



"The heavens declare the glory of God" (Psalm 19:1)

REASONS TO BELIEVE - SEATTLE AREA CHAPTER

NEWS AND VIEWS

SEPTEMBER 2007

What's Happening?

[Ross on the Radio](#)

Dr. Ross will be interviewed with Amir Aczel, author of *Probability 1*, on "Mancow's Morning Madhouse," September 25 at 6:45 AM Pacific. The topic is the scientific evidence for intelligent life in the universe, with Aczel claiming it is a near certainty. You can listen live via the web at Mancow.com.

[David Klinghoffer at Town Hall](#)

Writer and senior Discovery Institute fellow David Klinghoffer warns that Seattle suffers from moral retardation that could spread to the rest of the country. He will speak at Seattle Town Hall on October 1 at 7:30 PM on his new book *Shattered Tablets* and the role of religion in society.

[We Do Presentations](#)

The Seattle chapter does presentations on wide range of topics ranging from the scientific evidences for God, to the age of the earth debate. If your church or group is looking for speakers, contact us at seattle@reasons.org.

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Bird Evolution: The Evidence

RICHARD P. GERHARDT

INTRODUCTION

We live in a culture and time in which neo-Darwinian macroevolution is taught as though it were the empirically-proven explanation for the existence and variety of life on Earth. According to this view, all life has descended from a single common ancestral form through the process of natural selection acting upon random genetic mutations.

Acceptance of this explanation is not, however, universal among scientists, and serious counterarguments are increasingly raised by philosophers and legal experts.¹ The focus of many of these objections to macroevolutionary theory is its lack of evidential support (and the existence of contrary evidence). In this paper, I will present the alternate view of life's diversity held by many of Darwin's contemporaries, and characterized especially by the understanding of eminent anatomist and zoologist Georges Cuvier. I will then discuss evidence that is new since Darwin's and Cuvier's day and that has bearing upon which view is more accurate. Of course, neither view need be accepted wholesale. Nonetheless, this comparison will enable us to test the two views on the basis of evidence. Throughout this discussion, I will focus on birds as a particular test case with the understanding that the resulting conclusions have general application to other life forms as well.



Typology: The View to Which Darwin Offered an Alternative

We today do not appreciate the audacity of Darwin's claims, the degree to which what he proposed was at odds with the view of most of his contemporaries in zoology. Darwin wrote "By the theory of natural selection all living species have been connected with the parent-species of each genus, by differences not greater than we see between the natural and domestic varieties of the same species at the present day." He also stated straightforwardly the corollary that "the number of intermediate and transitional links, between all living and extinct species, must have been inconceivably great."² In other words, the vast gaps we observe between,

say, the hummingbird and the ostrich or (better still) between the pterosaur and the cormorant were at one time in evolutionary history filled by organisms each of which differed from the next by no more than the difference we see today between an Eastern Screech Owl and a Western Screech Owl. This speculative view was one that stood in stark opposition to the typological understanding of the anatomists, physiologists, and paleontologists of Darwin's generation.

The typological view (simply put) observed that organisms (both living and extinct) fell into different types or groupings that were isolated from one another.³ The vast gaps between, for example, reptiles and birds were—from a typological perspective—unbridgeable, and Darwin's efforts to bridge them by speculation were deemed ultimately futile. One of the most notable apologists for this typological understanding was Georges Cuvier, arguably the founder of comparative anatomy and of vertebrate paleontology. Comparative anatomy seemed to him to suggest that all organisms are integrated wholes whose parts are made to function together. This understanding led Cuvier and others to dismiss (what we now call) macroevolutionary scenarios out of hand.

It is important to note two things about typology. First, this view was (and is) diametrically opposite to Darwin's view. Harvard professor of zoology Louis Agassiz wrote (in response to Darwin's theory), "It is my belief that naturalists are chasing a phantom, in their search after some material gradation among created beings, by which the whole Animal Kingdom may have been derived by successive development from a single germ, or from a few germs."⁴ To typologists, each hypothetical transitional form (an "inconceivably great" number of which are required according to Darwin's theory) was itself incoherent, non-functional, and subject to immediate extinction. In short, "bird" is not only a meaningful but also an immutable concept. While birds display a great deal of variation, and while extinct birds may have differed from those living today, there is something about "birdhood"⁵ that is unalterable. On this view, to speak of a reptile "becoming a bird" (no matter how long a time period is in view) is intrinsically nonsensical. According to typology, the divisions of nature are grounded in necessity.

