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Post-Flood Fertilization of the Amazon Basin by Saharan Dust

by Carl R. Froede Jr, BS, PG

*He who builds His layers in the sky, ...
The Lord is His name
(Amos 9:6; NKJV)*

Few people consider the importance and utility of dust and microscopic biological particulates that are being transported around the Earth in our atmosphere. Little thought is given to the impact this may present today or might have created in the past. As Bible-believing, young-earth creationists, we have a role in revealing our world and bringing glory to our Creator God, Jesus Christ, by discoveries of His creativity and design evident throughout His creation (Prov. 25:2).

Several articles have been written on this topic to convey God's majesty and the preservation of His creation through the atmospheric transport of plants, insects, animals, and dust following the Flood (Froede, 2003; Rucker, 2004; Froede, 2015a,b,c). In this article, we examine God's providential care of His creation, specifically the Amazonian rainforest, through the atmospheric deposition of African dust.

Saharan Dust

An excellent layman's perspective on the role of dust in our environment has been presented by Holmes (2001). Atmospheric precipitants consisting of dust, particulates, and other aerosols can affect humans and the environment in ways often difficult to discern. In many instances, its importance across the planet is still not fully recognized.

The deposition of Saharan dust across the Amazon Basin has long been noted (Artaxo et al., 1990; Talbot et al., 1990;

Swap et al., 1992; Formenti et al., 2001; Schafer et al., 2008; Ansmann et al., 2009; Ben-Ami et al., 2010; Bristow et al., 2010; Baars et al., 2011, 2012) [Figure 1]. Only recently has research suggested that the Amazon rainforest owes its long-term preservation to African dust (Yu et al., 2015).

Dust and particulate transport from the Saharan desert to the Amazon Basin occurs by trans-Atlantic trade winds, primarily during winter (December-January-February)

Today, scientists are beginning to understand the variability in the source(s) of nutrients. Soils can be derived in place from the weathering of bedrock, or developed from transported materials. Nutrients would be derived from these developing soils (which would include organic litter). Problems occur where important nutrients cannot be linked to sources derived from soil, water, or litter.

According to recent research (Yu et al., 2015, p. 1984):

Phosphorus (P) is the principal fertility factor influencing tree growth across the Amazon Basin. However, 90% of soils in the Amazon Basin are P deficient.

To find an answer, Yu et al. (2015) began an analysis of African dust and its nutrients. It was determined that P within the African dust occurs at sufficient levels to preserve the rainforest:

Although this phosphorus input originating from outside the basin is 1 to 2 orders of magnitude lower than the atmospheric deposition of smoke and biological particles and the phosphorus recycling via litterfall within the basin, it is comparable to the hydrological loss of phosphorus. This may suggest an important role of African dust in preventing phosphorus depletion on timescales of decades or centuries (Yu et al., 2015, p. 1990).

Implications for Biblical History

Humans often think about their own environment — a watershed, river system, and local geology — on a small scale. We believe (often incorrectly) that we can under-

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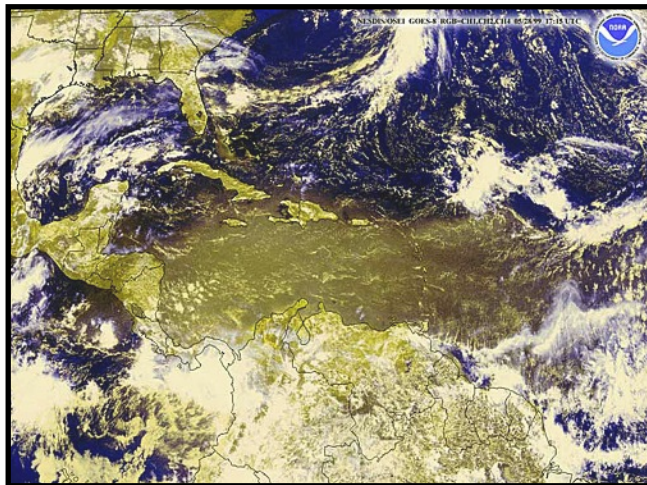


FIGURE 1. Airborne dust (brown haze) over the Caribbean Sea and Amazon Basin. This dust originated in the Saharan desert of western Africa where it was lifted and carried off the coast by strong trade winds. GOES-8 visible image from May 28, 1999. Used with permission from NOAA.

and spring (March-April-May) [Prospero et al., 1981; Swap et al., 1992; Prospero et al., 2014; Yu et al., 2015] (Figure 2). Based on satellite measurements spanning seven years, African dust deposition across the Amazon Basin could be as high as 25.5 pounds per acre, occurring predominately during the winter months (Yu et al., 2015).

Nutrients for Plant Growth

Plants extract nutrients from soil and water.



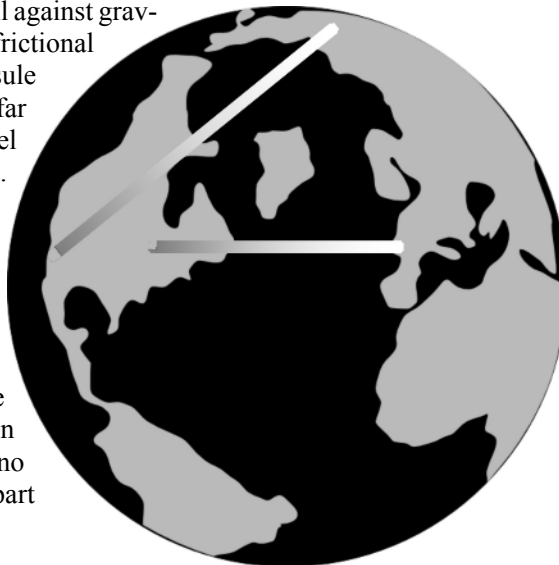
Deep Tunnels and Gravity Trains

Modern aircraft fly us across the country or around the world in just hours, once we get past airport security. Over the centuries an entirely different form of high speed travel has been discussed by Robert Hooke, Isaac Newton, writer Lewis Carroll, and more recently by physicist Paul Cooper. The proposal is that gravity trains could travel through tunnels drilled between major cities, even to opposite sides of the earth. For now, never mind the technology limits and the earth's hot interior. Many illustrations of gravity trains are available online.

