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Animal Tracks and Catastrophic Plate Tectonics

by Carl R. Froede, Jr., PG

Naturalists deriving hypotheses based solely in historical science usually discover the difficulty, or even impossibility, of providing empirical data that credibly defend those ideas. Numerous proposals, previously accepted as fact, have come and gone once subsequent data were discovered that nullified the original ideas. This occurs because historical events are not subject to the scientific method or scientific certainty. Forensic investigation, while helpful, is no substitute for experimentation. This same process of testing, refining, and rejecting (when necessary) historically-based concepts and models should also occur with the advancement of creation science.

Editor's Note

Due to circumstances beyond our control, we were unable to publish *Creation Matters* Volume 16 No. 6.

Since its inception in 1994, Catastrophic Plate Tectonics (CPT) has gained widespread acceptance in creation science. It relies on the linear chronology of the standard geologic column (sans deep time and evolution) coupled with data used to support Plate Tectonic theory. However, this union of two secular concepts in support of biblical history has not gone unchallenged due to its internal inconsistencies with the idea of a global Flood (e.g., Reed et al., 1995; Reed and Froede, 2002; Akridge et al., 2007).

There is another data set that presents problems for the CPT scenario — the presence of animal and insect tracks/trackways from sedimentary rocks defined as Paleozoic and Mesozoic. Based on the timing of the past supercontinents and their breakup relative to the standard geologic column, these rocks should not support such tracks in the Flood framework.

Geologists reconstruct the past by inferring causes and events from materials such as sediments, rocks, minerals, and fossils. When reconstructions are put forward to defend Scripture, the stakes get even higher. Although it appears that CPT has become the "de facto standard" tectonic theory in creation science, can it defend animal/insect tracks in Paleozoic and Mesozoic rocks consistent with biblical chronology and expectations?

Origins of CPT

Catastrophic Plate Tectonics was proposed by several young-earth scientists as a diluvial plate tectonic theory (Austin et al, 1994). It is built on the same datasets used by secular scientists in defense of Plate Tectonic theory, and defined within the standard geologic timescale. A major difference between the two tectonic concepts appears to be in the rate of plate motion. Today, CPT is widely promoted by various Christians and young-earth creationist organizations despite the lack of technical

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Humans on Display

by Jerry Bergman, Ph.D.

In the 19th and 20th centuries, public exhibits of those people that Darwinists of the day regarded as evolutionarily inferior, mostly non-Europeans and especially Africans, Asians, and indigenous people, were common (Blanchard, et al., 2008). These putative inferior races were often caged and displayed in a makeshift "natural habitat" to reinforce the image of "primitive savage people" that evolutionists judged were links to lower animals. These very popular human displays were often found at world fairs where they drew tens of millions of Europeans and Americans.

Westerners' curiosity about other races dates at least back to when Columbus brought several indigenous Americans from the New World to the Spanish court in 1493. Public exhibitions of so-called primitive people in zoos and fairs, though, only became common in the 1850s in the aftermath of the Darwinian revolution. Before Darwin, putting on such displays was a "piecemeal affair," but after Darwin published his revolutionary book in 1859 it "developed into a fully fledged 'industry' with its own codes and professionals" (Blanchard, et al., 2008, p. 7).

These exhibits were found throughout the Western world, including New York, Hamburg, Antwerp, Barcelona, London, Milan, and Warsaw. A central factor in these displays was to document "a racial hierarchy" that supported evolution, which was "based in many respects on eugenics" (Blanchard, et al., 2008, pp. 8–9). Scholars, while recognizing that these "primitive" races were not ape-men, nonetheless

> … sequentially scaled the customs and societies of other people around the world into hypothically earlier stages of development. Nonliterates such as the Australian aborigines were usually firmly secured to the bottom of the structure. Primitive peoples such as these were assumed to represent the earliest stages of civilized man's development. But as

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details or extensive scientific defense.