Secondly, all these scientists—Cuvier, Agassiz, Carl Linnaeus (botanist and founder of modern taxonomy), Richard Owen (anatomist, taxonomist and the coiner of the term "dinosaur"), and Charles Lyell (geologist)—appealed primarily to evidence (not metaphysics) in their defense of the discontinuous view of nature and their repudiation of Darwin's theory.⁶ Darwin himself called the fossil evidence "the most obvious and gravest objection which can be urged against my theory"⁷ and the reason "all the most eminent paleontologists ... and all our greatest geologists ... have unanimously, often vehemently, maintained the immutability of species."⁸

In Darwin's time, two aspects of the fossil record were particularly at odds with his theory: the absence of transitional intermediates (life forms bridging the many obvious gaps) and the sudden appearance of life, fully-formed and adapted to its environment. The latter problem was exemplified by what is called the Cambrian explosion, a brief period beginning 530 million years ago, in which nearly all of the animal phyla (singular phylum, the taxonomic grouping that differentiates among general body plans) arose suddenly. Regarding the Cambrian explosion, Darwin wrote, "The case at present must remain inexplicable, and may be truly urged as a

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In the **NEWS...**

[Gap in Clues to Human Origins](#)

This New York Times article discusses a glaring problem with the evolutionary model of human origins. While evolutionists claim the genus *Homo* evolved from earlier hominids, there is a million year gap in the fossil record. Go to: http://www.nytimes.com/2007/09/18/science/18evol.html?_r=2&th&emc=th&oref=slogin&oref=slogin.

[Star Light & the Age of the Universe](#)

Some young-earth creationists claim star light was created in transit. If this is true, Gregory Koukl of Stand to Reason explains we are seeing deceptive images of things that never occurred—something that is contrary to God's nature. Go to <http://www.str.org/site/News2?page=NewsArticle&id=5639>.

[After the Stem Cell War](#)

This Breakpoint article points out that the debate over embryonic stem cells has diverted attention from other emerging technologies which raise equally important ethical issues because they are seen as a way to improve—re-engineer—the human species. Go to: <http://www.breakpoint.org/listingarticle.asp?ID=7082>.

[Exhuming the Peppered Mummy](#)

The 1950s peppered moth study has been largely discredited. This Jonathan Wells article discusses a recent claim that the peppered moth proof for evolution should be taught in schools. According to Wells, this is a case of conclusion first, evidence later. Go to: <http://www.discovery.org/csc/> and look under "Lastest News & Views."

[Did Morals Evolve?](#)

This Stand to Reason article examines the claim that the human conscience evolved as a survival mechanism. It contends morality is not merely a behavior but an internal compulsion to do what's right. As such, it must come from a higher moral law. Go to: <http://www.str.org/site/News2?page=NewsArticle&id=5458>.

Book Reviews

Big Bang

Simon Singh
Harper Collins, 2005

Reviewer: Michael Minard



This book takes the reader on an incredible, historical journey from the origins of the scientific method to “one of the greatest achievements of the human intellect and spirit.” The Big Bang model provides an elegant explanation of the origins of our physical universe and is the result of unquenched curiosity, spectacular imagination, precise observation and “ruthless logic”.

The first section is appropriately titled: “In The Beginning”. Singh touches on creation myths from a handful of ancient cultures and how they reflect the respective environments and societies from which they originated. From here, the author makes a case for the ancient Greeks (Eratosthenes, Aristarchus and Anaxagoras, etc.) as the first “proto-scientists” by comparing them to the Babylonians and the Egyptians.

In the 16th Century, Copernicus constructed a Sun-centered model of the universe. Thomas Kepler improved on Copernicus’s model using Tycho Brahe’s observations. Galileo championed the model further by demonstrating the sun has spots, Jupiter has moons, and Venus has phases. By the 20th Century, cosmologists began addressing the biggest question: Was the universe created or had it existed for eternity?