A futuristic scenario

In this futuristic scenario, the travel tunnels are shielded against molten surroundings and radiation. The envisioned trains are friction-free passenger capsules which speed through the tunnels using gravity alone.

Consider an ideal, straight, several-thousand-mile-long, friction-free tunnel. During the first half of the trip the capsule accelerates downward, either vertically or at an angle. At the journey's midpoint, the capsule moves extremely fast, about 17,700 miles per hour. During the second half of the journey, the capsule decelerates as it moves uphill against gravity. With no frictional losses the capsule arrives at the far end of the tunnel with zero speed. An intriguing result is that the capsule will take just 42.2 minutes for a one way trip through the earth, between any two cities, no matter how far apart they are.



Really?

The reader may well protest the gravity train idea. Friction is always present, and the deepest hole punched into the earth thus far is only 7.6 miles (12.26 km), far short of earth's 7900 mi (12,740 km) diameter. However, consider the possibilities: An earth honeycombed with tunnels could allow travel between major cities of the world in just 42.2 minutes, with no

fuel consumption or exhaust.

In pure conjecture, might such features be reality in the future restored earth, as described in Revelation 21:5 where all things are made new?

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Vladimir Nabokov: Darwin Doubter and Lepidopterist Extraordinaire

by Jerry Bergman, PhD

Vladimir Nabokov (1899–1977) was born on April 22, 1899 in Saint Petersburg, Russia, to a prominent wealthy family. Because the family spoke Russian, English, and French at home, Nabokov was trilingual from a young age. The family was nominally Russian Orthodox, but after Vladimir lost interest in religion, he was not forced to attend church. The Communist defeat of the Russian White Army in early 1919 forced the Nabokov family to seek exile in Europe. They settled briefly in England, where Vladimir enrolled in Trinity College, Cambridge, studying zoology.

Nabokov is best known as “one of the greatest writers of our century” (Gould, 2002, p. 31). Less well known is his distinguished entomology career that produced “a long list of publications,” especially in lepidopterology, the study of butterflies. His butterfly career was inspired by a set of books that he found in the attic of his family’s country home in Vyra, Russia (Nabokov, 1960, p. 82). As a young teenager he voraciously read on entomology, especially books written in English and Russian.

When Nabokov was a young man, great upheavals were occurring “in the development of [biological] systematics. Since the middle of the century, continental lepidopterology had been, on the whole, a simple and stable affair, smoothly run by the Germans” (Nabokov, 1960, pp. 82–83). Even half a century after the death of the then elder statesman of lepidopterology, Dr. Staudinger, German lepidopterists had not managed to shake off the spell of his authority. While Staudinger and his followers used characters visible to the naked eye to classify butterflies, others introduced “nomenclatorial changes as a result of a strict application of the law of priority and taxonomic changes based on the microscopic study of organs” (Nabokov, 1960, pp. 82–83).

Nabokov soon proved to be a highly “qualified, clearly talented, duly employed professional taxonomist, with recognized ‘world class’ expertise in the biology and classification of ... the family *Lycaenidae*, popularly known to butterfly aficionados as ‘blues’” (Gould, 2002, p. 31). Furthermore, no single “passion burned longer, or more deeply, in Nabokov’s life than his love for

natural history and taxonomy of butterflies” (Gould, 2002, p. 31).

Career

As a research fellow at Harvard University’s Museum of Comparative Zoology, Nabokov was responsible for organizing the butterfly collection. His detailed, highly technical writings in this area established a new standard in his field.

His butterfly specialty was in an area rarely explored by most admirers of his literary works and novels. The Karner blue genus *Nabokovia* was named after him in honor of his scientific work, as were a number of other butterfly and moth species.

Nabokov wrote that the “pleasures and rewards of literary inspiration are nothing beside the rapture of discovering a new organ under the microscope or an undescribed species on a mountainside in Iran or Peru. It is not improbable that, had there been no revolution in Russia, I would have devoted myself entirely to lepidopterology and never have written any novels” (Quoted in Boyd and Pyle, 2000, p. 642).

Rejection of Darwinism

Nabokov’s biographer, Brian Boyd, writes that while still teaching at Wellesley University, Nabokov began working on a major article on mimicry that challenged Darwin’s theory of “‘natural selection’ and ‘the struggle for life’ ... a theme that had inspired him since childhood” (Boyd, 1993, p. 37). Although he accepted some evolution, Nabokov “could not accept that the undirected randomness of natural selection would ever explain the elaborateness of nature’s designs, especially in the most complex cases of mimicry where the design appears to exceed any predator’s powers of apprehension” (Boyd, 1993, p. 37).

His completed paper on the problems of natural selection was, unfortunately, never published, and only a fragment in his book *Speak, Memory* survives. While working at Harvard, Nabokov described “the essay in its early stages as ‘a work on mimicry (with a furious refutation of ‘natural selection’ and the ‘struggle for life’)” (Boyd and Pyle, 2000, p. 247–248). In May of 1942, Nabokov gave a copy of his essay critical of natural selection, titled “The The-

ory and Practice of Mimicry” to Edmund Wilson, who liked the article and recommended that the *Yale Review*, the *Virginia Quarterly*, and the *Atlantic Monthly* publish it. This strongly suggested “that the essay’s protest against Darwinism ... addressed a wider audience than a strictly scientific essay could have reached ... beyond the informal anti-Darwinian comments made in *Speak, Memory*, there is no record of what the essay contained or the exact nature of Nabokov’s views on mimicry at that particular time in his life” (Dragunoiu, 2011, p. 36). In Nabokov’s words

the mysteries of mimicry had a special attraction for me. Its phenomena showed an artistic perfection usually associated by man-wrought things. Such was the imitation of oozing poison by bubble-like macules on a wing (complete with pseudo-refraction) or by glossy yellow knobs on a chrysalis (Nabokov, 1960, p. 83).

A few of the examples that he studied include several moth kinds that resembled certain wasps in both shape and color. These moths also moved in a “waspyish, un-moth-like manner. When a butterfly mimicked a leaf, not only were all the details of a leaf beautifully rendered but markings mimicking grub-bored holes were generously thrown in” (Nabokov, 1960, p. 83).

