be seen by millions as making it possible to dispense with the very idea of the God of the Bible. This was the *evolution* revolution.

“Darwin’s Dangerous Idea”

No more important revolutionary idea has shaped human history during the past two centuries than evolution. What began in 1859 with a book — Charles Darwin's *On the Origin of Species by Natural Selection* — quickly bloomed into a whole new way of

looking at the world, at humanity, at God. Evolutionary theory has been extended beyond biology to provide a comprehensive account of the cosmos, life, the human mind, and religion. The ramifications of Darwinism are far-reaching and subversive to the traditional beliefs and values of Western civilization, including Christianity. So much is this the case that Daniel C. Dennett entitled his defense and explanation of naturalistic evolution

Darwin's Dangerous Idea.

If I were to give an award for the single best idea anyone has ever had, I'd give it to Darwin, ahead of Newton and Einstein and everyone else. In a single stroke, the idea of evolution by natural selection unifies the realm of life, meaning, and purpose with the realm of space and time, cause and effect, mechanism and physical law. But it is not just a wonderful scientific idea. It is a dangerous idea. My admiration for Darwin's magnificent idea is unbounded, but I, too, cherish many of the ideas and ideals that it *seems* to challenge, and want to protect them.⁶

The “dangerous” aspect of Darwin's idea is that it appears to imply that “meaning” and “purpose” are mere human projections — expressions of the values we choose to place on our own existence and the existence of the world in which we find ourselves. We find meaning and purpose in the natural processes that lead to our existence because, well, they enabled us to exist. But on a strict and thoroughgoing application of Darwin's idea, we are not the product of a divine purpose, and our lives therefore do not have a divinely ordained meaning. Evolutionary biologist George Gaylord Simpson's often quoted words make the point:

Man is the result of a purposeless and natural process that did not have him in mind. He was not planned.⁷

This was not the conclusion which Darwin himself appears to have entertained. Although Darwin's religious beliefs are a subject of considerable debate, *in Origin of Species* he seems to have allowed for the existence of a Creator who originated life itself and who would remain in some way religiously significant.

I see no good reason why the views given in this volume should shock the religious feelings of any one.⁸

Understanding Darwin's Idea

Darwin's revolutionary idea was that most or all of the diversity of biological life, from the smallest organisms to the major plants and animals inhabiting the earth, arose through natural processes, the most important of which he called *natural selection*. In this process, offspring of any species will be produced with slightly differing characteristics, and those offspring whose characteristics were most conducive to their survival in changing environments over time would be perpetuated. For example, birds whose markings best enable them to hide from predators and to obtain food for themselves will tend to survive and produce offspring like themselves, so that those markings will be "selected" by nature. This natural criterion of whatever is most conducive to survival will be perpetuated was called *survival of the fittest*, a notion Darwin took from the economist philosopher Malthus. Darwin extrapolated this incremental process of development and diversification backwards into the ancient past. He hypothesized that such a process could allow mammals

and birds to have evolved from amphibians or reptiles, fish to have evolved from simpler forms of sea life, and even plants and animals ultimately to be traceable back to a single ancestor.

Perhaps the most disturbing and controversial implication of Darwin's theory was that human beings may have arisen from nonhuman species by the same natural process. Darwin defended this theory in *The Descent of Man* (1871). On Darwin's view, modern man, apes, monkeys, and other primates are all related by a common ancestry. This idea presented an obvious and major contradiction to the biblical view of human beings as created "in God's image" (Genesis 1:26-27) and unique among all living creatures on the earth by virtue of a transcendent, spiritual capacity. The Darwinian view of humanity, in fact, implied that human beings are merely extremely advanced, intelligent animals.

Evolution: Galileo Revisited?

It is tempting to compare the Christian church's resistance to Darwinism to the Galileo incident, but such a comparison would be ill-advised. For one thing, evolutionary theory has been rather widely accepted in many Christian denominations worldwide. The major resistance to evolution has come from denominations and other Christian groups that have a stated policy of adherence to the Bible as an unerring revelation from God — a policy not found in many of the major denominations.

A second, more important point of dissimilarity is that while Copernicus, Kepler, Galileo, and all of the other scientists and thinkers who promoted the new astronomy in the sixteenth and seventeenth centuries were devout believers in God and in the Bible, Darwin

and the scientists and thinkers who have promoted Darwinism for more than a hundred years have for the most part abandoned the biblical world view. Darwin himself was an agnostic, and after an initial generation of diverse and confused responses to Darwinism (from about 1860-1900), most Christians espousing a traditional, biblical theology have opposed Darwinism.