A key assumption in CPT is the reliability and linear order of the standard geologic timescale/column (Figure 1). While its proponents reject the assumptions of deep time and evolution, they accept its linear sequence and lithostratigraphic divisions (Snelling et al., 1996; Snelling, 2009). This dependence is necessary to constrain the proposed timing of runaway subduction (determined by plate tectonic datasets) relative to the Flood.

CPT was originally developed from computer modeling that linked the onset of the Flood with the breakup of the supercontinent Pangea (Baumgardner, 1987; 1991; 1994; Austin et al., 1994; Snelling, 2007a). CPT advocates initially claimed that this breakup occurred near the Precambrian/Cambrian boundary and ended with the termination of the Flood near the Cretaceous/Tertiary boundary (Austin et al., 1994).

However, recent revisions to CPT have replaced the Pangean supercontinent with the older Rodinian supercontinent (Snelling, 2007a) and have pushed the end of the Flood into the late Cenozoic (Snelling, 2007b) (Figure 2). The convergence and breakup of the Pangean supercontinent, spanning much of the Paleozoic and Mesozoic, would have occurred underwater during the Flood.

Animal/insect tracks, CPT, and the Flood

Animal and insect tracks/trackways occur in many "Periods" in the standard geologic timescale. Many of these traces formed during the time when CPT proponents claim that Floodwater covered the entire Earth (Figure 3). This contradictory situation is not easily resolved. A specific example of the problem can be found in a recent study where fossilized footprints are present in Flood-deposited sediments along the trend of the North American Appalachian Mountains (Froede, 2010). Naturalists interpret these sedimentary strata as extending from the Late Mississippian to the Late Cretaceous.

These areas with animal/insect tracks would have been animal refuges either by a lowstand during the Flood, or were elevated by some form of tectonic uplift. While this is a possibility, some of these tracks occur in sedimentary basins which were experiencing downwarping at that time. Similar problematic locations in Paleozoic and Mesozoic strata have been identified at other locations around the Earth (Chen et al., 2006; Diedrich, 2008; Lockley, et al., 2006; Lucas, 2007; Olsen and Huber, 1998; Raath, 1996; Retallack, 1996).

Advocates of CPT rely on the secular interpretation of data supporting plate tectonics and defined within the linear context of the standard geologic timescale (sans deep time assumptions) as a biblically consistent version of Earth history. However, if true, then animal tracks within the Paleozoic and Mesozoic appear to create serious conflicts in the Flood model. One solution is to reject the secular assumptions of Plate Tectonic theory along with the standard geological timescale/column. That would force a critical reassessment of CPT and the adoption of a biblically-based timescale (Froede, 2007) (Figure 4).

Conclusions

Any Flood model must explain the presence of animal/insect footprints, especially in light of the biblical constraints on the presence of life outside the ark during the global Flood. Evidence should be presented demonstrating that the footprints formed in areas of uplift or where Floodwater levels dropped sufficiently to allow tracks and trackways to form in Flood deposited sediments. This would also serve to defend the use of datasets from both Plate Tectonic theory and the standard geologic timescale (sans deep time assumptions).

Acknowledgments

I thank Jerry Akridge and John Reed for their review and helpful comments. Any errors that may remain are my own. Glory to God in the highest! Proverbs 3:5-6.

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General Editor: Glen W. Wolfrom
Assistant Editor: Jean K. Lightner

For membership / subscription information, advertising rates, and information for authors:

Glen W. Wolfrom, Editor
P.O. Box 8263
St. Joseph, MO 64508-8263

Email: CMeditor@creationresearch.org
Phone/fax: 816.279.2312

Creation Research Society Website:
www.creationresearch.org

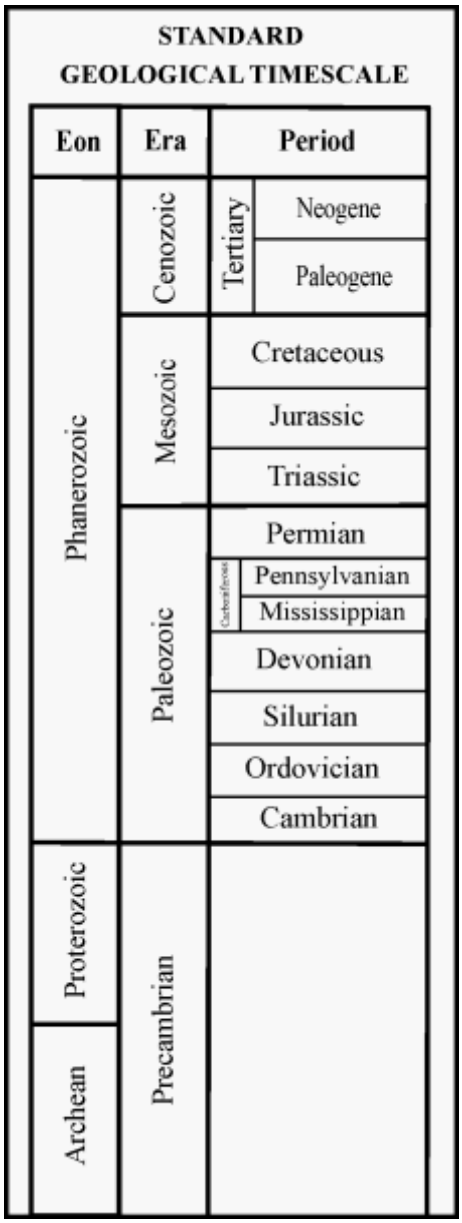

Figure 1. *Advocates of catastrophic plate tectonics (CPT) follow the linear progression of the standard geologic timescale/column (sans deep time or evolution). This allows them to apply existing Plate Tectonic theory datasets to their geologic column in a relative manner without time constraints. While this approach appears to provide a shortcut to the more mature Plate Tectonic theory, it results in inconsistencies between Christian and secular worldviews.*