After noting the obvious design problem presented for evolution, Nabokov concluded that Darwinian natural selection “could not explain the miraculous coincidence of imitative aspect and imitative behavior nor could one appeal to the theory of ‘the struggle for life’ when a protective device was carried to a point of mimetic subtlety, exuberance, and luxury far in excess of a predator’s power of appreciation” (Nabokov, 1960, pp. 83–84). For these reasons, Nabokov concluded that mimicry was an example that displayed an “artistry and sophistication that could not be accounted for by an organism’s need to deceive predators” (Dragunoiu, 2011, p. 36).

Ironically, he was not alone in his opposition to Darwinism, which “allied him with an influential group of Russian neo-idealist philosophers who argued that positivist [materialist] models of reality and utilitarian ethics failed to provide a philo-

sophical basis for a liberal or progressive politics” (Dragunoiu, 2011, p. 40). Nor was Nabokov’s position on Darwinism unusual in his day. Among the leading biologists it was only during the 1937–1947 decade that “the evolutionary synthesis” evolved and “settled the differences between naturalists and geneticists that had impeded widespread acceptance, not of evolution per se, but of Darwin’s own explanations of the phenomena” (Dragunoiu, 2011, p. 36).

Classification System

The late Harvard professor Stephen Jay Gould noted that Nabokov never accepted the traditional methods to distinguish insect species, namely genetics and chromosome counting. Instead, he relied on the lepidopterist tradition of microscopic comparison of their genitalia. Though Nabokov’s conclusions were not at first taken seriously by professional lepidopterists, modern genetic research now supports his work (Zimmer, 2011).

Harvard Museum of Natural History still possesses Nabokov’s “genitalia cabinet,” where his collections of male blue butterfly genitalia are now stored (Pick, 2004, pp. 160–161). According to museum staffer, Nancy Pick, Nabokov concluded that genital structures were “far more useful than wings for classifying the blues. Often, two butterflies that appeared virtually identical to the naked eye proved to be quite distinct under the microscope” (Pick, 2004, p. 160). He achieved this evaluation by examining their genitalia under a microscope for up to six hours a day, seven days a week, until his eyesight was permanently impaired due to this strenuous work (Pick, 2004, p. 160).

Another concern Nabokov had was that, although he agreed “with the basic facts of [micro]evolutionary change,” he resisted “the reductive positivism of the empirical narratives inspired by Darwin” because life “cannot be accounted for in exclusively positivist and utilitarian terms. Although ...

loveliness may confer significant advantages ... Nabokov implies that” life is a function of something other than the gradual evolution from “the humblest worm” (Dragunoiu, 2011, p. 36).

Some biographers conclude that even “more compelling scientific explanations might not have weakened Nabokov’s mistrust of Darwinism” because Nabokov’s attraction to a metaphysical conception “of the universe informs the most intimate aspects of his biography,” including his settled opinion that “natural science is responsible to philosophy—not to statistics” (Dragunoiu, 2011, p. 38).

His religious views were another reason for rejecting evolution. One of his academic colleagues conjectured that Nabokov rejected evolution because he “had such a strong metaphysical investment in his challenge to natural selection” (Dragunoiu, 2011, p. 38). Boyd endorsed this view, writing that Nabokov was too strongly attached to a top-down, meaning an intelligent creator worldview “explanation for existence to have accepted Darwinism, although he ... accepted many of the local advances in Darwinian theory” called microevolution (Boyd, 2011, p. 105).

Nabokov’s commitment to “a top-down” explanation of life’s origins was in contrast to evolution’s “bottom-up” explanation of evolution. His work was a refutation “of an ideology whose victory had heralded the onset of a new period of tyranny and oppression in Russia. The full story of Nabokov’s opposition to Darwinism is ... [more than just] a chapter in the history of science” (Dragunoiu, 2011, p. 38).

Summary

Nabokov was one of many eminent biologists who rejected the key pillars of modern Darwinism, natural selection and mutation, as the source of genetic variety. Gould proposed that both Nabokov’s novels and his scientific work achievements stemmed

from his love of detail, contemplation, and symmetry. For this reason, he was able to excel in both his writing and scientific work.

The fact is, Nabokov’s literary oeuvre reveals an extremely complex relationship between Nabokov’s science and his metaphysics. Several scholars have tried to understand this relationship by attempting to understand “Nabokov’s scientific writings in the context of debates in evolutionary biology before and after his years” at Harvard (Dragunoiu, 2011, p. 36).

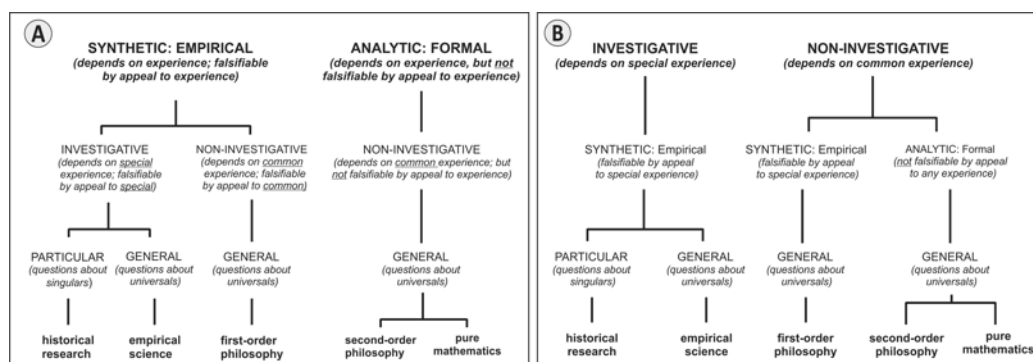
The result was his realization that several major problems existed with neo-Darwinism theory, including its ideological implications, such as support for Marxism and, later, Soviet Communism. These problems he articulated very effectively in his writing (Nabokov, et al., 2000).

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FIGURE 1. Adler’s (1965) ordering of disciplines. Note that history and science are distinct.