Third, while the counsel of many critics of Galileo was to refuse to look through his telescope, the counsel of most critics of Darwinism has been to look at the evidence *more closely*. After well over a hundred years and a veritable explosion of knowledge of biology at the microscopic level, the scientific community is further from a consensus on the merits of Darwinian evolution than they were when Darwin died in 1882. Indeed, while institutional opposition to evolutionism was strong in many quarters at first, since about the 1960s it has been evolutionists who have been in control of educational and other cultural institutions in the West and advocates of the biblical view of creation who have found their views unwelcome and even suppressed. In the United States it is now quite difficult for avowed creationists, even those of impeccable academic credentials and ability, to hold teaching posts in the sciences in state universities and colleges. Evolution has become the new dogma of the schools, and those who question it are the heretics. The problem is found around the world: one British scholar who cautiously advocates creationism (though not even of an explicitly Christian sort) puts the point this way:

Our descendants will marvel at the attempts of the neo-Darwinian lobby to suppress alternative inquiry, as we today marvel at the power of churchmen in the eighteenth and nineteenth centuries.⁹

A Tale of Two Trials

No more dramatic illustration of this reversal can be given than a comparison of the famous Scopes trial of 1925 with the less famous, but equally important, Arkansas Creationism case in the U.S. District Court in 1982. The Scopes trial, while famous, is remembered almost entirely through its fictional retelling in the play and 1960 film *Inherit the Wind*. Contrary to the *Inherit* story, Scopes was not a biology teacher and probably never taught evolution. The case was drummed up by the American Civil Liberties Union (ACLU) to challenge a Tennessee state law forbidding the teaching of evolution in its public schools. (The law did not forbid mentioning or discussing evolution.) William Jennings Bryan, representing the state of Tennessee, not only did not disallow scientific testimony as *Inherit* shows, he actually called scientific experts as witnesses himself! Nor did Bryan endorse a date of 4004 BC for creation; in fact, Bryan was untroubled by the idea that the universe was millions of years old. The state's argument was simple: evolution was a dubious scientific theory that was clearly contrary to the beliefs of the vast majority of the people of Tennessee, who should be able to determine what was taught with taxpayers' dollars to their children.¹⁰

The Arkansas case centered on a 1981 state law mandating a balanced presentation of both evolutionism and creationism in public schools. This was roughly what the ACLU had asked for in the Scopes trial; to be more precise, they had asked that the state not forbid evolution to be taught. Ironically, the ACLU once again sought to challenge the state law, this time arguing that creationism had no place in public school science classes and that evolution alone should be taught. By the early 1980s various other court cases had

established as U.S. law that states could not mandate any teaching of “religion” in the public schools. The Arkansas law defined “creation-science” as including the idea that the universe was only several thousand years old and that its geology had been shaped by a global flood. This made it obvious that the version of creation to be presented was a specific interpretation of the teaching of Genesis, and it was largely on this basis that the state law was found unconstitutional. A similar balanced-treatment law in Tennessee was also struck down, despite the fact that it did not define creation-science with such distinctively religious positions. It was enough for the court that creation implied a Creator of any kind, thus implicitly supporting a “religious” belief.¹¹

Religion and Science: Either/Or?

The absolute dichotomy between religion and science which the court rulings assume is itself part of the objectionable creed of modern evolutionism. It assumes the very thing that the evolutionist claims to prove — that all nature can be explained without appeal to the existence or activity of God. It also makes the absurd assumption that scientific theories and beliefs do not have religious significance. Evolutionism is a basic tenet of various religious belief systems today, from secular humanism (in which irreligiosity has become a religion) to New Age humanism (in which evolution is itself a divine process). Ultimately the thoroughgoing evolutionists have only three choices: they can deny that there is a God, they can believe that all is God, or they can believe that all is evolving into God. Dennett begins his book with the question of whether evolution has shown that nothing is sacred, and ends his book with this conclusion:

Is something sacred? Yes, say I with Nietzsche. I could not pray to it, but I can stand in affirmation of its magnificence. The world is sacred.¹²

This sort of conclusion about the meaning of evolution became increasingly common during the last quarter of the twentieth century, as the horrifying consequences of an atheistic, purely materialistic interpretation of evolutionism became clear to almost everyone. But the gap between affirming that everything is sacred and denying that anything is sacred can be quite narrow. If everything is sacred, then there is still nothing transcendentally special about humanity, still no basis for viewing human beings as anything more than one species of animal life of which we happen to be particularly fond! This is the underlying reason why there is so much confusion in our culture about the relative values of infant children and unborn children, or of humans, whales, lobsters, and trees. The devaluation of human life cannot be reversed by declaring all life sacred.

Scientific Problems for Evolution

As was mentioned earlier, there is no consensus among biologists or other natural scientists on the subject of evolution. Admittedly the majority of professors of biology and of other sciences in the major universities and colleges in America and in other nations subscribe to some form of evolutionary theory. This seeming consensus, however, is something of a mirage.

First of all, the views of scientists cover a spectrum from a thoroughgoing materialistic evolutionism to a thoroughgoing supernaturalistic creationism, with various types of views combining evolution and creation in the middle. Some scientists hold that a

transcendent personal God (such as one finds in Judaism, Islam, or Christianity) has somehow guided the natural evolutionary process (perhaps by “pre-loading” a direction for evolution in the original act of creation); others argue that life was created supernaturally and then all living things evolved naturally; others make an exception for the human race; still others hold that several supernatural acts moved the creation process forward, with some evolution taking place between those creative acts.