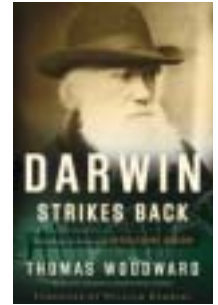
Einstein’s special and general theories of relativity set the foundation for the “Great Debate” to follow. Georges Lemaitre posited a “primeval atom” from Einstein’s general theory of relativity. Edwin Hubble’s observations and measurements of galaxies demonstrated the universe was expanding. Fred Hoyle and his buddies proposed a Steady State Model of the universe. The debate was on.

The big bang story is one of a massive undertaking that was influenced by world wars, deaths, disease, expeditions, destiny, ideologies, prejudices, petty sniping and ego clashes. In spite of it all, the Big Bang model was developed into a coherent and consistent description of our universe. Singh does an exceptional job of telling this story through biographical sketches, diagrams, illustrations and tables. A spectacular,

Darwin Strikes Back

Thomas Woodward
Baker Books, 2006

Reviewer: Mike Brown



This book addresses three questions about the intelligent design movement:

1. Who are the key players on each side and what contributions have they made?
2. How has the debate developed and where is it headed in the future?
3. What conclusions can we draw about our origins based on the scientific evidence?

In the forward to the book, William Dembski makes the following comment. “It’s been said that cultural and intellectual movements go through three stages: first, they are ridiculed; second, they are violently opposed; and third, they are accepted as second nature so that people can’t even imagine what the fuss was all about. In this book, Woodward shows how the ID movement has now entered the second stage, and then he assesses how we are doing.”

This book is a follow-up to Woodward’s introductory book on the history of the Intelligent Design movement, *Doubts About Darwin* (see our April 2005 newsletter). In this volume he evaluates the reactions to the Design movement, especially recent publications attacking books and presentations by ID proponents. In chapter 11 he points out that cosmologists have become unexpected allies of ID. He points out that Mark Perakh, an avowed Darwinian evolutionist dedicates one entire chapter to attempting to refute Dr. Ross’s evidence for design.

In chapter nine Woodward makes the following recommendation. “If I had to choose one book for every student to buy and read on chemical evolution, it would come down to a virtual tie—Fazale Rana and Hugh Ross’s powerful *Origin of Life* (2004) comes in first by a nose, and Paul Davies’s older (1999) but eloquent *The Fifth Miracle* comes in second.”

You don’t have to read Woodward’s first book on the ID movement to appreciate this one. He provides an adequate review of the movement in this volume to get the reader up to speed. I thoroughly enjoyed both of his books.

valid argument against the views here entertained.”⁹

Though the fossil evidence contradicted his theory, Darwin didn’t see this as fatal. Rather, he insisted that paleontology was a young science and that further digging would uncover some of the necessarily vast number of transitional forms. This scientific prediction, if fulfilled, would support his theory and, if unfulfilled, would prove it false.

It is important to point out that Darwin’s theory was not entirely speculation, and that he did appeal to evidence. Unfortunately, the sorts of evidence involved are not the kind that would differentiate between his view and the typological understanding. Darwin observed that organisms tend to produce far more offspring than is necessary to replace themselves, and that competition, predation, and other environmental factors may have a selective effect upon which offspring survive to reproduce. These ecological observations were acknowledged by typologists and accounted for within their understanding. Likewise, both views recognized the probability that traits are somehow heritable from one generation to the next. And while Darwin extrapolated the variation observable among organisms to account for their bridging the large gaps between them, typologists acknowledged the variation but firmly believed it to be limited, that an organism could not vary too far from its type and still survive to reproduce.

Since Darwin proposed his theory, the amount and types of evidence that can be brought to bear on this issue—of whether typology or macroevolution more accurately describes life on Earth—has changed and increased. For the remainder of this paper, I will briefly discuss that evidence, addressing—in each case—whether the evidence is neutral or whether it tends to support one or the other of these different views.

The Fossil Record

Has subsequent research revealed a wealth of transitional intermediates? Does the fossil record demonstrate that species appear gradually and undergo change throughout their tenure on earth? Has the extent and significance of the Cambrian explosion been diminished by the latest evidence? The answer is a resounding “No!” Harvard paleontologist Stephen Jay Gould wrote, “The history of most fossil species includes two features particularly inconsistent with gradualism...”¹⁰ These are stasis, that species appear in the fossil record looking the same as when they disappear, and their sudden appearance, i.e., “a species does not arise gradually by the steady transformation of its ancestors; it appears all at once and ‘fully formed,’”¹¹ a statement that would evoke wholesale agreement from a typologist. Stephen Stanley, commenting on research from the Bighorn Basin in Wyoming—where a continuous record of deposits covering millions of years led paleontologists to expect evidence for transitional forms—wrote, “the fossil record does not convincingly document a single transition from one species to another.”¹² Niles Eldredge concurs, “We paleontologists have said that the history of

life supports [the story of gradual adaptive change], all the while really knowing that it does not.”¹³ In fact, Gould referred to “the extreme rarity of transitional forms in the fossil record” as “the trade secret of paleontology.”¹⁴