The Fallacy of Historical Science

Modern culture in the West consists of ramshackle-secular walls uncomfortably overlying Christian foundations. Like facades in old western movies, a change of angle shows them hollow. This strange discordance began manifesting itself with deep time and the concomitant arrival of a spectacularly successful lie—that of the “war between religion and science.” The real conflict is a worldview war between Christianity and naturalism.

The secular walls have lasted, thanks to an underlying *second* distortion—the mistaken view that the study of science and natural history are identical; that “historical sciences” attain the certainty of physics and chemistry, and that deep time and evolution are “facts” rather than theories.

With rare exceptions, everyone has fallen for this fallacy. We apply a scientific test to an historical theory and think that like poison in water, one drop makes it all science. This led Kravitz (2013, p. 21, emphasis added) to state: “...geologists’ knowledge of the past... [i]n a certain sense...are the products of the geologists’ imagination....”

Kravitz saw troubling cracks in the walls, but fellow philosopher Cleland (2013) argued they were not there; that natural history *is* science, superior in some ways to physics or chemistry (Reed and Klevberg, 2016a, b). Christians and creationists are not immune. Anytime a creationist defines “operations” and “origins” science, it is a simplification proposed by Geisler and Anderson (1987) to agree with the secular fallacy.

Aristotle noted how easily small mistakes spun out of control when he said: “The least initial deviation from the truth is multiplied later a thousandfold” (*On the Heavens*, 271b9–10). Lyell disguised his mythology with the cloak of Newtonian uniformity successfully for 150 years (Gould, 1987), and most today still trend with Lyell.

But, wait! Are not geology, paleontology, and cosmology science? How do we define a discipline? Such questions can only be answered by philosophy and theology.

But when theologians and philosophers abdicate their responsibility, we are stuck with the secular claim of “positivism”—Comte’s idea that man evolved intellectually away from religion to philosophy to science. His theory failed objective analysis, but was powerful rhetoric.

We need clearer classification criteria. What is science and what is not? Adler (1965) proposed disciplines based on having distinct: (1) questions, (2) methods, and (3) objects of inquiry. He also proposed grouping them by three criteria: (1) empirical vs. formal; (2) special experience vs. common experience; and (3) universals vs. particulars. This threefold division (Figure 1, page 4) allows a breakdown and differentiation between mathematics, science, history, and philosophy.

History and science are similar in important ways. Both are empirical. Both rely on special, not common, experience. But science seeks universal conditions, such as $E = mc^2$, while history answers questions about past, particular events, such as who was involved in Julius Caesar’s assassination. Because it cannot know or control all of the variables, it is left with a narrative, uncertain and open to revision, not like a chemical reaction that is the same every time, given the same conditions.

What about geology? Part is descriptive science; part, historical narrative. The problem comes when geologists do not recognize or acknowledge the boundaries between the two. Part of the historical narrative is based on scientific tests, like statistical analyses of fossil assemblages, or measurements of isotope ratios. It is enough to mix up anyone. That is why Adler (1965) proposed avoiding this confusion by simply creating an interdisciplinary category he called “mixed questions.” These were areas like natural history that required a cooperative effort from multiple disciplines, like science, history, theology, and philosophy.

Seeing natural history as a mixed question is like correcting astigmatism. Our vision is no longer warped by positivism, but corrected by a better choice of categories. Mixed questions do not necessarily provide the conclusions and confidence levels of science. Explaining unique, unob-

served past events from spotty evidence is quite different from predicting the effect of a reagent on a reaction. But if the expectations for scientific certainty are dropped from the investigation of the past, then its proponents are more free to consider evidence currently placed off limits because it is not “scientific.”

Bottom line: history is not science; neither are mixed questions like natural history. Confusing these basic concepts has led to severe errors among both secular scientists and creationists. It is past time to use the lens of the worldview war to correct such basic problems.

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Saharan Dust ...continued from page 1

stand and control the world through our own efforts. Understanding the role of atmo-

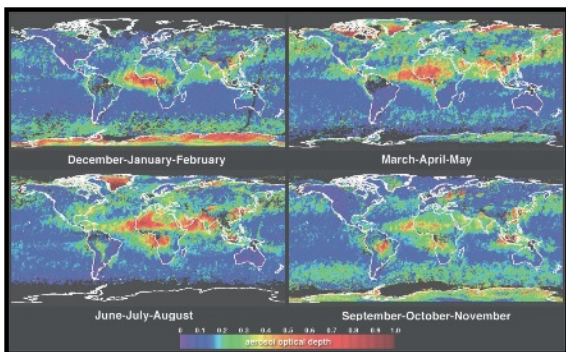


FIGURE 2. Global and seasonal aerosol distributions from NASA's Multi-angle Imaging SpectroRadiometer (MISR). Seasonal shifts in trade winds move Saharan desert dust and aerosols westward across the Atlantic Ocean and also eastward across the Asian continent. This western transport of dust and particulates contributes to the preservation of the Amazonian rainforest. Image from 2003 and courtesy of NASA/JPL-Caltech.

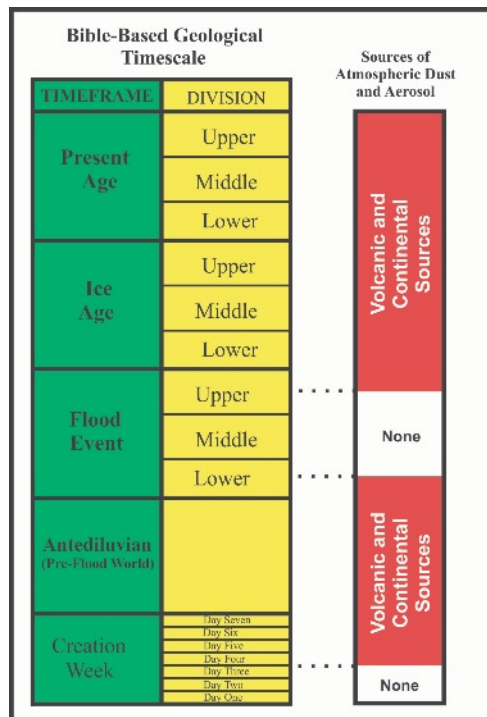


FIGURE 3. A biblical geologic timescale showing possible periods of atmospheric-transported dust and aerosols before, during, and following the global Flood of Genesis. The most probable period of Saharan desert dust erosion, transport, and deposition would occur following the global Flood of Genesis. While the timing and development of the desertification of northern Africa remains to be determined following the Flood, the transport and deposition of dust and other particulates preserves the Amazonian rainforest today.

spheric deposition of African dust and other particulates greatly demonstrates the providence and power of our God, Jesus Christ, and exposes our inability to control such processes. While humans can take measures to help the environment, it is through God's sovereign will and control that it will survive.