Second, among committed evolutionists who eschew all supernatural interventions, there is no consensus as to how evolution works. Some regard it as a mindless, blind process with no purpose; others view it as an intelligent, purposeful process of a cosmos in which the divine is inherent. Some espouse the neo-Darwinian view that views evolution as working through gradual, incremental changes; others argue that evolutionary advances come in quantum jumps or sudden radical changes.

Credible critiques of naturalistic evolutionism have been published in every generation since Darwin. In recent years the critiques have increased both in number and in scientific sophistication. Perhaps the best known of these was Phillip Johnson’s *Darwin on Trial*, whose author was a law professor at Berkeley. Critiques by persons with scientific credentials have included Michael Pitman’s *Adam and Evolution* and Michael Denton’s *Evolution: A Theory in Crisis*.¹³ These books point out numerous flaws in the arguments used to establish evolution, and offer solid reasons to uphold some form of creationism. While a complete review of the arguments cannot be offered here, a few of the most important issues may be noted.

The Origin of Life: The Missing Ingredient

One of the most persistent problems facing a thoroughgoing evolutionism is to explain the origin of life itself. While in *Origin of Species* Darwin seems to concede the necessity for an initial divine creation of life, he later withdrew even this concession and suggested the possibility of a natural origin of life from nonlife if the initial conditions were right. The idea was developed independently by two scientists in the 1920s, each of whom worked out a primordial-soup theory of the origin of life (that is, one which explains life as arising on a microscopic level in an early earth rich in gases but lacking an oxygen atmosphere). Interestingly, both of these two scientists, Alexander I. Oparin (Russian) and J. B. S. Haldane (British) “were professed Marxists in a revolutionary era when it was fashionable to try and solve all sorts of problems here and now by dialectical and material means.”¹⁴ Their Marxist ideology does not, of course, invalidate their theory, but it does illuminate its roots. Historically, naturalistic evolution is an attempt to provide *a purely materialistic account of human life as the basis for a purely materialistic theory of human values.*

There are fundamental problems with primordial-soup scenarios of the origin of life. One of the assumptions of all such scenarios, that the early earth’s atmosphere would have been rich in such gases as ammonia and methane but poor in oxygen, has been discredited. Examinations of rocks dated by geologists to within the first billion years of earth history shows evidence of an oxygenated atmosphere in earth’s early history. Another crucial difficulty is that the results that have been obtained in laboratories have been minimal, and yet have required an enormous commitment of intellectual resources. It has taken years of

research by numerous Ph.D.s in chemistry and biology and millions of dollars in technological development to produce tiny amounts of amino acids and other “building blocks” of life. At each stage of the “life-building” process, researchers stop the experiment, conserve the results, and then initiate another well-planned stage of the process. In short, all these experiments seem to be proving it how much intelligent planning and execution must have gone into producing life from nonlife.¹⁵

Considerations such as these are leading scientists who don’t believe in a personal God to desperate scenarios. Francis Crick, who co-discovered the double helix form of DNA, suggested that life was seeded on earth by extraterrestrials. Sir Fred Hoyle, one of the most honored astronomers of this century, and Chandra Wickramasinghe proposed that interstellar clouds had produced the essential building blocks of life, which were then transplanted to earth by a comet. After this hypothesis was trashed by the scientific community, both Hoyle and Wickramasinghe rethought the matter and concluded that some sort of intelligent creator must have introduced life on earth. Wickramasinghe actually testified in defense of the Balanced Treatment Act in Arkansas. A confessed Buddhist, Wickramasinghe testified that while he preferred to view the creator as inherent in the universe, a supernatural creator was an equally justifiable inference.¹⁶

The Origin of Species: The Missing Mechanism

Darwin’s fundamental claim was that the observable “natural selection” of characteristics in offspring conducive to the adaptation and survival of a species could be extrapolated backward to account for the origin of the incredible diversity and complexity

of all living things on earth. Well over a century after Darwin's *Origin of Species*, doubts remain as to whether this extrapolation is justifiable.

Darwin believed that the characteristics of parents were blended in their offspring. Such blending might seem to average out characteristics and thus eliminate variations over time. Evolutionists believe this problem was solved by Gregor Mendel, the father of genetics. Mendel showed that characteristics of parents are transmitted to their offspring in discrete units which he called *genes*. These genes are not blended, but rather one is selected over the other. For example, the offspring of a tall man and a short woman will not necessarily be a medium-height person, but will generally be either tall or short. This explains why we usually find distinct features in a child that resemble one parent over the other (for example, a girl may have her mother's eyes but her father's nose).