Archaeopteryx

The Origin of Species was published in 1859. Only two years later, Hermann von Meyer discovered the first *Archaeopteryx* fossil. It was immediately—and is still today—hailed as the evidential support that Darwin’s theory lacked. As recently as 1982, it was called (by Harvard’s Ernst Mayr) “the almost perfect link between reptiles and birds.”¹⁵ Today—for textbook authors, media personnel, evolution activists, biology teachers, and much of the public—*Archaeopteryx* still functions in the place of the “inconceivably great” number of intermediates that Darwin predicted would confirm his theory.

Unfortunately (at least for Darwin’s theory), *Archaeopteryx* is now regarded by paleontologists and taxonomists as a true bird, and not ancestral to any modern birds. There is no agreement on its ancestors, and the dinosaurs most often proposed for this role appear much later in the fossil record. Thus, while textbooks promoting Darwinism still give *Archaeopteryx* an evidential status that paleontologists and taxonomists deny, researchers remain desperate to find its replacement for the needed role of missing link. This has led to some embarrassing incidents, as when (in 1999) National Geographic published research on a dinosaur-bird transition that subsequently proved to be a forgery.¹⁶

Another fossil-record problem for Darwin’s theory comes from paleogeology. On Darwin’s view, life on Earth originated once and gradually. But the modern understanding is that—since life first appeared—the Earth has seen a number of complete or near-complete extinction events that would have interrupted the gradual evolutionary transformation envisioned by Darwin. After each such event, new life forms arose suddenly and not from previously-existing organisms. Thus, the dinosaurs of the Jurassic are separated from those of the prior Triassic by an extinction event that wiped out all of the larger (and “higher”) organisms of the Triassic.¹⁷ More pertinent to our discussion here, *Archaeopteryx*—along with the majority of higher life forms of its (Jurassic) period—was extinct by the beginning of the Cretaceous period, at which time a sudden “radiation” of new bird forms is observed.¹⁸ A similar sudden radiation of birds is observed in the Tertiary period following the well-documented mass extinction event that ended the Cretaceous.

To summarize, the fossil record, from which Darwin hoped the evidential support for his theory would come, has produced no such support. Writes Phillip Johnson,

“There was a way to test [Darwin’s] theory by fossil evidence... The test would not be fair to the skeptics, however, unless it was

also possible for the theory to fail. Imagine, for example, that belief in Darwin's theory were to sweep through the scientific world with such irresistible power that it very quickly became an orthodoxy... Suppose that paleontologists became so committed to the new way of thinking that fossil studies were published only if they supported the theory, and were discarded as failures if they showed an absence of evolutionary change. As we shall see [in the remainder of Johnson's book], that is what happened. Darwinism apparently passed the fossil test, but only because it was not allowed to fail."¹⁹

To this day, the fossil record supports the typological view of Darwin's contemporaries better than it supports his speculations.

In lieu of evidence, modern proponents of Darwin's theory are willing to accept hypothetical scenarios. In the case of the origin of flight in birds, two such scenarios have been suggested. But theorists cannot agree on either the "trees down" or the "ground up" scenarios,²⁰ and tend to argue against the obvious problems of the other view rather than for any persuasive aspects of their own. All such scenarios are without the sort of empirical support that would merit scientific acceptance. Perhaps this is in part why ornithologist Alan Feduccia predicts that the theory that birds evolved from dinosaurs will prove to be "the greatest embarrassment of paleontology of the 20th century."²¹

Other Evidence

Of course, scientific progress has not been limited to the field of paleontology, and much has changed since Darwin first proposed his theory. Physicists have generally rejected Darwinian evolution because it is at odds with their second *law* of thermodynamics, and no adequate mechanism for life's overcoming that law has been forthcoming.²² Moreover, a basic assumption of Darwin's—that the universe itself is eternal and thus that evolution had an infinite amount of time with which to work—has been disproved, and cosmologists now tell us that the universe is only about 13.7 billion years old. Many recognize this as fatal evidence not only against Darwinian evolution but against any naturalistic explanation for the existence and diversity of life.²³