Despite the claims of naturalists that African dust deposition has possibly occurred for 100 million years (see Froede, 2015c), this is a post-Flood phenomenon (Figure 3). At present, it is not known when the African desert developed and the transport of dust began. What we can understand today is that the process of dust and particulate deposition serves to preserve the Amazonian rainforest despite our own efforts.

Studies like that of Yu et al. (2015) demonstrate the interconnectedness of our Earth and the role that post-Flood trade winds have in moving plants, insects, birds, and dust from the African continent to the Western Hemisphere. Contents derived from the Saharan desert and transported by trade winds contribute today to the preservation of the Amazonian rainforest and possibly many other ecosystems still to be investigated.

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CM

Matters of Fact

by

Jean K. Lightner, DVM, MS

Editor's note: You may submit your question to Dr. Jean Lightner at jean@creationresearch.org. It will not be possible to provide an answer for each question, but she will choose those which have a broad appeal and lend themselves to relatively short answers.

Q How could so much diversity have arisen within created kinds in just a few thousand years since the Flood?

A Most likely by the same means that we observe diversity arising quickly today.

Small isolated populations

The Food and Agriculture Organization of the United Nations recognizes 8,774 breeds among the 38 recorded livestock species around the world (FAO, 2016). Many of these are local breeds, often only reported in a single country. Even in the secular timeframe, these breeds are considered to have arisen within the last 10,000 years (Bollongino et al., 2012).

Small isolated herds in different geographical regions have become well adapted to where they live. While they are not high producers like the popular U.S. breeds, they are considered important, and efforts are being made to keep these breeds from becoming extinct. For example, Scottish Highland cattle are hardy animals that can thrive in the harsh conditions where they live; they are often used for conservation grazing because they eat plants other cattle

avoid. Another breed, Pantaneiro cattle from the Pantanal region of Brazil, seem to be more resistant to parasites and survive well under the challenging environmental conditions of their region, which includes floods, droughts, coarse native pastures, and jaguar predation (FAO, 2016).

While livestock diversity is impressive, most people are probably more familiar with diversity in companion animals, such as dogs. There are several hundred dog breeds that are recognized worldwide, and most of these were developed within the last few hundred years (Melina, 2010). The breeders keep the dogs “isolated” by breeding the animals for certain characteristics of their choosing. This may include size, color, conformation, or instincts that help the dog perform a specific task, such as herding or retrieving. Thus, we are surrounded by many examples of mind-boggling diversity that has arisen in a relatively short period of time.

Environment influences the appearance of diversity

There was a fascinating study that showed that diversity can appear at particular times and places that we might not expect. For over 50 years a Russian experiment has involved selecting farm foxes for tameness. In doing so, they have noted a number of changes in their tame population. Aside from the obvious behavioral differences, a white spotting pattern has arisen several orders of magnitude more frequently than in the farm bred populations from which they were derived. This was already several

orders of magnitude above what would be expected by random mutation (Lightner, 2011).

This is not an isolated incident. Similar differences on color pattern, tail carriage, and variation in facial bones are evident in some breeds of other domestic species compared to their wild counterparts. One of the most interesting changes involves reproduction. Many wild animals, including foxes, are seasonal breeders. Those raising foxes had tried unsuccessfully for decades to extend the breeding season, but alas there was no variation in this trait. However, in the foxes selected for tameness, not only could they breed out of season, but they reached sexual maturity a month earlier and had an average litter size of one more pup (Lightner, 2011). Recent studies suggest that a number of factors underlie these changes, from epigenetic factors (e.g., heritable methylation patterns that affect gene transcription), to transposon movement, to the classically recognized single nucleotide changes (Janowitz Koch et al., 2016).

Environment signaling organ development

There are times when the genetic instructions for an organ are present, but the organ does not develop unless there is a need for it. For example, birds that live in coastal or estuarine environments possess salt glands over the eyes that enable them to excrete the excess salt they consume. These glands wax and wane functionally in birds that migrate between areas with water of high salinity and freshwater (Holmes and

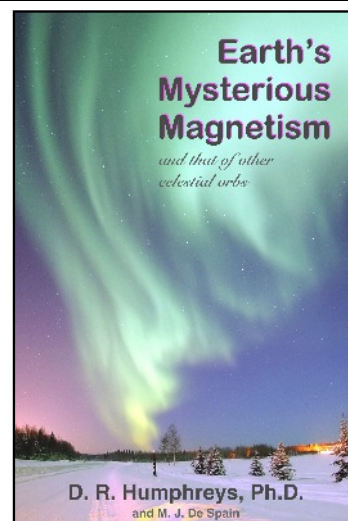
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Earth's Mysterious Magnetism

and that of other celestial orbs

by

Russell Humphreys and Mark De Spain



Phillips, 1985).

Most ducks live in freshwater habitats, but the eider duck lives in coastal regions and possesses well developed salt glands. It was found that development of salt glands could be induced in domestic ducks by providing salty water for 12 hours a day (and tap water the other 12 hours) while the ducklings were growing. Three days after the experiment began, a salty excretion was observed at the nares of experimental ducklings. Throughout the rest of the two week experiment, these ducklings exhibited a significant increase in size and glandular development of their salt glands compared to the controls (Ellis et al., 1963).

The development of a cecal valve in lizards that were experimentally introduced to a new island may be a similar situation. Five pairs of lizards were transported, and within 36 years (~30 generations) there were several morphologic changes that appeared in the descendants. These changes appear to be related to their new diet with a much higher fraction of plant material (Herrel et al., 2008). A cecal valve is present in a few other lizards from the same family (Lacertidae), and appears to be diet related. The underlying cause for appearance of the cecal valve and several other morphological changes in the lizards was not determined. However, hatchlings display these morphological changes, so it is not clear if heritable epigenetic or genetic factors are involved. It could be that both are involved.