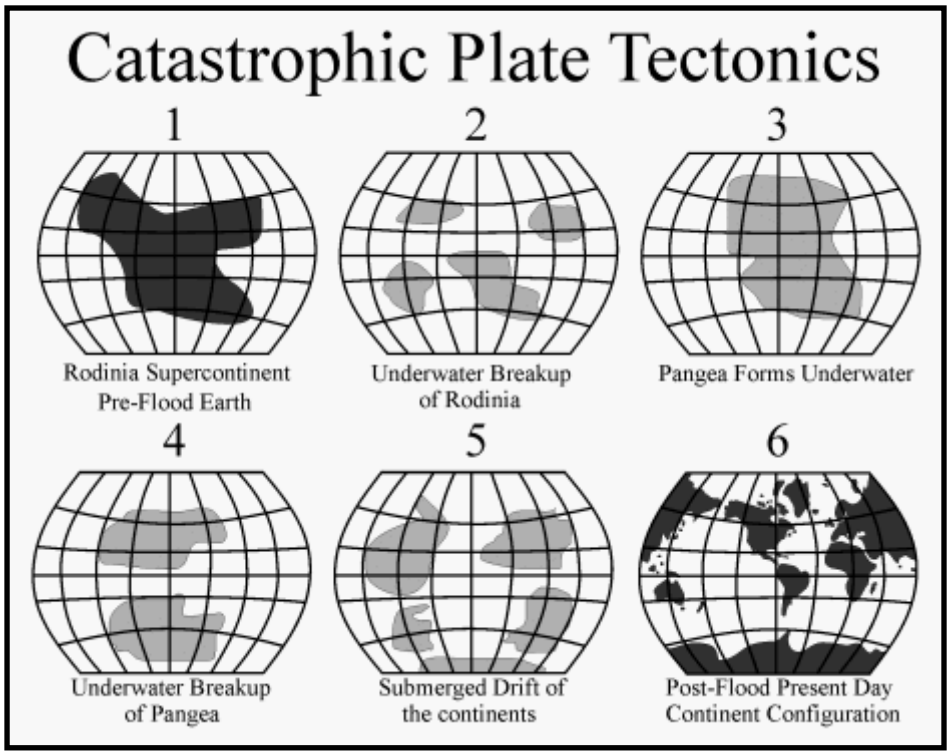

Figure 2. *The latest iteration of catastrophic plate tectonics places the breakup of the antediluvian earth at the Rodinian supercontinent. Thus, Pangea formed and broke apart in submarine conditions during the Flood. Catastrophic Plate Tectonics advocates believe that Floodwater withdrawal occurred late in the Cenozoic when the continents were near their present locations.*

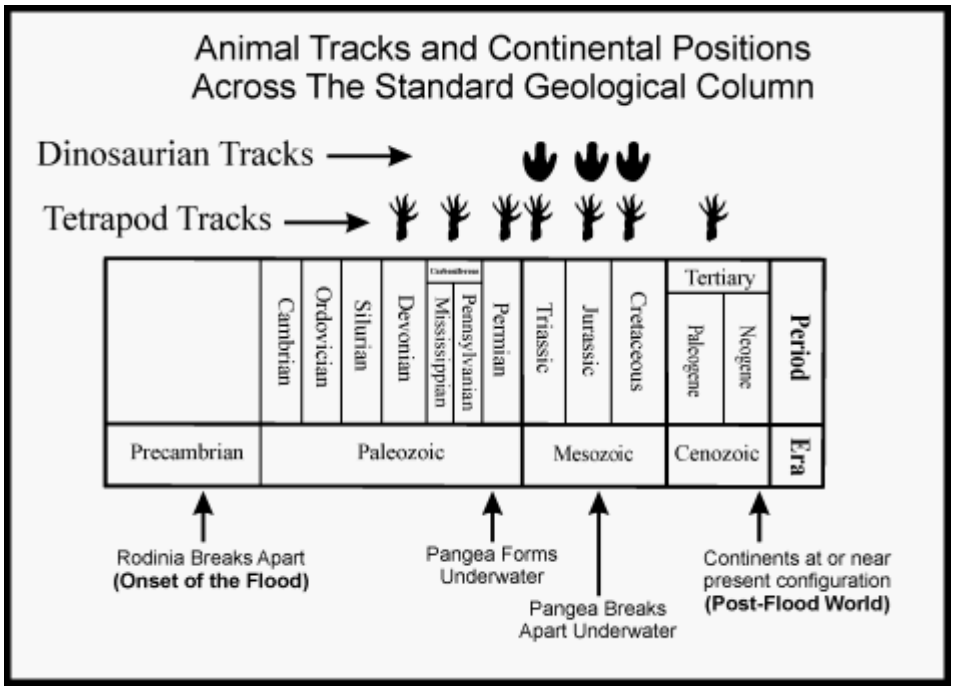

Figure 3. *Animal/insect tracks and trackways occur in Flood deposited strata that according to Catastrophic Plate Tectonics would have been submerged during the purported time of their formation during the Flood. These footprints require a drop in Floodwater elevation or a topographic rise and many of the areas with tracks and trackways do not indicate that either of these two possibilities occurred.*