Superficial success at simulating the origin of life from non-living matter caused a brief time of euphoria (for supporters of Darwin) in the 1950's through 1970's, and that success remains part of the textbook "proof" of macroevolution. But today, researchers in this field unanimously recognize the Miller-Urey experiments as irrelevant to the question, and we are no nearer than ever to a naturalistic explanation of how the first life began.²⁴

Most everyone recognizes that all birds have feathers. Each time a fossil is proposed as a candidate for a transitional form (between reptiles and birds), its ultimate classification depends partly on whether or not it has feathers. Reptiles have scales, but birds have

feathers. A true transitional form would be expected to have some integumentary structure partway between the two, neither a mere scale nor a full feather. No such structure has been found. We may speculate about such a structure; we may even rue the fact that such a structure (if it existed) might be only infrequently preserved (though the rejoinder would be that the intermediate structure should be no more poorly preserved than either scales or feathers). But the fact remains that there is no evidence of such a structure. Moreover, the feather is just one of many structures in birds that separate them from reptiles.

Another example is the avian respiratory system. Whereas reptiles and mammals all have the dead-end lung with which we're familiar (in which air is inspired and expired through the same tubes), birds have a pass-through (one-way) system of respiration. This unique system is critical in allowing for flight, as the body cavities of birds contain associated air sacs that enhance lightness and buoyancy. This characteristic is common to all birds, from the smallest hummingbird to the ostrich and regardless of whether the bird flies, dives underwater, or is incapable of either. Again, no transitional precursor to this structure is known.

Further evidence contrary to Darwin's theories comes from the entirely new scientific disciplines of cell biology, biochemistry, and genomics. But before discussing that evidence, it is worth pointing out that we have a much greater understanding—than did Darwin and his peers—of the mechanism by which one generation inherits its traits from the previous generation. The discovery of the work of Gregor Mendel with peas was an important step, as was the describing (by Watson and Crick in 1953) of the exact nature of the DNA molecule. In addition, our generation has witnessed the sequencing of the entire human genome and that of many other organisms. All of this, however, is primarily neutral as applied to distinguishing between the typological and evolutionary models for explaining life. Evolutionists frequently claim that the fact that all life shares the same genetic code is somehow proof of evolution, but such an argument is a clear case of circular reasoning. It would come as no surprise to Cuvier and his fellows that all life on Earth shares the same chemical make-up (more or less) or even the same biochemical code.

Where these modern disciplines do present problems, it is the Darwinian paradigm that is undermined. Our newfound understanding of the complexity of the cells that make up organisms has led to a refutation—on one of Darwin's own criteria—of his theory. He wrote, "If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."²⁵ At the level of the cell, biologists have discovered just such organs (dubbed "irreducibly complex"), and have persuasively argued that if Darwin's theory were valid it would need to operate at this—the cellular—level.²⁶ But Darwin's theory depends upon the phenotype—the whole animal—being subject to natural selection. As such, the theory is hopelessly

outdated, despite the unwillingness of many scientists to recognize it.

The discipline of genomics has likewise played its part in providing evidence at odds with naturalistic evolutionary theory. By mapping the entire genomes of bacteria and other simple organisms, scientists have been able to establish the minimum complexity of the simplest free-living organism imaginable. At a minimum of 1,500 gene products, the origin of such life by strictly naturalistic means (as necessary for Darwin's theory²⁷) would seem to represent an intractable problem.²⁸

While a good deal of evidence from modern science can be brought to bear against the Darwinian view, one of the clearest tests between typology and macroevolution comes from biochemistry. In a chapter titled "A Biochemical Echo of Typology," biochemist Michael Denton demonstrates that living organisms really do fall into patterns of dissimilarity that reflect not the continuum predicted by Darwin but the typological view that predated *The Origin of Species*.²⁹

