

## Evolution and Unification Thought

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Journal of Unification Studies Vol. 12, 2011 - Pages 115-142

Parts of this article are excerpted from Jonathan Wells' 2008 book *Evolution and Unification Thought*.

Evolution has many meanings, and it is important to distinguish them from each other. For example:

1. Evolution can mean simply change over time. The present is different from the past. No sane person denies the reality of change, so evolution in this sense is uncontroversial.
2. Evolution can also mean cumulative change over time. Not only is the present different from the past, but the present also builds upon the past. The cosmos evolves; so does human culture and technology. Although there can be disagreements over the causes of cumulative change, evolution in this sense is synonymous with history.
3. In biology, evolution can refer to minor changes within existing species (called "microevolution"). Such changes can be genetic, biochemical, anatomical, or behavioral—or a combination of these. People have been observing such changes, and even producing them through artificial breeding, for centuries. Again, there can be disagreements over the causes of change within existing species, but like change over time, evolution in this sense is uncontroversial.
4. In paleontology, evolution can refer to the succession of forms in the fossil record. Although there are continuing disputes over how to interpret the fossil record, evolution in this sense is simply a statement that life on Earth has a history.
5. Finally, evolution in biology can refer to specific theories about the causes of the origin of new species, organs and body plans (called "macroevolution"). These theories claim much more than the four senses of evolution above, and they have generated considerable controversy—both scientific and religious. Among biologists, Charles Darwin's theory in its modern form ("Neo-Darwinism") is the most widely accepted explanation for macroevolution, so in this essay I call evolution in this fifth sense "Darwinism."

### Darwinism

Darwin called his theory "descent with modification." He wrote in *The Origin of Species*: "I view all beings not as special creations, but as the lineal descendants of some few beings" that lived in the distant past.[1] Furthermore, "I am convinced that Natural Selection has been the main but not exclusive means of modification." [2] Although the origin of life is often included in discussions of evolution, *The Origin of Species* did not deal with this issue; instead, it presupposed the existence of living cells and set out to explain their diversification.

Nineteenth-century Harvard botanist Asa Gray argued that biological evolution was guided by God. Gray advised Darwin to assume "that variation has been led along certain beneficial lines. Streams flowing over a sloping plain by gravitation (here the counterpart of natural selection) may have worn their actual channels as they flowed; yet their particular courses may have been assigned." [3]

Darwin wrote politely to Gray that he was "charmed" with the stream metaphor, but he concluded his next book, *The Variation of Animals and Plants under Domestication*, with an explicit rejection of Gray's

view. Using the metaphor of a house built with rocks found at the base of cliff, Darwin explained: "The fragments of stone, though indispensable to the architect, bear to the edifice built by him the same relation which the fluctuating variations of each organic being bear to the varied and admirable structures ultimately acquired by its modified descendants." Thus: "In regard to the use to which the fragments may be put, their shape may be strictly said to be accidental." [4]

In Darwin's metaphor, of course, the architect is natural selection, though he insisted that "natural selection means only the preservation of variations which independently arise." [5] Darwin concluded: "There seems to be no more design in the variability of organic beings, and in the action of natural selection, than in the course which the wind blows." [6] Although "I cannot look at the universe as the result of blind chance," he wrote, "yet I can see no evidence of beneficent design, or indeed of design of any kind, in the details." [7] Thus he was "inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what we may call chance." [8]

Darwin did not know the origin of new variations. It wasn't until the twentieth century that Neo-Darwinists attributed new variations to genetic mutations and traced those mutations to molecular accidents in DNA. In 1970, French molecular biologist Jacques Monod said that with the discovery of DNA's structure and function, "and the understanding of the random physical basis of mutation that molecular biology has also provided, the mechanism of Darwinism is at last securely founded." Therefore, Monod concluded, "Man has to understand that he is a mere accident." [9]

So living things may look as though they were designed, but according to Darwinism this is only an illusion. Darwinist Richard Dawkins has even defined biology as "the study of complicated things that give the appearance of having been designed." [10]

Thus Darwinism (by which I also mean Neo-Darwinism) consists of the following claims: (1) all living things are modified descendants of one or a few common ancestors; (2) the principal mechanism of modification has been the natural selection of accidental variations that originate in DNA mutations; and (3) unguided processes are sufficient to explain all features of living things—so design is an illusion.

### **Evidence for Common Ancestry**

If Darwinism is scientific, then it can and must be tested by comparing it with the evidence. Evidence commonly cited for Darwin's claim that all living things are descended from one or a few common ancestors includes the fossil record, anatomical and molecular homologies, the geographic distribution of species, and embryo development.