While genetics eliminates the blending problem, it raises another difficulty: gene selection is itself a conservative process that does not support innovation. To solve this problem, evolutionists have argued that mutations — changes in the genes themselves — have provided the innovative variations that have made evolution possible. Unfortunately, mutations noticeable enough to have any immediate effects on an organism tend to be destructive or debilitating, not helpful to its survival. Evolutionists have therefore been forced in one of two directions, both of them problematic.

On the one hand, those committed to a gradualist understanding of evolution argue that millions of “micromutations,” each of which provides only very slight adaptive benefits, could accumulate over millions of years to result in new species with new capacities. One problem attending this scenario is that even two or three billions of years is

not enough time for life to evolve all the complex organisms that inhabit the earth in such a gradualist fashion (a point that has been made by mathematicians who looked at this very question). Another problem is that it is extremely difficult to explain how such micromutations could enable such complex organs as the ear or the eye to evolve, not just once, but evidently numerous times in various species.

On the other hand, an increasing number of evolutionists have adopted some form of “macromutation” theory — the idea being that once in a while a major mutation will turn out to be helpful rather than hurtful, and will be incorporated into the mutated organism’s offspring. The most notorious version of this theory was Berkeley geneticist Richard Goldschmidt’s “hopeful monster” theory, which endorsed the idea of a reptile laying an egg that produced a bird. A more sophisticated version, known as “punctuated equilibrium,” was introduced in the early 1980s by Stephen Jay Gould, but it amounts to the same thing (the offspring differs genetically just a little from its parents, but a big difference emerges when it reaches adulthood). The obvious objection to these macromutational theories is that in place of a supernatural, intelligently directed miracle a kind of natural, accidental “miracle” is supposed. So far, everything we know about genetics suggests that such beneficial macromutations are impossible.

Both micromutational and macromutational approaches to evolution suffer from an even more basic problem: a lack of evidence. Even if one were to grant that one or the other proposal for how evolution might have occurred had some plausibility, there is no evidence that evolution occurred. It remains an extrapolation back into the past, reasoning from observed *microevolution* (changes within species, such as variations in the coloration

of a bird or the length of its beak) to *macroevolution* (changes resulting in new species and even new orders, such as reptiles as the ancestors of birds). There simply is no evidence for macroevolution. As Pitman notes, “Examples of ‘evolution in action,’ such as the peppered moth or Galapagos finch demonstrate variation but not radical, archetypal change.”¹⁷ The fossil record also contains no evidence for macroevolution; it is especially difficult to square with a gradualist interpretation of evolution, since it contains stubborn “gaps” and continues to support the conclusion that new species appeared suddenly in complete form.

The Origin of Humanity: The Missing Link

Of all the questions that can be raised about the theory of evolution, none is more vital than whether humans evolved from non-human animals. Theologically, there may be little at stake from a Christian point of view in the debate over the origins of the various species of plants and animals. It does not make any significant difference to the Christian faith whether dogs and cats are related, or even dogs and dogwoods. It does, however, make an enormous difference whether humans are related to monkeys. In thoroughgoing naturalistic evolutionism, human beings were not created with a dignity transcending all other animals, but instead are simply a particularly intelligent primate. The biblical teaching is that the human race has fallen from an original innocence, and that our tendencies to violence, greed, lust, deceit, and selfishness are in some sense unnatural for us. This teaching is at direct odds with the notion that the human race evolved from similar primate

species, and that our unethical tendencies are actually part of our evolutionary history (perhaps necessary aspects of the “survival of the fittest”).

In addition to the problems attending the general theory of evolution, the evolutionary explanation for the origin of the human species has been plagued by the question of the “missing link.” In the first half of his book *The Bone Peddlers: Selling Evolution*, William R. Fix reviewed the history of frauds, hoaxes, and misidentifications that has characterized the search for the missing link between *Homo sapiens* and the lower primates from which we supposedly evolved. Two of the most notorious of these bogus links were Piltdown Man, a fraud constructed with sawed-off bones, and Nebraska Man, a link proposed on the basis of a single tooth which turned out to have come from an extinct pig.¹⁸ Both of these pseudo-links were introduced as evidence for the theory of evolution at the Scopes trial in 1925.¹⁹ Even the more respectable finds, such as Zinjanthropus, *Homo habilis*, and the several postulated ancestors named *Australopithecus* (including the famous “Lucy”), have been rejected or seriously questioned even by evolutionists as genuine “missing links.”