One of the most consistent set of evidences mustered in support of evolution is homology, the most familiar example being in the bone structure of vertebrate limbs. Although each is used in quite different ways, the wing of a bat, the wing of a bird, the flipper of a porpoise, the arm of a primate, and the foreleg of a horse all share very similar bone structure. According to evolutionists (from Darwin on), this fact represents evidential support for the theory. Unfortunately, most proponents of evolution are here again guilty of circular reasoning; they first define homology as similar morphology resulting from common ancestry and then use homology to prove common ancestry. This type of reasoning is, of course, illegitimate. But is there independent evidence that homologous structures result from common ancestry? The answer comes from the disciplines of genetics and embryology, and presents further problems for Darwinism. If two homologous structures are the result of common ancestry, they would be expected to invariably be coded for by the same genes and to arise from the same tissue and embryological pathway. But research in both these fields has documented numerous cases (including vertebrate limbs) in which there is a lack of correspondence between the genetics, the developmental pathways, and the morphology of supposedly homologous structures.³⁰

Another type of evidence that is problematic for Darwinian evolution (but not for a typological view) is convergence and "repeated evolution." The former is the tendency of unrelated organisms to have nearly identical physiological, anatomical, or behavioral features or characteristics. The latter describes cases where organisms thought to be related when considering their morphology prove to be unrelated genetically. According to the evolutionary paradigm, instances of convergence and "repeated evolution" should be rare, since the exact same selective forces and the same sort of mutations are not expected to coincide very often in evolutionary history. Classical cases include that of the molluscan and vertebrate eye, and that of the unusual

eyes that are shared by the sandlance (a fish) and the chameleon (a reptile).³¹ In both cases, one set of organisms exists in an aquatic environment and the other set in a terrestrial environment.

Avian examples of convergence or repeated evolution can also be cited. A reproductive strategy known as obligate siblicide was believed to be confined (within the Falconiformes) to large, solitary African eagles, and these several species were believed to have evolved with this behavior from an ancestral species that exhibited it. Research on Swallow-tailed Kites of which I was a part, however, has demonstrated that only one of the two subspecies of this small, insectivorous hawk exhibits this behavior.³² Several other diverse groups of birds likewise adopt this strategy, including egrets, boobies, and white pelicans. Another example of convergence is song learning in three unrelated groups of birds, parrots, hummingbirds, and songbirds.³³ The growing list of such examples—now numbering more than one hundred—belies the expectations arising from the Darwinian paradigm.³⁴

One group of birds frequently touted as evidence for Darwinian evolution is an assemblage of 14 species of finches inhabiting the Galapagos Islands. It was not, however, Darwin himself who put an evolutionary spin on these birds, but David Lack (in a book written in 1947). In recent years, these similar species—which vary from one another primarily in body size and beak size—have been closely studied in an effort to document evolution. This research shows that natural selection (generally in the form of variations in moisture and thus in the abundance of different seeds) does seem to have an effect on the beak size of a given species over the short term. But as the studies continue, no directional change is apparent; rather, each species' morphology tends to vary around a mean. Moreover, it has become increasingly clear that several of these species successfully hybridize, calling into question their status as separate species in the first place. While textbooks continue to portray "Darwin's" finches as evidence supporting his theory, such claims do not accurately reflect the research results.³⁵

The sort of variation seen in these finches—even if it were directional and led to some form of speciation—is not at odds with a typological view. If Darwin's audacious claim were correct, then the finches themselves arose as a result of mutation and natural selection. There is, of course, no evidence to suggest that this is the case. What Phillip Johnson has written about the peppered moth as readily applies to the Galapagos finches:

"Why do other people, including experts whose intelligence and intellectual integrity I respect, think that evidence of local population fluctuations confirms the hypothesis that natural selection has the capacity to work engineering marvels, to construct wonders like the eye and the wing? Everyone who studies evolution knows that Kettlewell's peppered moth experiment is the classic demonstration of the power of natural

selection, and that Darwinists had to wait almost a century to see even this modest confirmation of their central doctrine.