#### *(a) Fossils*

According to Darwin, modern species are descended from common ancestors through innumerable transitional forms. "By the theory of natural selection," he wrote, "all living species have been connected with the parent-species of each genus, by differences not greater than we see between the varieties of the same species at the present day; and these parent-species, now generally extinct, have in their turn been similarly connected with more ancient species; and so on backwards, always converging to the common ancestor of each great class. So that the number of intermediate and transitional links, between all living and extinct species, must have been inconceivably great." [11]

Yet the innumerable transitional forms required by Darwin's theory have not been found in the fossil record. The most glaring example of their absence is the Cambrian Explosion, in which most of the major animal body plans (called "phyla") appear in the fossil record at about the same time. [12] Darwin was aware of this, and he called it a serious problem that "at present must remain inexplicable; and may be

truly urged as a valid argument against the views here entertained." [13] He hoped that future fossil discoveries would help to fill in the gaps between the animal phyla, but those discoveries have only aggravated the problem. Paleontologists now acknowledge that the Cambrian Explosion "was even more abrupt and extensive than previously envisioned." [14]

Actually, it is impossible in principle for fossils to provide evidence for common ancestry. Imagine finding two human skeletons in the same grave, one about thirty years older than the other. Was the older individual the parent of the younger? Without written genealogical records and identifying marks (or in some cases DNA), it is impossible to answer the question. And this case would involve two skeletons from the same species that are only a generation apart and from the same location. With fossils from different species that are now extinct, and widely separated in time and space, there is no way to establish that one is the ancestor of another—no matter how many transitional forms we may find. In 1969, Gareth Nelson said in a presentation at the American Museum of Natural History: "The idea that one can go to the fossil record and expect to empirically recover an ancestor-descendant sequence, be it of species, genera, families, or whatever, has been, and continues to be, a pernicious illusion." [15]

### *(b) Homologies*

In its broadest sense, homology means similarity. Before Darwin it referred to anatomical features that are similar in structure and position despite differences in function (such as the bones in vertebrate forelimbs, which are used for walking, swimming, flying and grasping). Homology was contrasted with analogy, which referred to anatomical features that serve similar functions despite differences in structure (such as the wings of birds and insects). Pre-Darwinian biologists attributed homologies to construction on a common archetype or design, but Darwin attributed them to inheritance from a common ancestor. Darwin's followers have now re-defined homology to mean similarity due to common ancestry. [16][17]

But if homology is defined as similarity due to common ancestry, it cannot be used as evidence for common ancestry. Under the new definition, common ancestry must be established before we can tell whether two features are homologous. Attempting to use homology as evidence for common ancestry would thus constitute a circular argument: Common ancestry shows that features X and Y are homologous, which proves common ancestry.

The only way to break the circle would be to provide independent evidence—that is, evidence other than their similarity—that homologous features are inherited from a common ancestor. According to Neo-Darwinian theory, inherited genes direct the development of the embryo. So if it could be shown that homologous structures are produced by similar (but not different) genes, and that non-homologous structures are produced by different (but not similar) genes, we would have independent evidence that homology is due to common ancestry.

But this is not the case, and biologists have known it for decades. Some homologous structures—such as the body segments in fruit flies and locusts—depend on different genes. And many non-homologous structures—such as the eyes of octopuses and humans, or the legs of mammals and insects—depend on similar genes. In 1971, British biologist Gavin de Beer wrote: "It might be thought that genetics would provide the key to the problem of homology. This is where the worst shock of all is encountered," because "characters controlled by identical genes are not necessarily homologous... [and] homologous structures need not be controlled by identical genes." [18]

In the 1960s, evolutionary biologists began using molecular similarities alone as evidence for common ancestry. DNA, RNA and proteins consist of sequences of subunits, and similar sequences are now regarded as homologous much as similar anatomical features can be regarded as homologous. But sequence data are fed into a computer program that assumes they will fall into a branching-tree pattern

with a common ancestor at the root. So sequence homology suffers from the same circularity that makes anatomical homology useless as evidence for evolution.

To compound the problem, sequence comparisons are plagued with inconsistencies. In 1999, evolutionary biologist Michael Lynch wrote: "Clarification of the phylogenetic [i.e., evolutionary] relationships of the major animal phyla has been an elusive problem, with analyses based on different genes and even different analyses based on the same genes yielding a diversity of phylogenetic trees." [19]

Lynch was optimistic that molecular comparisons based on many genes instead of just one or two would eventually clarify relationships among the animal phyla, but this has not been the case. In 2005, Scottish evolutionary biologists Martin Jones and Mark Blaxter wrote: "Despite the comforting certainty of textbooks and 150 years of argument, the true relationships of the major groups (phyla) of animals remain contentious." [20] A few months later, American biologists who had used two different methods to analyze fifty genes from seventeen animal groups concluded that "different phylogenetic analyses can reach contradictory inferences with absolute support" and that the evolutionary relationships among the phyla "remain unresolved." [21]

So molecular comparisons, like anatomical homologies, have failed to confirm Darwin's theory.

### *(c) Geographic Distribution*

Darwin regarded the geographic distribution of species as important evidence for his theory. He wrote that "the presence of peculiar species of bats, and the absence of all other mammals, on oceanic islands" [22] is best explained by migration from the mainland: "No terrestrial mammal can be transported across a wide space of sea, but bats can fly across." [23] Yet Darwin acknowledged that some distributions cannot be explained by migration: "Many plants and animals, on mountain-summits, separated from each other by hundreds of miles of lowlands, where Alpine species could not possibly exist, is one of the most striking cases known of the same species living at distant points without the apparent possibility of their having migrated from one point to the other." [24] According to Darwin, such plants and animals had previously covered a wide area during the recent ice age, but "when the warmth had fully returned, the same arctic species, which had lately lived in a body together on the lowlands of the Old and New Worlds, would be left isolated on distant mountain-summits." [25]

So some cases of geographic distribution—the study of which modern biologists call "biogeography"—may be due to migration, while others may be due to the splitting of a formerly widespread population into small, isolated populations by changes in climate or geology—which modern biologists call "vicariance." [26] Darwin argued that all modern distributions of species could be explained by these two possibilities. Yet there are many examples of geographic distribution that are inexplicable by migration or vicariance.