Conclusion

Diversity is often observed to arise relative-

ly rapidly today, in both domestic and wild animals. It probably wouldn't have been much different after the Flood when animals first began to spread out, except that many new niches would have become available rather rapidly. This would have provided exposure to new environments along with some degree of isolation, both of which are important in developing diversity within a given group (or kind) of animals.

It is important to note that the diversity generated requires impressive design which allows for its development. The more one investigates diversity that has been observed to arise, the more one should be impressed with the amazing Creator who cares for the creatures He has made.

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eKINDS

Examination of Kinds In Natural Diversification and Speciation

The Creation Research Society is pleased to announce a new research initiative—eKINDS.

How did we get the wide variety of today's species from a small number of animals preserved on the Ark? How do new species form, and how does this fit within biblical creation? Can we trace the spread of the created kinds from the Ark to where they live today? These and similar questions will be addressed by the **eKINDS** initiative.

The Society is seeking donors willing to help fund this initiative. For more information on how you can help, please contact the Creation Research Society at (928) 636-1153 or crsvarc@crsvarc.com.

Speaking of Science

from the Creation-Evolution Headlines

by David F. Coppedge

Editor's note: These S.O.S. (Speaking of Science) items have been selected from "Creation-Evolution Headlines" by David F. Coppedge at <http://crev.info> and are used by permission. Unless otherwise noted, emphasis is added in all quotes.

Let There Be Light Puzzles for Cosmologists

Far from a smooth, gradual transition, bright galaxies popped onto the scene suddenly.

ScienceDaily's headline evokes memories of Genesis 1:3 — **"Let there be light: Super bright galaxies of the early Universe."**¹ Super bright galaxies? Early? That's right. Lots of them.

For about 150 million years after the Big Bang, the Universe was a "dark" place, made of just hydrogen and helium atoms, as the first stars had yet to be formed.

This all changed with the first generation of stars, **so bright and powerful** that their light started to break apart hydrogen atoms around them, while their cores produced the **elements essential for life itself**.

It might sound like a nice creation myth, until you realize it wasn't predicted by the modern secular gurus of cosmology. Dr. David Sobral of Lancaster University remarked, "what is **really surprising is how numerous** these **spectacular galaxies** are." Just how numerous?

With five bright sources now confirmed, and more to follow, CR7 is now part of a unique 'team' of bright early galaxies, suggesting there are **tens to hundreds of thousands of similar sources** in the entire visible Universe.

These are not individual stars blinking on suddenly so soon after the big bang, but entire galaxies — bright ones. It's like a Cambrian explosion for cosmologists to worry about.

1. Lancaster University. (2016, July 5). Let there be light: Super bright galaxies of the early Universe. *ScienceDaily*. Retrieved July 14, 2016 from www.sciencedaily.com/releases/2016/07/160705092238.htm

Precambrian Protein Identified

They say it's almost two billion (with a B) years old, yet it resembles modern counterparts.

The Gunflint Chert in Canada has long been a hot spot for microbe hunters. J. William Schopf identified microbial fossils in these rocks years ago. Only recently, however, have scientists been able to probe the structure of molecules within the fossils. Not all of the living material has been permineralized (that is, replaced by minerals such as silicates). Unbelievably, there are still traces of the original organic molecules present, as reported in *Nature Communications* by Alleen et al. "Molecular preservation of 1.88 Ga Gunflint organic microfossils as a function of temperature and mineralogy."¹

The **significant degradation** that **fossilized biomolecules may experience during burial** makes it challenging to assess the biogenicity of organic microstructures in ancient rocks. Here we investigate the molecular signatures of 1.88 Ga Gunflint organic microfossils as a function of their diagenetic history. Synchrotron-based XANES data collected **in situ on individual microfossils**, at the submicrometre

scale, are **compared with data collected on modern microorganisms**. Despite diagenetic temperatures of ~150–170 °C deduced from Raman data, the molecular signatures of some Gunflint organic microfossils have been **exceptionally well preserved**. Remarkably, **amide groups derived from protein compounds can still be detected**.

The scientists collected samples from about seven locations. Using models of metamorphic temperatures during diagenesis (rock formation), they show that slightly higher temperatures in some regions erased the signature of protein compounds. Yet as they say, "remarkably" some protein compounds survived temperatures up to 338° F.

They repeatedly say that the spectra show exceptional preservation when compared to modern microbes:

Taking advantage of the unique capabilities of STXM-based XANES spectroscopy at the carbon and nitrogen K edges to perform in situ experiments at the submicrometre scale, the present study shows that, in addition to the fine-scale morphologies, the molecular biosignatures of some Gunflint **organic microfossils have been exceptionally preserved**. In fact, despite the **1.88-Gyr-long geological history that they experienced**, Kakabeka Falls and Schreiber Beach organic microfossils exhibit C- and N-XANES **spectra sharing strong similarities to those of modern cyanobacteria and modern micro-algae**. Despite a higher content of aromatic compounds compared to modern microorganisms, these microfossils exhibit a **quite high content of oxygen-based functional groups** (carbonyl, phenolic, carboxylic and hydroxyl groups). In addition, **these microfossils still contain amide functional groups** (absorption feature at 288.2 eV), which were **likely to be involved in the proteinaceous compounds synthesized by the once living organisms**.

One hears an echo of astonishment at the similarities "despite" a presumed time gap of nearly two billion years and the presence of oxygen, which should have accelerated destruction of the biomolecules.

Ancient DNA Studies on a Roll

No DNA is preserved in the Gunflint cherts, but the ability to find and read DNA sequences from fossils in other strata has led to a scientific revolution. *ScienceDaily*² says that ancient DNA has become a "Rosetta Stone" for studies of human impacts on Ice Age megafauna, for instance. Ann Gibbons at *Science Magazine*³ regrets that US scientists are behind the Europeans in reaping the harvest of ancient DNA for studies of human evolution. It wasn't that long ago that scientists didn't believe DNA could survive more than a few decades or centuries. Now, they're finding it all over.