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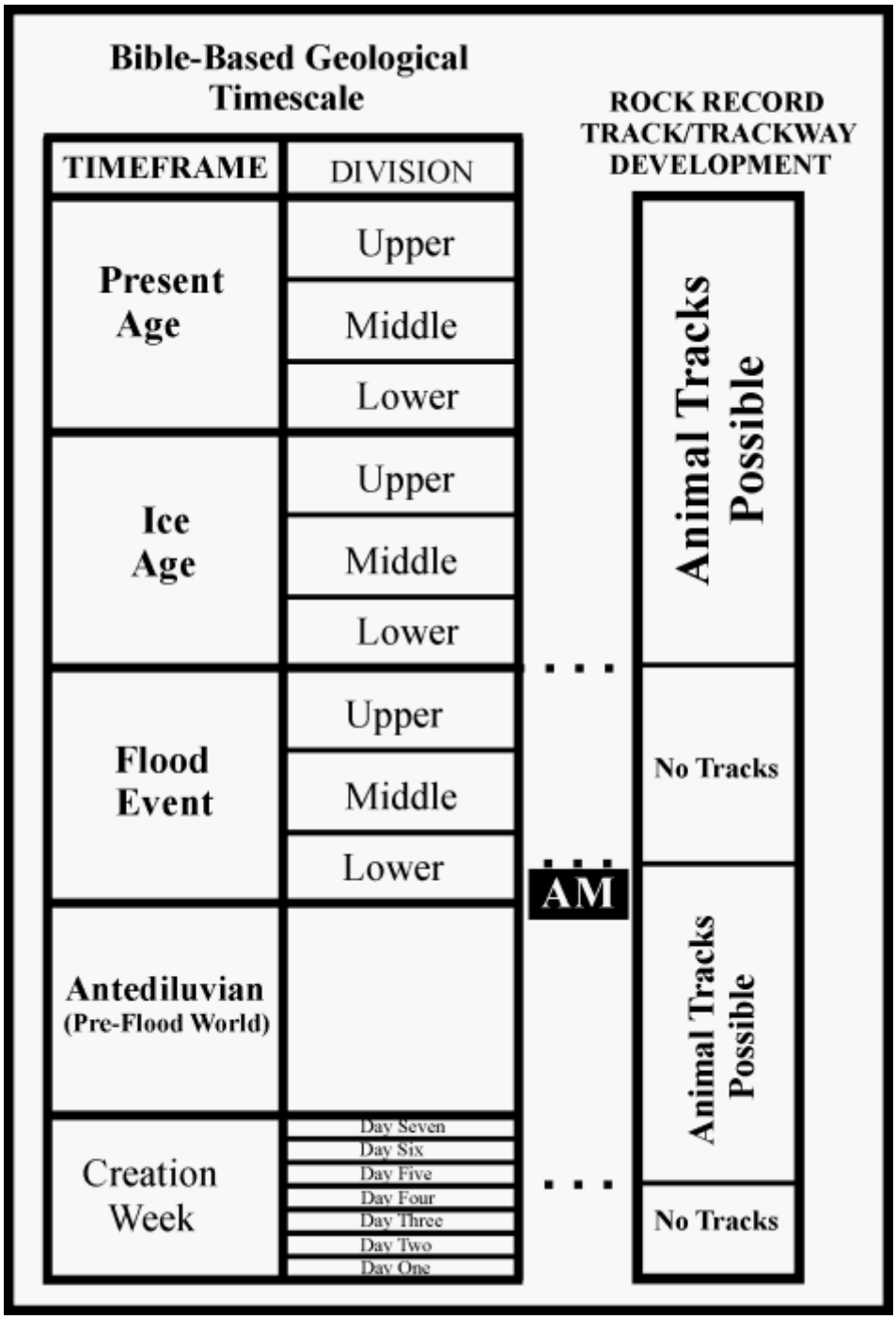

Figure 4. *A biblical explanation for the formation of animal/insect tracks in Flood-deposited sediments requires a completely different interpretation than one attempting to be consistent with the standard geologic timescale/column and plate tectonics. The column on the right identifies the times when animal/insect tracks could have formed and been preserved. The black box containing the letters "AM" indicates the time when animal and insect tracks/trackways likely formed in Flood deposited sediments along the North American Appalachian Mountains with the onset of the Flood (see Froede, 2010).*

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> Daniel Brinton (1896) observed, present-day savages are not as rude or brutish as the hypothetical primeval man; they merely stand nearest to his condition. (Rohner, 1969, pp. xiv–xv)