One example is the worldwide distribution of flightless birds, or "ratites." [27] These include ostriches in Africa, rheas in South America, emus and cassowaries in Australia, and kiwis in New Zealand. Since the birds are flightless, explanations based on migration over vast oceanic distances are implausible. After continental drift was discovered in the twentieth century, it was thought that the various populations might have separated with the landmasses, but evidence suggests that ostriches and kiwis originated after the continents had already drifted apart. [28][29][30] Another example is freshwater crabs, which complete their life cycles exclusively in freshwater habitats and are incapable of surviving prolonged exposure to salt water. Today, very similar species are found in widely separated lakes and rivers in Central and South America, Africa, Madagascar, southern Europe, India, Asia and Australia, but fossil and molecular evidence suggests that these animals originated long after the continents had

separated.[31][32][33] So neither vicariance nor migration provides a convincing explanation for the biogeography of ratites or freshwater crabs.

In the mid-twentieth century Léon Croizat, a French biologist raised in Italy, studied the geographic distribution of these and many other species and found that Darwin's theory did "not seem to agree at all with certain important facts of nature." Indeed, he concluded, "Darwinism is by now only a straitjacket... a thoroughly decrepit skin to hold new wine." [34][35]

#### *(d) Embryos*

Darwin believed that his best evidence for common ancestry came from embryology. He had been informed that embryos of the most distinct species belonging to the same class are very similar in their early stages and become different only later in development. On his theory of descent with modification, new features arising in the course of evolution would be added to later stages in embryo development, so "the embryo comes to be left as a sort of picture, preserved by nature, of the ancient and less modified condition of each animal." [36]

"It seems to me," he wrote in *The Origin of Species*, "the leading facts in embryology" are "second in importance to none in natural history." And one of those leading facts, according to Darwin, was that "the embryo is the animal in its less modified state; and in so far it reveals the structure of its progenitor." [37] He considered this "by far the strongest single class of facts in favor of" his theory. [38]

Yet Darwin was mistaken about embryo development. Rather than starting out very similar, vertebrate embryos (for example) start out dramatically different from each other. They converge somewhat in appearance midway through development, then they become different again as they mature. After an animal egg is fertilized, it goes through a process called "cleavage," yet the cleavage pattern of a mammalian egg is radically different from that of fishes, amphibians, reptiles and birds. Then cells begin to rearrange themselves in a process known as "gastrulation," yet gastrulation in a fish is very different from an amphibian, and both are very different from reptiles, birds and mammals. This is certainly not a pattern in which the early stages are most similar and later stages are progressively more different.

The dissimilarity of early vertebrate embryos is well known. In 1894, British embryologist Adam Sedgwick pointed out that the doctrine of early similarity and later difference is "not in accordance with the facts of development." [39] In 1976, American biologist William Ballard wrote that it is "only by semantic tricks and subjective selection of evidence," by "bending the facts of nature," that one can argue that the earliest stages of vertebrate embryos are more alike than their adults. [40] And in 1987, Canadian embryologist Richard P. Elinson emphasized that the early embryos of frogs, chicks and mice "are radically different." [41]

So the fossil record posed a serious problem for Darwin; homologies could be due to common design instead of common ancestry; and the evidence from biogeography and embryology was not what Darwin thought it was.

### **Evidence for the Mechanism of Modification**

According to Darwin's theory, natural selection ("survival of the fittest") preserves favorable variations and eliminates unfavorable ones. New variations arise accidentally, and the favorable ones supposedly provide raw materials for evolution, producing the enormous diversity of life on Earth. But what does the evidence show?

#### *(a) Natural Selection*

Although natural selection was the cornerstone of his theory, Darwin had no actual evidence of it. There was plenty of evidence from domestic breeding that artificial selection could dramatically modify plants and animals, but when it came to natural selection the best Darwin could do in *The Origin of Species* was "give one or two imaginary illustrations."<sup>[42]</sup>

The first evidence for natural selection didn't turn up until a century later, when British physician Bernard Kettlewell released peppered moths onto nearby tree trunks and noted that birds preyed selectively on moths that were poorly camouflaged.<sup>[43]</sup> Kettlewell's experiments were discredited in the 1990s after it had become clear that peppered moths don't normally rest on tree trunks in the wild.<sup>[44][45][46]</sup> Nevertheless, modern biologists have observed natural selection in many other cases—such as finches on the Galápagos Islands.<sup>[47][48]</sup>

Antibiotic resistance in bacteria is often cited as an example of natural selection. After physicians in the twentieth century started using antibiotics to treat infections, some cases appeared in which the antibiotics lost their effectiveness. It turned out that some bacterial populations included one or more "resistant" organisms. After the antibiotic killed the susceptible organisms, the resistant ones multiplied and took over. Yet antibiotic resistance—like all other examples of selection, both natural and artificial—provides evidence only for minor changes within existing species.

Darwin claimed much more: "As man can produce, and certainly has produced, a great result by his methodical and unconscious means of selection, what may natural selection not effect?"<sup>[49]</sup> Indeed, he believed that "the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows."<sup>[50]</sup> Thus natural selection (he believed) will "banish the belief of the continued creation of new organic beings."<sup>[51]</sup> Obviously, the evidence does not justify such sweeping claims.