[CM Editor's note: empirical data indicate that it is impossible for these biomolecules (DNA or protein) to last millions or billions of years, so evolutionists are hypothesizing various mechanisms by which this could have happened. The CRS iDino project continues to investigate popular hypotheses to demonstrate their futility.]

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2. University of Adelaide. (2016, June 17). Ancient DNA shows perfect storm felled Ice Age giants. *ScienceDaily*. Retrieved July 14, 2016 from www.sciencedaily.com/releases/2016/06/160617160350.htm
3. Gibbons, A. 2016. Ancient DNA divide. *Science* 352: 1384–1387.

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Evidence for Relativity: A Response

I was upset with the tone of “Gravity Wave Observations Are powerful Evidence for Relativity and Black Holes” in the May/June 2016 *Creation Matters*.

Dr. Humphreys’ comments sound arrogant and condescending in a manner unworthy of disagreement within the creation community. He appears to make some fundamental errors that even I, as a non-physicist can spot. For example, GPS adjustments are not relativity based because satellites and globe-circling planes with atomic clocks on board are not in uniform motion, but are constantly accelerating towards the center of the earth. And “gravitational waves” sound like disturbances in the electromagnetic fields of all the bodies in the universe. This is precisely the Common Sense Science model, which hypothesizes elementary particles to be rotating rings of charge, and electromagnetic waves as being carried by the electromagnetic fields of all the particles in the universe.

The worst part of the article is the implication that the rejection of relativity is a simple-minded conclusion that “because it is complicated, it must be wrong.”

Dr. Humphreys needs to prominently publish an apology and call for open discussion of the alternatives.

—Ross S. Olson, MD

Reply to Critic of Relativity

I’m grateful to Dr. Olson for his letter, because I’d been wondering how an aficionado of “Common Sense Science” would react to my article supporting relativity. Unfortunately, the reaction seems to be not good. I probably should have known this paragraph near the end would, in his sight, overshadow the rest of my article:

For 100 years now, a small but determined cadre of critics has been taking pot shots at general relativity (GR), special relativity (a subset of GR), and black holes. Some creationists are among the critics. **Their thought seems to be that since evolution is so drastically wrong, any hard-to-understand ideas in modern science must be wrong also.** (emphasis added)

Dr. Olson doesn’t realize that my last sentence is not “simple-minded,” but rather based upon decades of pondering personal conversations with critics of relativity. The very name they have given their view, “Common Sense Science,” reflects their conviction that much in modern physics offends common sense and, hence, must be wrong. For me to make that assessment seems to them to be arrogance, which appears to be the way they perceive the practitioners of modern physics anyhow.

His denial that the GPS system supports relativity appears to be based on a misunderstanding of relativity. He asserts that atomic clocks on satellites aren’t governed by relativity because they “are not in uniform motion but constantly accelerating toward the center of the earth.” But in contrast to **special** relativity, which does indeed limit itself to non-accelerating frames of reference, **general** relativity (of which special relativity is merely a subset) works perfectly well in accelerating frames.

His statement, “... ‘gravitational waves’ **sound like** disturbances in the electromagnetic fields ...” undermines itself. He is using a **theory** from “Common Sense Science” to try to explain away the **evidence** my article presented. There are good reasons why most physicists reject the “Common Sense Science” theories — they just don’t work.

—D. Russell Humphreys, PhD

Gravity Wave Observations: A Response

Regarding the lead article “Gravity Wave Observations” (May/June 2016), the illustration Figure 4 is meaningless and deceptive. Black Holes do not radiate blue light, and light does not trail behind moving objects. Super-massive objects do not revolve around each other with a frequency of 100 Hz.

Everyone can now be pleased that after two decades the LIGO project has demonstrated something (just what remains to be seen), but in no case is it an opportunity for an author to bad-mouth Creationists in a Creationist periodical!

—Derck Gordon

Dr. Humphreys Responds

I hope that most readers will have thought about my article a bit more carefully than Mr. Gordon. First, he failed to notice that the caption of Figure 4 says it illustrates not “blue light” but, “Gravity waves, distortions in the fabric of space moving outward at the speed of light, made by two black holes spiraling in towards each other very rapidly.” Blue is merely the color the artist at the journal *Science* chose to give to the fabric of space.

Second, his assertion, “light [or, as he should have said, a gravity wave] does not trail behind moving objects” shows that he hasn’t thought about how waves move in his everyday experience. Has he not seen waves in water moving outward from a speeding motorboat? If two motorboats were to circle each other closely, would not waves in the water move outward in spiral patterns just as Figure 4 illustrates?

Third, his claim, “Super-massive objects do not revolve around each other with a frequency of 100 Hz,” shows he hasn’t thought much about the orbits of planets and satellites. A physics freshman can use Newton’s laws to show that two objects with the density of neutron stars (similar to the density of a 10 solar mass black hole averaged over the volume within its event horizon) close to each other would indeed orbit each other hundreds of times per second. Yes, it’s rocket science, but it’s Common Sense rocket science!

—D. Russell Humphreys, Ph.D.

LIGO Lies: A Critique of Humphreys

This critique of Humphrey’s article is from a critique I published titled “The Lies from LIGO” at www.theprinciplemovie.com/the-lies-from-ligo/. The upshot is, LIGO neither proved the existence of G-waves nor General Relativity. The original MIT paper claims a G-wave contracted one arm of LIGO and caused a phase difference. There is no proof for this, at all. A length contraction in LIGO is an ad hoc theory taken from the original ad hoc theory of Lorentz to explain the 1887 Michelson-Morley experiment (MMX). Since MMX did not provide the fringe shifts needed to show the Earth was revolving around the sun, Lorentz de-

cided to fix the experiment by claiming the MMX arm was contracted by ether. This saved the world from having to accept a fixed Earth. Einstein then used length contraction for the Special Relativity theory (SRT) but dispensed with ether and claimed “relative motion” caused the contraction, all without the slightest proof. Time dilation was added to SRT because if the length of an object is shortened, then it won’t get from point A to point B in the same time, so the time it travels must be increased. Viola! SRT was born.