One of the most troubling aspects of evolutionary thought has been its racist implications. The logic is simple enough: If humans evolved from simpler, less intelligent primates, then perhaps some of are more “evolved” than others. Such racist thinking has accompanied evolutionism from the very beginning, starting with Darwin himself. Darwin visited the South American tribe of the Tierra del Feugians on his journeys and commented that “the difference between a Tierra del Feugian and a European is greater than the difference between a Tierra del Feugian and a beast.” Eventually, Christian missionaries

discovered otherwise, living among the Feugians and documenting their rich culture and language.²⁰

Evolutionists may complain that such thinking is not essential to evolution nor universal among evolutionists. True enough; but evolutionists cannot make a convincing, rational case against such inferences. Although creationists have themselves not been immune from racism, it turns out that creationism is inherently antiracist while evolutionism offers no protection from racism and can reasonably be construed in its support. The same subjective reasoning that has made it difficult for evolutionists to agree on whether a set of bones comes from a human ancestor, a prehuman “missing link” ancestor, or a distant primate cousin, allows those educated in the evolutionary world view to regard human beings of other races as equal or inferior according to their own predisposed judgments.

Cosmology: Back to the Beginning

So far we have examined two scientific revolutions. The Copernican revolution eventually led us to realize that the earth not the immovable center of the universe but instead the third planet orbiting a fairly average star located in an inconspicuous place in an extremely large universe. This revolution rocked the Greek science and philosophy that had been integrated into the medieval Christian world view, but it did not directly challenge any essential aspects of the biblical, Christian faith. The Darwinian revolution led many, but by no means all, of us to regard our own human race as merely one of the myriad of animal species on planet Earth, highly evolved in terms of intelligence but not qualitatively

superior or unique in the animal kingdom. This revolution has so far not been entirely successful in forging a new consensus, but where it has taken hold it has radically altered and even dismantled the Christian world view.

The third and final revolution to be considered in this chapter, associated especially with the work of Albert Einstein, is moving in a different direction. While the Copernican revolution required a refinement of the Christian world view and the Darwinian revolution put the Christian faith on the defensive, the Einsteinian revolution has actually restored credibility to the Christian, biblical premise of a Creator. While biologists reveled in the Darwinian hope of a naturalistic account of all life, the physicists and astronomers discovered surprising proof of a supernatural origin of the universe. At the same time, these evidences of creation challenged some traditional interpretations of the book of Genesis.

God and the Astronomers

The tale has been told many times, perhaps most memorably by the self-confessed agnostic Robert Jastrow in his book *God and the Astronomers*. In 1917 Albert Einstein published his theory of general relativity. The Dutch astronomer Willem de Sitter derived from Einstein's equations the conclusion that the universe was expanding. Other scientists, notably Edwin Hubble and Arthur Eddington, followed up on de Sitter's calculations and correlated them with observations dating from 1913 that in fact several galaxies were moving away from us at high speeds. Hubble verified through the use of his 100-inch telescope what de Sitter had predicted based on Einstein's general relativity equations: that

“the farther away a galaxy is, the faster it moves” — implying that the universe was expanding from a central point of origin like an inflating balloon or like an explosion. At the same time, Hubble found that “nearby” galaxies were actually millions of light years away.²¹ The implication of these findings was immediately obvious: the universe had a beginning. In 1965 astronomers Arno Penzias and Robert Wilson discovered the background radiation that scientists had predicted would be left behind by the initial explosion of the universe. Their discovery led to the almost complete triumph in modern cosmology of the so-called Big Bang theory.

The discovery that the universe had a beginning was not met with pleasure. Many scientists rebelled against the notion because it implied a Beginner. In fact, “Einstein was the first to complain.”²² He refused to believe that the universe was expanding until he looked for himself through Hubble’s telescope. (The lesson of Galileo was evidently not lost on Einstein!) Eddington admitted, “the notion of a beginning is repugnant to me.” Yet the evidence was there. Jastrow puts his finger on the problem: Many scientists have a “religious” commitment to the assumption that everything has a natural, scientifically accessible and quantifiable explanation. Just when they were becoming confident in this assumption, seemingly explaining everything from the formation of stars to the formation of species, they ran into something which in principle cannot be explained scientifically: that first instant of creation, when the universe began as a singularity, a point inaccessible to investigation.

It is not a matter of another year, another decade of work, another measurement, or another theory; at this moment it seems as though science will never be able to raise the curtain on the mystery of creation. For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries.²³

Stephen Hawking: Nothing for a Creator to Do?

The cosmological evidence for a beginning of the universe continued to be resisted throughout the remainder of the twentieth century, though increasingly the strategy was to reinterpret that beginning to avoid a personal God. Perhaps the most brilliant scientist who has sought an alternative to a straightforward beginning of the universe is Stephen Hawking. The world-renowned cosmologist's bestselling book *A Brief History of Time* repeatedly illustrates Jastrow's contention that modern scientists are often committed religiously to a comprehensively naturalistic explanation of all things. Hawking states the premise explicitly: "The eventual goal of science is to provide a single theory that explains the whole universe."²⁴

Ironically, Hawking himself contributed to the proof that the universe had a beginning. He and Roger Penrose had applied their study of black hole singularities to the question of the origin of the universe, and in 1970 they issued a paper "which at last proved that there must have been a big bang singularity provided only that general relativity is correct and the universe contains as much matter as we observe."²⁵ The paper met with resistance, and Hawking himself admits the reason:

Many people do not like the idea that time had a beginning, probably because it smacks of divine intervention.²⁶

Hawking himself does not like the idea, and eventually came up with an alternative. His end-run around the problem is to postulate that the universe may be finite in size and age yet without boundaries (based on an application of quantum theory, too complicated to explain here!). Hawking uses the illustration of the earth: its surface is finite in size, yet it has no boundaries — no edge or starting point, no singularity where one would “fall off” the earth.²⁷ He suggests that the cosmos is similarly finite but has no boundaries, either of space (like an “edge”) or of time (i.e., like a beginning). This does not completely eliminate the idea of God, but it does, as Carl Sagan puts it in his introduction to the book, leave “nothing for a Creator to do.”²⁸ Hawking himself explains the appeal of his proposal as eliminating the idea of a boundary of space-time “at which one would have to appeal to God or some new law to set the boundary conditions for space-time.”²⁹

There are several difficulties with Hawking’s proposal, not the least of which is that at present that is all it is; as Hawking himself admits, “it cannot be deduced from some other principle,” and so far it does not seem to be testable.³⁰ Second, it has been pointed out that Hawking has merely traded a singularity of relativity theory for a singularity of quantum theory. In Hawking’s proposal the singularity of a temporal beginning is still a reality from within our own “real time” perspective.³¹ But even Hawking ends up crediting the ultimate origin of the universe — the *why* of things, if not the *how* -- to “the mind of God.”³²

For Those Who Can't Believe in God

Many other proposals to avoid altogether the idea of a personal Creator God have been put forth. Probably the most popular approach is to view the origin and evolution of the universe as a manifestation of an all-encompassing force or energy or mystical Spirit. New Age interpretations of quantum physics, such as Fritjof Capra's *The Tao of Physics* or Gary Zukov's *The Dancing Wu Li Masters*, have sought to integrate Western science with Eastern mysticism.³³ Because some interpretations of quantum physics understand reality at the subatomic level to be indeterminate, New Age physicists have argued that at the quantum level all things are *naturally* possible — even the spontaneous origination of the physical universe. These New Age cosmologies rest on dubious understandings of quantum physics and sidestep the real problem: how does the reality governed by physical laws, quantum or otherwise, exist at all?³⁴

Some of the proposed alternatives to a personal Creator have a strong scent of desperation to them. Perhaps the most outrageous example of such desperate proposals was that put forth by Gilbert Fulmer. He admits that the universe had a beginning and that the most logical explanation for that beginning was that it was initiated by personal design. However, Fulmer also states quite candidly that he cannot bring himself to go back to the biblical account of creation by an infinite personal God. So he proposes an alternative scenario, based on the notion of time travel. He speculates that somewhere, sometime in the universe, perhaps billions of years into the future, perhaps in another galaxy if not here, a race of beings will become so advanced that they will be able to travel back in time. Such an advanced race would know about the Big Bang, but they would also be smart enough to

know that there is no God to start it. So, theorizes Fulmer, they might take it upon themselves to send someone back to time zero and set off the Big Bang!³⁵ It does not seem to have occurred to Fulmer that such a Time Traveler would have to arrive at least a split second *before* the Big Bang in order then to do anything to start it; unfortunately, there was no time “before” the Big Bang! Fulmer’s suggestion (assuming it was meant sincerely) is extreme, but it illustrates the point that some people would rather believe anything other than in the God of the Bible.

The fervent belief that religion must be prevented from contaminating science is, as we said, a kind of religious belief itself. One historical factor that has encouraged this belief is the fact that in the past those in the Christian West too easily attributed various features of the natural world to direct supernatural agency, only to have some scientist come along and demonstrate a regular natural phenomenon to be at work. But to swing the pendulum to the other extreme and disallow the activity of God as a possible explanation for anything, regardless of the evidence, is also unwarranted.

Both of these extremes -- uncritical supernaturalism and uncritical naturalism — should therefore be avoided. The attribution of unexplained phenomena (planetary orbits, meteors, earthquakes, volcanoes, and the like) to supernatural intervention by God has often been criticized as a “God of the gaps” approach. But just as irrational is the assumption made by many naturalists that God never intervenes in his creation and that everything, even the very existence of the universe, must be explainable in natural terms — what has been called a “Nature of the gaps” approach.³⁶ Similarly, Hugh Ross has criticized the appeal by

cosmologists to the chance fluctuations posited by quantum theory to explain the origin of the universe as a kind of “Chance of the gaps” methodology.³⁷

An important distinction relating to these two extremes is that between *operation science*, which studies the ongoing processes and events in the natural world, and *origin science*, which studies the origins of the natural world and of life. To appeal to a supernatural intervention by God to explain the operations of the natural world is to make the “God of the gaps” mistake.³⁸ On the other hand, to refuse to allow the action of God as an explanation for the origins of the natural world is to commit the “Nature of the gaps” or “Chance of the gaps” error.