### *(b) Variation*

"Natural selection can do nothing," Darwin wrote, unless "profitable variations" occur.<sup>[52]</sup> But Darwin did not know the origin of variations—nor how they were passed on from generation to generation. His contemporary Gregor Mendel performed experiments showing that several features of pea plants were determined by discrete factors that were inherited according to a few simple rules. (The factors were later named "genes" by Danish botanist Wilhelm Johannsen.) But Mendel found Darwin's theory unpersuasive, and Darwinists ignored his ideas for half a century.<sup>[53][54][55]</sup>

By the 1930s, the evidence for Mendelian genetics had grown considerably, so Darwin's followers combined Darwinian evolution and Mendelian genetics into what became known as "Neo-Darwinism." In this view, variations are due to differences in genes, and new variations are the result of genetic mutations. But the vast majority of genetic mutations (if they have any effect at all) are harmful, and according to Darwin "any variation in the least degree injurious would be rigidly destroyed" and thus make no contribution to evolution.<sup>[56]</sup>

A few rare mutations are beneficial—such as those that cause some cases of antibiotic resistance. But all known beneficial mutations affect only single molecules; they do not confer favorable new anatomical characteristics or produce new species. Antibiotic resistant tuberculosis bacteria are still tuberculosis bacteria.

A technique known as "saturation mutagenesis" has been used to produce mutations in genes that affect embryo development in fruit flies, roundworms and zebrafish; the same technique is now being used in mice.<sup>[57][58]</sup> The results are always either trivial or harmful. All of the evidence points to one

conclusion: No matter what we do to the DNA of a fruit fly embryo, there are only three possible outcomes: a normal fruit fly, a defective fruit fly, or a dead fruit fly. Not even a new species of fruit fly, much less some other form of insect.

### *(c) Speciation*

If all species after the first are descended with modification from other species, then everything in Darwin's theory depends on the origin of new species, which biologists call "speciation." As evolutionary biologist Ernst Mayr wrote in 1982: "Darwin called his great work *On the Origin of Species*, for he was fully conscious of the fact that the change from one species into another was the most fundamental problem of evolution."<sup>[59]</sup>

Yet despite the title of his book, Darwin never solved the "mystery of mysteries," as he called it.<sup>[60]</sup> Nor have his followers. In 1997, evolutionary biologist Keith Stewart Thomson wrote: "A matter of unfinished business for biologists is the identification of evolution's smoking gun," and "the smoking gun of evolution is speciation." Before Darwin, centuries of artificial selection had seemingly demonstrated that species can vary only within certain limits. "Darwin had to show that the limits could be broken," wrote Thomson, "so do we."<sup>[61]</sup>

The best way to find "evolution's smoking gun" would be to observe speciation in action. Some new plant species have been produced artificially by doubling the number of their chromosomes, but no one has ever observed the origin of a new species by variation and selection. In 2001, British bacteriologist Alan H. Linton wrote that he had gone looking for direct evidence of Darwinian speciation. He concluded: "None exists in the literature claiming that one species has been shown to evolve into another. Bacteria, the simplest form of independent life, are ideal for this kind of study, with generation times of twenty to thirty minutes, and populations achieved after eighteen hours. But throughout 150 years of the science of bacteriology, there is no evidence that one species of bacteria has changed into another... Since there is no evidence for species changes between the simplest forms of unicellular life, it is not surprising that there is no evidence for evolution from prokaryotic [e.g., bacteria] to eukaryotic [e.g., plant and animal] cells, let alone throughout the whole array of higher multicellular organisms."<sup>[62]</sup>

So Darwinists believe that all species have descended from a common ancestor through variation and selection, but they cannot point to a single observed case in which even one species has originated in this way. Evolution's smoking gun is still missing.

### **Darwin's One Long Argument against Creation by Design**

Although there is abundant evidence for minor changes within existing species, the often-heard claim that there is "overwhelming evidence" for Darwin's theory is false. Darwin called *The Origin of Species* "one long argument,"<sup>[63]</sup> but it was not scientific; instead, it was basically theological. It took this general form: The facts of nature are inexplicable on the theory of divine creation, but make sense on the theory of descent with modification.

In *The Origin of Species*, Darwin used his "inexplicable on the theory of creation" argument most frequently in connection with the geographic distribution of species. "Why," he asked, "has the supposed creative force produced bats and no other mammals on remote islands? On my view this question can easily be answered; for no terrestrial mammal can be transported across a wide space of sea, but bats can fly across."<sup>[64]</sup>

Darwin used the same form of argument in dealing with homologies. For example, "Why should similar bones have been created in the formation of the wing and leg of a bat, used as they are for such totally

different purposes?" Darwin assumed that God would not have constructed wings and legs that way—though this is a theological assumption, not a scientific one.[65]

So Darwin defended his theory by arguing against a particular view of God and creation. In 1979, Georgia State University historian Neal C. Gillespie noted that "Darwin's theological defense of descent with modification" rested on his conception of the creator, and *The Origin of Species* was "significantly dependent on theology" for the force of its argument.[66] In 1982, historian of science Barry G. Gale wrote that "given the relative paucity of evidence then available to Darwin," he was forced to rely heavily on the argument that his theory was better than the doctrine of special creation—and this was his "strongest line of arguments." [67] According to biophysicist Cornelius G. Hunter, the essence of Darwin's "one long argument" was that "evolution is true because divine creation is false" and it depended "every bit as much on the theology as on the science." Hunter concluded that Darwinism "was never scientific to begin with." [68]

This is an odd way to defend a supposedly scientific theory. In what other field of science would a statement about an omnipotent creator qualify as evidence? Would a geologist argue for continental drift by asking, "Why, on the theory of creation, should the eastern contour of the Americas resemble the western contour of Europe and Africa?" Or would a physicist argue for gravitational attraction on the grounds that the fall of an apple is "inexplicable on the theory of creation?"