Everyone who studies the experiment knows that it has nothing to do with the origin of any species, or even any variety, because dark and white moths were present throughout the experiment. Only the ratios of one variety to the other changed. How could intelligent people have been so gullible as to imagine that the Kettlewell experiment in any way supported the ambitious claims of Darwinism?"³⁶

CONCLUSION

The Johnson quote above identifies the real problem with modern understandings of evolution. If Darwin made any positive contribution to our understanding of life on Earth, it was in helping move us away from a view of complete stasis and immutability, a belief that each species was exactly as created and that populations of living things were invariable across time. But the alternative non-controversial view—what we now call “microevolution”—was already well on its way to acceptance even among the typologists among Darwin’s contemporaries, largely because of the evidence from the fossil record. What Darwin’s theory sought to do was to extrapolate microevolutionary variation to account for the existence and diversity of all life. As this paper has shown, such extrapolation has garnered little or no evidentiary support in the decades since Darwin. Instead, a typological view—albeit one that sees the limits to variation at the generic or familial (rather than the specific) level—remains the one that corresponds to the evidence. We have examined evidence from cosmology, comparative anatomy, cell biology and biochemistry, genomics, ecology, paleogeology, and paleontology, and have at every step encountered problems for the macroevolutionary paradigm.

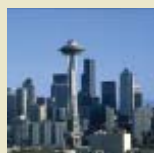
Darwin asked, “...why, if species have descended from other species by insensibly fine gradations, do we not everywhere see innumerable transitional forms? Why is not all nature in confusion instead of the species being, as we see them, well defined?”³⁷ His own answer, that the fossil record is incomplete, is no longer satisfactory. Indeed, once a variety of scientific evidence is brought to bear on this question, the answer that emerges is very similar to that of Darwin’s contemporary skeptics. The distinctions between groups of dissimilar organisms are based in necessity, and intermediate and transitional forms are undiscovered because they are nonexistent and incoherent. If scientific understanding is based on evidence rather than speculation, then Darwin’s theory is rightly understood as far inferior to the typological view it was formulated to supplant.

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END NOTES

1. See, e.g., P.S. Moorehead and M.M. Kaplan, (eds.), *Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution* (Philadelphia: Wistar, 1967); Michael Denton, *Evolution: a Theory in Crisis* (Chevy Chase, MD: Adler & Adler, 1986); Phillip E. Johnson, *Darwin on Trial*, 2nd ed., (Downers Grove, IL: InterVarsity Press, 1993); Michael J. Behe, *Darwin’s Black Box*, (New York: Touchstone, 1996); Jonathan Wells, *Icons of Evolution* (Washington, DC: Regnery, 2000).
2. Charles Darwin, *The Origin of Species* (New York: Gramercy Books, 1979), 293.
3. For a good general understanding of the typology of the 18th and 19th centuries, see Denton, *Evolution: A Theory in Crisis*, especially 93-118.
4. Louis Agassiz, *Methods of Study in Natural History* (Boston: Ticknor and Fields, 1863), preface, cited in Denton, *Evolution*, 94.
5. The same may apply to “hummingbirdhood” and “hawkhood” as well. Most of Darwin’s 19th-century opponents were not—as is generally assumed today—concerned with defending any particular view of speciation or of the precise limits of natural variation. Neither am I.
6. David L. Hull, *Darwin and His Critics* (Cambridge, MS: Harvard University Press, 1973).
7. Darwin, *Origin*, 292.
8. *Ibid.*, 315-316.
9. *Ibid.*, 314.
10. Stephen Jay Gould, “The Episodic Nature of Evolutionary Change.” *The Panda’s Thumb* (New York: W.W. Norton, 1985), 182.
11. *Ibid.*
12. Steven M. Stanley, *The New Evolutionary Timetable: Fossils, Genes, and the Origin of Species*, (New York: Basic Books, 1981), 71, quoted in Phillip E. Johnson, *Darwin on Trial*, 2nd ed., (Downers Grove, IL: InterVarsity Press, 1993), 51.
13. Niles Eldredge, *Time Frames: The Rethinking of Darwinian Evolution and the Theory of Punctuated Equilibrium* (New York: Touchstone, 1986), 59, quoted in Johnson, *Darwin on Trial*, 59.
14. Gould, *Panda’s Thumb*, 181.
15. Ernst Mayr, *The Growth of Biological Thought* (Cambridge, MS: Harvard University Press, 1982), 430, cited in Wells, *Icons*, 115.
16. For a discussion of this and similar incidents, see Wells, *Icons*, 123-135.
17. John G. Spray, Simon P. Kelley, and David B. Rowley, “Evidence for a Late Triassic Multiple Impact Event on Earth,” *Nature* 392 (1998), 171-173.
18. Richard Monastersky, “Craters and Extinctions: Time of Reckoning,” *Science News* 152 (1997), 71.
19. Johnson, *Darwin on Trial*, 48.
20. Walter J. Bock, “The Arboreal Origin of Avian Flight,” 57-72, and John H. Ostrom, “The Cursorial Origin of Avian Flight,” 73-81 in Kevin Padian (ed.), *The Origin of Birds and the Evolution of Flight* (San Francisco: California Academy of Sciences, 1986) Memoir Number 8.
21. Feduccia is quoted in Pat Shipman, “Birds do it... did dinosaurs?” *New Scientist* (Feb. 1, 1997), 27-31, cited in Wells, *Icons*, 130.