Astronomy and the Theologians

The evidence from cosmology that is convincing an increasing number of sometimes unwilling astronomers that a Creator brought the universe into existence has also received mixed responses from the community of Christian theologians and scholars. While many Christians have hailed the cosmological revolution as vindicating the biblical world view and providing exciting opportunities for a renewed defense of the Christian faith, other Christians have rejected the new cosmology because they regard it as conflicting with the biblical account of origins in Genesis.

One issue here dominates the debate among evangelical, conservative Christians about cosmology and creation: the age of the earth (and of the universe). The traditional interpretation of Genesis 1 understands the six “days” in that passage to refer to six literal, 24-hour, consecutive days, during which the entire universe, the earth, all living things, and

finally the human race, were created. On this view the inference is usually drawn that the universe (or at least the earth) is no more than roughly 6,000 to 10,000 years old. That inference, of course, contradicts the ages of the earth and the universe accepted in modern cosmology (roughly 4.5 billion years for the earth, and about 10 to 20 billion years for the universe). The older age of the earth is criticized by young-earth creationists as not only in conflict with a literal reading of the six days of Genesis 1, but also as opening the door to naturalistic evolution.

There are serious arguments both for and against the young-earth interpretation of Genesis 1, and reputable evangelical theologians and exegetical scholars can be found on both sides of the debate. Ultimately the major issue separating old-earth creationists from young-earth creationists is the question of the relationship between science and theology. It is important to put the question that way, because to pit science against *the Bible* is to misconstrue the problem. The Bible is regarded by Christians as the unerring or infallible written revelation from God; theology is the very human, fallible enterprise of interpreting and applying the teachings of the Bible. Similarly, the physical universe, or nature, was created by God and therefore reflects his truth in all its data; science, though, is the all too human, fallible enterprise of interpreting the data of nature. Thus, the data of Scripture and the data of nature, since both come from God, may be regarded as fully reliable and consistent with one another, while our *interpretations* of either or both Scripture and nature may be inconsistent or in error.

The point is that three possibilities lay before us. (1) The mainstream scientists' interpretation of the physical data may be right and the traditional interpretation of the Bible

wrong. This was the case when Galileo and other scientists argued that the earth moved around the sun while theologians argued that the Bible taught that the earth stood still. (2) The mainstream scientists' interpretation of the physical data may be wrong and the traditional interpretation of the Bible right. This is evidently the case when evolutionists argue that man evolved from lower primates, contrary to the virtual consensus among evangelical interpreters of the Bible. (3) The positions staked out by mainstream scientists and biblical interpreters may both be mixtures of truth and error. It is possible, even likely, that in many of the ongoing science-theology debates, including biology and cosmology, scientists and theologians have much to learn from each other.

The age of the universe and other questions on which there is no consensus even among evangelical Christian scholars and scientists will probably continue to be debated for some time to come. The challenge facing thinking Christians is to pursue the truth in such debates, even at the risk of giving up traditional ideas *or* of falling out of favor with the current intellectual establishment. If Christianity is to be a viable world and life view in the third millennium, it is vitally important that the Christian community come to terms with the scientific revolutions of today, even if (as has happened before) that process of coming to terms is not completed until tomorrow. In order to integrate the legitimate findings of science into the Christian world view, we need to make a major commitment of resources toward the exploration of these questions.

The church serves no good end by clinging to failed interpretations of the Bible and refusing to explore new directions. Christian scholars have an obligation to lead the way toward a renewed reverence for God's truth wherever it can be found. Conservative

scholars must develop a more aggressive attitude toward creation and encourage the church's youth to enter not only the pastorate, mission work, and theology but also such fields as the natural sciences, archeology, anthropology, and the social sciences.³⁹

Notes to Chapter 1: The Evolution Revolution

¹Pointed out in Charles E. Hummel, *The Galileo Connection: Resolving Conflicts between Science and the Bible* (Downers Grove, IL: InterVarsity Press, 1986), 52-53.

²Stillman Drake, trans., *Discoveries and Opinions of Galileo* (Garden City, NY: Doubleday, 1957), 154.

³Galileo, "Letter to the Grand Duchess Christina," in *ibid.*, 182, 183.

⁴*Ibid.*, 195-96.

⁵Robert W. Funk, "Introduction," in *The Five Gospels: The Search for the Authentic Words of Jesus*, by Robert W. Funk, Roy W. Hoover, and the Jesus Seminar, A Polebridge Press Book (New York: Macmillan, 1993), 2.

⁶Daniel C. Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (New York: Simon and Schuster, 1995), 21.

⁷George Gaylord Simpson, *The Meaning of Evolution* (New Haven: Yale University Press, 1971), 345, quoted, for example, in David A. Noebel, *Understanding the Times* (Manitou Springs, CO: Summit Press, 1991), 265.

⁸Charles Darwin, *The Origin of Species*, Foreword by George Gaylord Simpson (New York: Collier, 1962), 477.