It turns out that Darwinism bears less resemblance to modern science than to ancient materialistic philosophy.

### **The Resemblance of Darwinism to Ancient Materialistic Philosophy**

Six centuries before Christ, the Greek philosopher Anaximander asserted that the first living things emerged from formless matter and then underwent transmutations to produce a wide variety of forms. In what some commentators regard as a primitive form of evolutionary theory, Anaximander apparently held that humans descended from some other species of animal—probably a fish.[69] A century later the Greek philosopher Empedocles taught that the chance interplay of earth, air, fire and water produced disconnected organs and limbs that wandered aimlessly about until they combined spontaneously to make whole creatures. Most of the resulting combinations were monstrosities—with faces and breasts on the back as well as front, or half ox and half human—that were so maladapted that they perished. Among the few that survived were creatures that eventually developed into modern humans.[70]

Leucippus and Democritus in the fifth century B.C. and Epicurus in the fourth century B.C. advocated a materialistic philosophy in which no gods exist—only atoms and the void.[71][72][73] In the first century B.C., the Roman philosopher Lucretius immortalized this view in his long poem "On the Nature of Things." Book Five begins with an attack on religion and teleology, then it lays out a theory of survival of the fittest that is remarkably similar to Darwin's. Although Lucretius did not suggest that all living things are descended from a common ancestor, he believed that all living organisms (including human beings) are products of aimless interactions among atoms. If they are well adapted to their environment, they survive and leave descendants; if not, they perish.[74][75]

Some modern followers of Charles Darwin regard these ancient thinkers as their intellectual forebears. According to a 1996 statement on a pro-Darwin web site maintained by the University of California at Berkeley, "evolutionary theory begins" with Anaximander. Although his ideas "drew on the religious and mythical ideas of his time, he was still one of the first to attempt an explanation of the origin and evolution of the cosmos based on natural laws." Thus Anaximander's theory "bears some resemblance to evolutionary theory." According to the same web site Empedocles proposed a theory that "seems a bit bizarre today" but was nevertheless "a sort of evolutionary theory: Past natural selection is responsible for

the forms we see today. Empedocles also ascribed the origin of the life of today to the interplay of impersonal forces, in which chance, not the gods, played the major role." Thus the Greeks "led the way in developing a general scientific worldview—one in which natural, non-miraculous explanations for the causes of phenomena were sought." [76]

Of course, there were differences between the ideas of the ancient Greeks and modern Darwinism, but they were similar in one fundamental respect: They attributed cosmic and biological origins to unguided natural processes rather than divine design. As modern evolutionary biologist Ernst Mayr put it, the ancient Greek theories "constitute the first scientific revolution, so to speak, a rejection of supernatural in favor of materialistic explanations." [77]

For Mayr and the author of the Berkeley web site, and for other followers of Charles Darwin, "science" is synonymous with "materialistic explanation." In this respect, they are following in the footsteps of ancient materialistic philosophers. Although many people think that Darwin presented overwhelming evidence for his theory, nothing could be further from the truth. Darwinism is essentially materialistic philosophy rather than empirical science, and as such it is utterly inconsistent with Unification Thought.

### **Unification Thought**

Unification Thought [UT] is based on the teachings of Sun Myung Moon, who in 1935 had a vision of Jesus Christ, spent the next ten years praying and studying the Bible and other religious traditions, and by 1945 had formulated a body of teachings that became known as the Divine Principle. [78][79][80] In the 1950s, physician Sang Hun Lee began the task of organizing the Divine Principle from a philosophical perspective, and the result was Unification Thought, which according to Dr. Lee is "but one expression" of Reverend Moon's teachings. [81][82]

Unification Thought affirms that God is the creator of all things visible and invisible. God is one but has an inner life; in this respect UT is similar to Christian theology, though Unification Thought describes God's inner life differently. Among other things, UT uses terms from East Asian thought rather than Greek philosophy.

Two important terms are *sungsang* and *hyungsang*. Roughly, the first means internal character or mind; the second means external form or shape. God's "original *sungsang*" refers to "the faculties of intellect, emotion, and will," while God's "original *hyungsang*" refers to "ideas, concepts, laws, and mathematical principles." By analogy to a human being, *sungsang* is like the mind and *hyungsang* is like the body. [83]

God's *sungsang* and *hyungsang* emanate from God's inner core, which is *shimjung*, or heart. UT describes this as the "emotional impulse to seek joy through love." Thus one way to conceptualize God's nature is as a series of concentric circles. By analogy to humans, "emotional impulse" means an "irrepressible desire that wells up from within us." Since "joy can be obtained only through love," or giving oneself to another, "God created human beings and all things as his object partners of love." [84]