22. Biological evolution is not a violation of the second law, since the Earth is not a closed system but continually receiving energy from the sun. Nonetheless, physicists are reasonable in expecting biologists to at least postulate a mechanism to explain how this physical law is overcome.
23. Moorehead and Kaplan, *Mathematical Challenges*.
24. Fazale Rana and Hugh Ross, *Origins of Life* (Colorado Springs: NavPress, 2004), 63-208.
25. Darwin, *Origin*, 219.
26. Behe, *Darwin's Black Box*.
27. *The Origin of Species* did not address the origin of life. Nonetheless, Darwin acknowledged, as have most proponents of his theory since, that if a divine miracle were necessary for the origin of life, then there was little to be gained from pursuing his theory about life's subsequent diversity.
28. Rana and Ross, *Origins of Life*, 159-168.
29. Denton, *Evolution*, 274-307.
30. A good summary of the evidential problems associated with homology can be found in Wells, *Icons*, 59-80.
31. John D. Pettigrew and S.P. Collin, "Terrestrial Optics in an Aquatic Eye: The Sandlance, *Limnichthyes fasciatus* (Creediidae, Teleostei)," *Journal of Comparative Physiology A* 177 (1995): 397-408.
32. Gerhardt, R.P., D.M. Gerhardt, and M.A. Vásquez, "Siblicide in Swallow-tailed Kites," *Wilson Bull.* 109 (1997):112-120
33. Annette Heist, "Singing in the Brain," *Natural History*, October, 2000:14-16; Jarvis et al., "Behaviorally driven gene expression reveals song nuclei in hummingbird brain," *Nature* 406 (2000): 628-632.
34. Fazale Rana, "Repeatable Evolution or Repeated Creation?" *Facts For Faith* 4 (2000):12-21.
35. Wells, *Icons*, 159-175.
36. Johnson, *Darwin on Trial*, 27-28.
37. Darwin, *Origin*, 205.



Seattle Chapter Reasons To Believe

Who Are We?

The Seattle Chapter of Reasons To Believe is a local extension of the worldwide, interdenominational Reasons To Believe ministry. We exist to support our parent organization and foster local involvement in the ministry. We serve the Puget Sound area and are composed of Christians of different ages and backgrounds.

It is our conviction that the same God who created the universe inspired the Bible. Therefore, what God says through His word must agree with the facts of nature. We reject the notion that science and the Bible are at odds and provide a scientifically-sound and Biblically-faithful alternative to Darwinism and young-Earth creationism.

What Do We Do?

Our mission is to remove the doubts of skeptics and strengthen the faith of believers. We provide scientific, historical and philosophical evidence that supports the Christian worldview and helps remove barriers to a belief in God, the Bible and the Gospel of Jesus Christ. We carry out this mission by:

- Helping people access RTB and other scientifically and biblically sound resources.
- Bringing nationally-known speakers into the area to promote the scientific reliability of the Bible.
- Assembling a team of local apologists to address questions about science, the Bible and related topics.
- Working with teachers and homeschoolers to achieve a balanced approach to the teaching of origins.
- Building alliances with local churches, ministries and groups to maximize the exposure of the RTB ministry.
- Reaching out to unbelievers with gentleness and respect, encouraging them to evaluate their worldviews.

We welcome your involvement and support. For more information, contact us at seattle@reasons.org. Tax-deductible donations can be sent to: Seattle RTB, PO Box 99683, Seattle, WA 98139-0683.

Questions? Get Answers.

Whether you are looking for scientific support for your faith or answers to questions about God, the Bible, and science, contact us at seattle@reasons.org. You can also call the RTB hotline seven days a week, 5:00 to 7:00 PM at 626-335-5282.