⁹Michael Pitman, *Adam and Evolution: A Scientific Critique of Neo-Darwinism* (Grand Rapids: Baker, 1984), 255.

¹⁰An excellent review of the myths and facts of the Scopes trial is found in James K. Fitzpatrick, *God, Country and the Supreme Court* (Chicago: Regnery Books, 1985), 109-29.

¹¹For an account supportive of the Arkansas and Tennessee laws, see Bill Keith, *Creation vs. Evolution: Scopes II -- The Great Debate* (n.p.: Huntington House, 1982).

¹²Dennett, *Darwin's Dangerous Idea*, 520.

¹³Pitman, *Adam and Evolution*; Michael Denton, *Evolution: A Theory in Crisis* (Bethesda, MD: Adler & Adler, 1986); Phillip E. Johnson, *Darwin on Trial* (Washington, DC: Regnery Gateway, 1991). Johnson stands in a venerable tradition of critics of Darwinism who were trained in law; a notable earlier example is Norman Macbeth, *Darwin Retried: An Appeal to Reason* (Boston: Gambit, 1971).

¹⁴John L. Casti, *Paradigms Lost: Images of Man in the Mirror of Science* (New York: William Morrow, 1989), 69. It should be noted that Casti is an evolutionist and firmly committed to a naturalistic theory of the origin of life.

¹⁵Works detailing these problems include Charles B. Thaxton, Walter L. Bradley, and Roger L. Olsen, *The Mystery of Life's Origin: Reassessing Current Theories* (New York: Philosophical Library, 1984); Robert Shapiro, *Origins: A Skeptic's Guide to the Creation of Life on Earth* (New York: Summit Books, 1986); Hubert P. Yockey, *Information Theory and Molecular Biology* (Cambridge, UK: Cambridge University Press, 1992).

¹⁶For two very different accounts of these scientists' contribution to the debate, see Casti, *Paradigms Lost*, 115-21, 126; Keith, *Creation vs. Evolution*, 136-38.

¹⁷Pitman, *Adam and Evolution*, 67.

¹⁸William R. Fix, *The Bone Peddlers: Selling Evolution* (New York: Macmillan, 1984), xii, 11-15.

Fix's own answer to the question of evolution, developed in Part Two, is to view it as a process impelled forward by the force of "spirit" inherent in living things (and perhaps in the universe). His New Age interpretation of evolution is based largely on parapsychological research into ESP, out-of-body experiences, and the like.

¹⁹Pitman, *Adam and Evolution*, 100.

²⁰*Ibid.*, 240-41; the Darwin quote is taken by Pitman from V. Barclay, *Darwin Is Not for Children* (1950), ch. 14.

²¹Robert Jastrow, *God and the Astronomers* (New York: W. W. Norton, 1978), 46-47, 85-86.

²²*Ibid.*, 27.

²³*Ibid.*, 115-16.

²⁴Stephen W. Hawking, *A Brief History of Time: From the Big Bang to Black Holes*, Introduction by Carl Sagan (New York: Bantam Books, 1988), 10.

²⁵*Ibid.*, 50.

²⁶*Ibid.*, 46.

²⁷*Ibid.*, 135-36.

²⁸*Ibid.*, x.

²⁹*Ibid.*, 136.

³⁰*Ibid.*, 136-37.

³¹See the discussion in Hugh Ross, *The Creator and the Cosmos: How the Greatest Scientific Discoveries of the Century Reveal God* (Colorado Springs: NavPress, 1993), 83-84.

³²Hawking, *A Brief History of Time*, 174-75.

³³Fritjof Capra, *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism* (Boulder: Shambala, 1975); Gary Zukov, *The Dancing Wu Li Masters* (New York: Morrow, 1979).

³⁴On New Age physics, see Douglas R. Groothuis, *Unmasking the New Age* (Downers Grove, IL: InterVarsity Press, 1986), 93-109.

³⁵Gilbert Fulmer, "Cosmological Implications of Time Travel," in *The Intersection of Science Fiction and Philosophy: Critical Studies*, ed. Robert E. Myers; Contributions to the Study of Science Fiction and Fantasy 4 (Westport, CT: Greenwood Press, 1983), 31-44.

³⁶Norman L. Geisler, *Knowing the Truth about Creation: How It Happened and What It Means for Us* (Ann Arbor, MI: Servant Books, 1989), 31-32.

³⁷Hugh Ross, "Astronomical Evidences for a Personal, Transcendent God," in *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer*, ed. J. P. Moreland (Downers Grove, IL: InterVarsity Press, 1994), 155-56.

³⁸Norman L. Geisler and J. Kerby Anderson, *Origin Science: A Proposal for the Creation-Evolution Controversy* (Grand Rapids: Baker, 1987), 28.

³⁹Davis A. Young, *The Biblical Flood: A Case Study of the Church's Response to Extrabiblical Evidence* (Grand Rapids: Eerdmans, 1995), 312.