Although God does not have a physical form, the divine *hyungsang* is said to contain "elements that have form." Among these elements are ideas, which have existed within God from the beginning. Everything in creation corresponds to an idea in God, so "all things were created according to the ideas and concepts he had in his mind." God's *hyungsang* is "the fundamental cause of the corporeal, material aspect of all created beings," as well as "the actual forms of all things." [85] Thus Unification Thought is consistent with the traditional Christian view of Augustine, Maximus and Aquinas that all created beings have their pre-existent ideas in the mind of God. [86]

In addition to having the primary ("direct") dual characteristics of sungsang and hyungsang, God has secondary ("indirect") dual characteristics of yang and yin. God's sungsang has both yang and yin, and God's hyungsang has both yang and yin. Yang and yin refer to different but complementary aspects of intellect, emotion, and will; they also refer to masculinity and femininity, which are thus present in God.[87]

Darwinism has no adequate explanation for the origin of gender differences. An organism can reproduce much more efficiently by dividing (as bacteria do) than by having to find a mate in order to generate offspring. The Darwinian mechanism of variation and selection cannot adequately explain why or how sexual reproduction evolved. In 1998, the journal *Science* acknowledged that biologists "haven't solved the mystery of sex yet... How sex began and why it thrived remain a mystery." [88] According to Unification Thought, however, masculinity and femininity originated in God's own nature. Thus "male and female came into existence, not because of evolution, but because they were created in the likeness of the Creator." [89][90]

Divine Principle explains that "joy comes when we have an object, whether invisible or visible, in which our own character and form are reflected and developed." According to Unification Thought, all created beings reflect to some extent the dual characteristics of God—they all have sungsang and hyungsang as well as yang and yin—so God "feels joy from all things." But "God's love is fully realized through human beings who resemble God." All other things "are God's embodied object partners in symbol," while "human beings are God's embodied object partners in image." Thus human beings are the ultimate purpose of creation. [91][92]

As we saw above, however, Darwinism asserts that all living things are accidental by-products of unguided natural processes. This implies that human beings, as the latest by-product of a long purposeless process, are the most accidental creatures of all. By asserting that human beings are the most designed creatures of all, Unification Thought unequivocally and absolutely contradicts Darwinism.

But if human beings are the ultimate purpose of creation, why didn't God make them first? And why did God make it look as though—in some respects, at least—human beings are modified descendants of living things that preceded them?

### **The Order and Process of Creation**

Fossil evidence suggests that life on Earth originated about three and a half billion years ago, starting with prokaryotes (single-celled organisms without nuclei, such as bacteria). Much later came eukaryotes (cells with nuclei), which included algae and single-celled animals (protozoa). Multicellular marine animals appeared long after that. Then came land plants, amphibians, reptiles, mammals, primates, and finally humans. Not only did living things appear in a certain order, but in some cases they also had features intermediate between organisms that preceded them and those that followed them. Brown University biologist Kenneth R. Miller challenges critics of Darwinism to explain why we find "one organism after another in places and in sequences... that clearly give the appearance of evolution." [93]

The answer is found in various traditions, including Christianity. "Far from denying life's progression, tradition provides a reason for it," wrote religion scholar Huston Smith in 1976. "Earth mirrors heaven. But mirrors, as we have noted, invert. The consequence here is that that which is first in the ontological order appears last in the temporal order." Smith explained: "In the celestial realm the species are never absent; their essential forms or archetypes reside there from an endless beginning. As earth ripens to receive them, each in its turn drops to the terrestrial plane." But "first a viable habitat must be devised, hence the inorganic universe is matured to a point where life can be sustained. And when living beings do arrive, they do so in a vaguely ascending order that passes from relatively undifferentiated organisms... to

ones that are more complex." Thus, "man, who is first in the order of worth on the terrestrial plane, will be last in the order of his appearance." [94]

Unification Thought takes a similar position. Sang Hun Lee wrote in 1991:

"Prior to creating the universe, God first envisioned the image of the human being, which resembles God's own image. Then, using the human image as the prototype, and in likeness to it, God formed the idea of the various things of creation." [95]

Thus the similarities between us and other living things are a result of common design—not common ancestry, as Darwinism claims. By

...taking the conception of the human being as the prototype, God developed the conception of animals; then, based on the conception of animals, he developed the conception of plants; and based on the conception of plants, he developed the conception of minerals. Hence, in the process of conceptions, God first developed the conception of human beings, then that of animals, plants, and finally minerals, proceeding downward. With regard to actual creation, however, the order of the universe was the exact opposite. Specifically, God first created minerals (i.e., the elements of the heavenly bodies), then plants, animals, and finally human beings, proceeding upward." [96]

This is called the "two-stage structure of creation."

The first step in the actualization of God's design was to create a universe capable of sustaining life. The general characteristics of the universe are determined by several dozen physical constants, including the force of gravity, the strength of the electromagnetic force, the ratio of the masses of protons and electrons, and the force that holds atomic nuclei together. If any of these were even slightly different from what they are, the universe could not support life—and might not exist at all.