LIGO does the same. It claims one of its tubes was contracted. It can’t say the laser beam was contracted because SRT says light speed must remain constant. If the G-wave affected the laser beam, then SRT would be falsified. Ironically, G-waves are a product of General Relativity (GRT), not SRT, but SRT has nothing to do with gravity, yet gravity waves contract lengths for LIGO. Einstein never claimed in GRT that a G-wave can contract a material object. And why did the alleged G-wave conveniently contract only the LIGO tube but nothing else? No answers are forthcoming. GRT says that gravity and inertial forces can contract, slow or speed up a light beam. So why didn’t the G-wave affect the laser beam in the LIGO tube but only the tube? Because, if not, SRT would be falsified.

If you’re confused, you should be, since SRT and GRT contradict one another. SRT says light is always constant. GRT says light is not constant. (Even Big Bangers use GRT for their belief that space is expanding beyond c). SRT says space has no ether and is a vacuum of nothing, (but somehow it can shrink material objects when they move in the nothingness). In 1920, Einstein took back the ether he discarded in the 1905 SRT, but said the new ether was “non-ponderable.” SRT says space is really “spacetime” with no real substance to wave or warp, but GRT tell us G “waves” are possible because space is something that can be warped or waved. Ironically, GRT says space can wave or warp but never explains how something “non-ponderable” can wave. Contradictions galore! Here is the truth: SRT was invented to keep the Earth moving when MMX showed it was fixed, but when Einstein had to add gravity to relativity, GRT was born, but by its own co-variance equations GRT says the Earth can be fixed in the center of a rotating universe. So Einstein is hoist by his own petard.

As for G-waves, the reason science is on a hunt for them is because they want to prop up Einstein, despite the fact his theories

are internally contradictory, and externally contradictory with quantum mechanics. Inflation was invented so the Big Bangers could get around SRT’s light-speed limit, but when they needed space to expand faster than light, they used GRT and abandoned SRT. Go figure.

Lastly, the only citation the MIT paper gives for the existence of G-waves is the 1981 paper by Taylor and Weisberg, who themselves admit they had “no direct evidence for” a G-wave, but only postulated it because they merely assumed that an energy decrease in a binary star would produce a G-wave. All they saw was an energy decrease in the binary, not a G-wave. An energy decrease in a binary can come from many other things, internal and external, not necessarily the emission of a G-wave. Case closed.

—Robert Sungenis

Humphreys Replies to Critic: Why Geocentrists Don’t Like Relativity

This letter is an interesting window into the thinking of one subspecies of relativity critic — the Geocentrists. They want to believe the Earth is motionless with respect to *something* and that once a day (for some Geocentrists) and once a year (for all of them), the entire universe revolves around the Earth. Many of them do not specify the “something” clearly, but I think that some of them say that it is space itself, or what I would call the fabric of space. I agree with them in believing there is such an absolute frame of reference. I disagree that the Earth is motionless in that frame. For a recent creationist review and refutation of Geocentrism, see the online article linked below (Carter and Sarfati, 2015).

The Geocentrists rest their case on the famous Michelson-Morely experiment, which compared the speed of light in two legs of an interferometer six months apart. The experiment showed no change throughout the year. Geocentrists seize on that and say it was because the Earth was always at rest with respect to the fabric of space. But relativity provides an alternative interpretation (my form of it here): that the length of the interferometer contracted (or increased) as the Earth moved faster (or slower) with respect to the fabric of space in its orbit around the Sun. Length contraction is simply a logical consequence of the axioms of relativity. Geocentrists do not like that alternative, so they attack relativity. They

try to explain away the many experimental proofs for relativity, including the laboratory observations (apart from interferometers) of length contraction (Anonymous, 2016), which Mr. Sungenis doesn’t seem to be aware of.

Unfortunately, Geocentrists (if Mr. Sungenis is a good example) do not understand the theory they are criticizing. For example, they don’t seem to be aware that Special Relativity (SR) is a mere subset of General Relativity (GR), as Tennessee is a subset of the United States. SR and GR don’t contradict each other, as Mr. Sungenis claims. SR merely restricts itself to reference frames that aren’t accelerating with respect to the fabric of space (and no changes in gravity). In such frames the speed of light is constant. GR doesn’t restrict its frames of reference as SR does, and in some frames the speed of light clearly changes (as in regions of different gravitational potential) and spacetime is bent.

Another of their misunderstandings is with how GR says a gravitational wave would affect lengths. Such a wave would not merely change the length of the LIGO tubes, as Mr. Sungenis asserts, but it would also change the lengths in the ground beneath, the locations of the mirrors, and the light beam itself, including the beam’s speed, frequency, and wavelength. Sungenis’s preconceptions prevent him from seeing the pervasiveness of the stretching and bending of space and time that GR talks about.

If one goes through all of Mr. Sungenis’s objections to evidence for relativity, here and elsewhere, it looks to me as if every one of them is based on his misconceptions of relativity and experiments. His deep love for Geocentrism has blinded him to the strong evidence for relativity that has emerged from a century of ever-more-rigorous experimental tests. The LIGO gravity wave observations are very powerful evidence for relativity.

—D. Russell Humphreys, PhD

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All by Design

by Jonathan C. O'Quinn, D.P.M., M.S.

Electric Bumblebees

The Bible teaches that all living things were made according to kinds by an intelligent Creator. If this is so, then we can expect to discover many extraordinary things as we study the biology of living organisms. One such example is the bumblebee.

Bumblebees feed on nectar from flowers. It is thus advantageous for them to find flowers efficiently, expending as little energy as possible when searching for food. It turns out that all living things, even flowers, have electrical fields.

The student of Creation will not be surprised to find that the body hairs of bumblebees possess a unique ability, in that they are sensitive to electrical fields, specifically, those produced by flowers. In addition to other fine-tuned senses bumblebees possess, including the ability to see ultraviolet light, the body hairs of bumblebees move in response to electrical fields.



These hairs, called “mechanosensory hairs,” are connected via nerve fibers to the bumblebee nervous system, and when they move, they activate the nerve cells.

These sensory hairs allow bumblebees to forage for nectar more efficiently by enabling them to sense electrical charges on

flowers. Like every specialized physiological property, the unique connections between these body hairs and the bumblebee nervous system could not have developed by accident (chance) or in small steps. A partial connection would not be useful to the organism. This system had to work perfectly from day one.

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