The chemical elements are also uniquely suited for life. For example, carbon is unusual in its ability to combine chemically not only with itself but also with many other elements, making possible the vast number of complex compounds needed by living cells. Several other elements, most notably hydrogen, oxygen, nitrogen and phosphorus, are uniquely suited to combine with carbon to form biologically active molecules. As molecular biologist Michael Denton wrote in 1998: "It is as if from the very moment of creation the biochemistry of life was already preordained in the atom-building process." Among other things, according to Denton, "water is uniquely and ideally adapted to serve as the fluid medium for life on Earth in not just one, or many, but in every single one of its known physical and chemical characteristics." [97]

So the universe and its elements were designed for life. But human beings also need a relatively narrow range of temperature, pressure, and other physical parameters—such as those found on the planet Earth. Suitable conditions must also include an oxygen-rich atmosphere, and among the first living organisms to appear on the barren Earth were photosynthetic bacteria that utilized energy from the sun to convert carbon dioxide and water into carbohydrates and oxygen. When animals appeared, they (like us) obtained energy by converting carbohydrates and oxygen into carbon dioxide and water; in a perfect recycling operation, photosynthesis then continued to turn their waste products back into carbohydrates and oxygen.

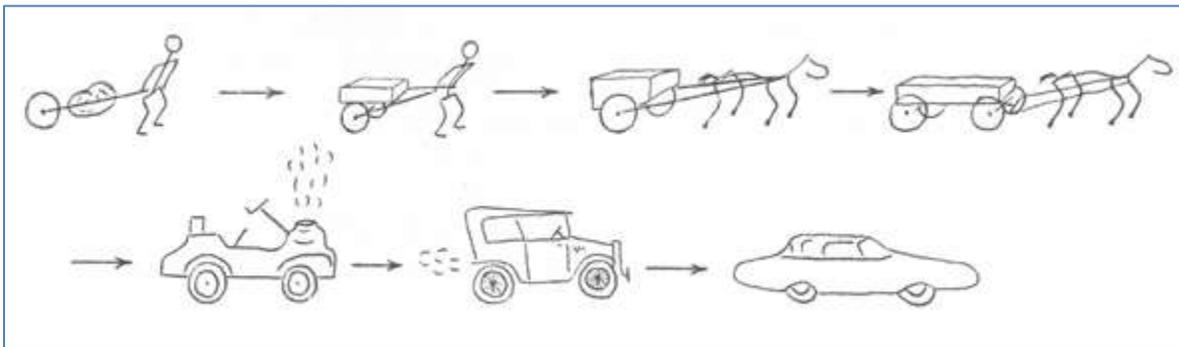
Along with carbohydrates, the human body needs various other nutrients, including specific amino acids, minerals, and vitamins. Our nutritional needs are quite complex and must be met on a regular basis, so our existence depends on food obtained from the plants and animals around us. But the existence of those organisms depends, in turn, on a balanced ecosystem that accommodates their needs. God's original plan must have included a self-sustaining biosphere with a stable food chain, in which reproduction and

growth were balanced by death and decay. Such a biosphere had to precede the creation of human beings in order to provide a suitable environment for them.

In 1999, Darwinist Kenneth Miller asked: Why would God, "in order to produce the contemporary world, find it necessary to create and destroy creatures, habitats, and eco-systems millions of times over?" Miller considered extinction to be evidence against the existence of a God who designed living things.[98] In contrast, Unification Thought answers: "Those things that were prepared as the environment for human life have remained until today as they were, but those that were required only for the course of creating the human being and for the course of creating the environment for human life disappeared when those courses passed." Thus not every living thing that God created was intended to survive to the present.[99]

But why do some organisms resemble their predecessors, and sometimes even give the impression that they might be descended from them? According to Unification Thought, God created new species, organs and body plans by building on what went before, then changing the instructions for embryo development. "When a new species is created, God's power works to bring about an abrupt change... [in its] blueprint." Thus creation "took place, not in a continuous way, but by stages... God's power worked, whereby a certain species was created; after that, a certain period of time passed—which could be called a growth period, or a preparation period—and again God's power worked, whereby a new species was created." Exactly how this happened, we don't know, but "the day will come when this question will be clarified through the results of scientific research." [100]

As the word "blueprint" suggests, creating a new species is analogous to building a house. According to Unification Thought, "we first have a purpose and a plan in our mind and then we make a blueprint." Then "a house is actually built using materials according to the plan... Building a house with materials in accordance with the plan is give and receive action which takes place outside the mind." [101] Another analogy, used in a 1973 Divine Principle Study Guide, is the history of invention of wheeled vehicles culminating with the automobile:



*Analogy between Human Invention and the History of Living Things*[102]

UT suggests is that species change from within, and this is due to a purposeful alteration of their *sungsang* rather than an accidental change in their material composition such as their DNA. According to physicist (and Unificationist) Richard L. Lewis, quantum mechanics "requires that evolution have an internal aspect," and research on this may eventually help to explain things Darwinism cannot.[103][104][105]

Although a process of creation guided by God might superficially resemble a pattern of descent with modification, Unification Thought differs fundamentally from Darwinism by maintaining that new species need not be biologically descended from others—just as the vehicles in Figure 1 were separate inventions even though they built upon what went before. Yet there is a certain continuity between successive species, for at least two reasons. First, organisms that do not rely on photosynthesis must have

food that already contains the complex molecules they need for their metabolism. That is why living things exist in a food chain. In the order of creation, organisms at the lower levels of the food chain had to come first, and organisms that came later had to resemble them in order to use them for food. Second, when a higher organism is born it needs the care and protection of its parents in order to survive and grow. The first individual of a new species of higher animal would thus need to be raised by an animal somewhat similar to it, until it was mature enough to fend for itself. Thus Unification Thought explains—as Darwinism does—why so many organisms resemble the ones that preceded them, but UT's explanation relies on successive acts of creation rather than biological descent with modification.

Unification Thought also explains—as Darwinism does not—why higher forms of life evolved at all. From the perspective of survival of the fittest, there is no reason why the world should be inhabited by anything more than bacteria, which by Darwinian criteria are the most successful form of life. From the perspective of UT, however, a variety of creatures were needed to prepare the way for human beings, which were the goal of creation from the start. For example, since human babies need milk to survive and grow, mammals had to exist before humans appeared. And not just any mammal: The first human baby would have needed nurturing by a creature very much like itself—a humanlike primate. This creature, in turn, could only have been nurtured by a creature intermediate in some respects between it and a more primitive mammal. In other words, a plan for the emergence of human beings must have included something like the succession of pre-human forms that we find in the fossil record. Only after such preparation could God put the first human beings on the Earth.

### **Adam and Eve**

Several religious traditions, including Judaism and Christianity, teach that the human species began with one male and one female, whom Genesis calls Adam and Eve. But Darwinism claims that our species originated when an entire population of pre-human primates gradually evolved into human form; there never was an original pair.

Some modern Christian theologians simply assume that Darwinism is true, that Adam and Eve never existed, and that the traditional Christian view must be revised to accommodate this fact. As we saw above, however, these assumptions are unwarranted. There is no scientific reason—that is, no reason based on evidence as opposed to philosophical or theological assumptions—to abandon the traditional view that our species began with one male and one female.

How, exactly, did God create Adam and Eve? As we saw above, Unification Thought (like Judaism and Christianity) maintains that human beings were created in the image of God. In 1965, some of Reverend Moon's followers asked him questions about human origins. He said (according to an unofficial translation): "Adam and Eve were produced by exactly the same process as we produce a child. By strong love and energy of father and mother, a child is conceived and grows, first within the womb, then outside of it. In the same way, God created Adam and Eve. By his love and energy, a little thing was created which grew and grew and became Adam." When asked whether Adam and Eve were born of God as we understand birth, that is, physiologically, he said: "Through the power of God, Adam and Eve were created as a baby is created by humans today. Man was a special creation." When asked whether Adam and Eve had earthly, physical parents, he said: "No! The source of creation is energy. You don't need physical parents to be created. Adam was a special creation." [106] Yet in 1999, Sun Myung Moon said that Adam had a navel and grew up in his mother's womb, just as we do. [107][108]

These statements are enigmatic, even paradoxical. Adam and Eve were special creations who did not have biological parents—yet they began life the same way we did, as babies in the womb. How can we resolve the paradox?

According to Unification Thought, ape-like creatures preceded human beings, but the idea for the human came first. Thus "the human being looks like an ape, not because humans evolved from the ape, but instead, because the ape... was created in the likeness of human beings." At the appropriate time, God created the sungsang of human beings, and then re-organized material in the wombs of two ape-like females, "whereby the programs of the genes were changed, and a new species was created." [109] Adam and Eve were subsequently born as children are born today; they had navels because they had been nourished in the womb by creatures very much like us. Yet their ape-like predecessors were only their surrogate parents, not their biological parents. It was God himself who fashioned them in the womb from materials that were already there.

The same ape-like creatures that gave birth to Adam and Eve could have nourished and protected them as infants. Once Adam and Eve were able to care for themselves, the species that provided their surrogate parents was no longer needed and went extinct, like many other living things that were required only to prepare the environment for us. Sang Hun Lee wrote in 1978 that they were like "a scaffold" that is dismantled "after a building is completed." [110]

Unlike their surrogate parents, Adam and Eve were created with spirits. As we saw above, every created being has sungsang and hyungsang, and the former can be called "mind." Most living things, however, have only a physical mind, which directs their activities needed for survival and reproduction. But we were created in the image of God, who is spiritual rather than physical, so we have both a physical mind and a spiritual mind. According to Unification Thought, a human is a "united being of spirit mind and physical mind." Our spirit mind gives us the potential to become like our heavenly Parent: "The function of the spirit mind is to guide us in pursuit of a life of truth, goodness, beauty, and love, namely, a life of value." And a life of value is "a life of love in which one lives for the sake of the family, tribe, nation, humankind, and ultimately for God." [111][112][113]

## **Conclusions**

In most senses of the word, evolution is uncontroversial. Serious controversy arises only from Darwin's theory of biological evolution and its modern variants (Darwinism), according to which all living things are descendants of one or a few common ancestors, modified by unguided processes such as natural selection and genetic mutations.

Darwinism is controversial, first, because it conflicts with the scientific evidence. To be sure, there is abundant evidence for minor changes within existing species, but Darwinism purports to explain the origin of new species, organs, and body plans, and natural selection and genetic mutations have never been observed to accomplish any of these things. Furthermore, the alleged common ancestry of all living things faces serious anomalies in the evidence from fossils, homology, biogeography, and embryo development.

Darwinism is also controversial because of its exclusion of design and its insistence on the sufficiency of natural causes. In these respects, Darwinism resembles ancient materialistic philosophy more than modern empirical science. It is a worldview rather than an inference from evidence. So the conflict between Unification Thought and Darwinism is not a conflict between religion and science, but two opposing worldviews.

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