One ethnic group has been ignored in studies of this mistreatment of non-white European groups — the Eskimos. Rink wrote "there can be no doubt" that European explorers, such as Eric the Red and his companions, regarded the Eskimo "with contempt as an inferior race. In fact, they disposed of them in a word and called them *Skrœlings*, that is 'shriveled chips of creatures'" (Rink, 1876, p. 530). Eskimos do not use the term Eskimo to refer to themselves, but rather Innuit, often spelled Inuit, meaning "the people" (Rink, 1876, p. 515), a term we will use out of respect for them. The European explorers may have thought the Inuit were an inferior race, but those who knew them and their environment more intimately recognized that the ability of Inuit to survive in their

> … harsh, utterly unforgiving environment depended on an extraordinary knowledge of their habitat and refined and sophisticated tools: warm, efficient clothing employing different furs for different purposes, the toggle harpoon for hunting seals through the ice, the use of specialized sled dogs for transportation, hunting, and protection from polar bears, and well-designed kayaks made of bones and skin. These nomadic peoples living at the [Earth's North] pole may not have had a complex civilization, but their culture was an impressive accomplishment. (Dumanoski, 2009, p. 122)

The Inuit exhibits

One of many examples of "primitive" races displayed in zoos and fairs is the Inuit. The Inuit are a group of culturally similar peoples inhabiting the Arctic regions of Alaska, most of the Canadian Arctic and subarctic, and various parts of the Northwest Territories, Greenland, and Siberia (Müller-Wille, 1998). They are the descendants of the Thule culture that spread eastwards around 1000 AD across the Arctic from western Alaska (Piper, 2007). Anthropologists once classed the Inuit along with various Siberian tribes, including the Chinese, Korean, and Japanese, as members of the Mongoloid race. Their physical appearance is closer to that generally associated with Asian peoples than to other Native Americans (Boas, 1998).

This racial categorization is now recognized to be of limited use to understand people, in part because of the highly contested nature of classifying people into racial categories. Yet, until a half-century ago the scientific conclusion that grew out of the debate over the origins of humans was that the Inuit and all Eskimos were a primitive race. Baehre (2008, p. 15) explained that before the eighteenth century

> … the view was widely held that all humanity had descended from Adam and Eve, including "the savage." Natural philosophy eroded this theological perspective during the Enlightenment, as the "nature" of race and civilization began to be studied by philosophers, zoologists, anatomists, and physicians. Reflecting Enlightenment progressivism, they ranked living things from the basest to the highest and most perfect forms in the Great Chain of Being and raised the possibility of multiple creations. While the majority position of monogenesis prevailed into the 19th century, it was increasingly challenged by polygenesis, whose advocates included Voltaire, Montesquieu, and Hume. Polygenesis was sometimes used to justify slavery, anti-Semitism, and European domination of indigenous peoples.

The Ulrikab family on display

One example of an Inuit zoo display was Abraham Ulrikab (c. 1845 – January 13, 1881). Abraham was an Inuit from Hebron, Labrador who, along with his wife and two daughters plus four other Inuit, became a zoo exhibit on September 24, 1880 in the Hamburg, Germany public zoo. On October 2, 1880 they were moved to the Berlin zoo, where they remained until November 14, 1880 when they were sent as subjects on a European anthropological tour (Lutz, et al., 2005). They were recruited by Adrian Jacobsen on behalf of the owner of Hagenbeck's Zoo, Carl Hagenbeck, in Hamburg (Lutz, 2005, p. vii).

Abraham "was in debt to the missionaries to the tune of £10 but had refused to rely on their alms box to pay the loan. So, he needed money" and accepted the offer by Jacobsen (Lutz, 2005, p. xviii). The Moravian missionaries, though, felt they would only be exploited, so tried to persuade them against going. The missionaries knew they would be demeaned as "primitive" people and "exhibited like wild animals" in Europe (Lutz, 2005, p. vii). Lutz (2005, p. xviii) added that the Moravian missionaries

> ... were absolutely opposed to letting any of their Christian flock travel with Jacobsen to be exhibited like zoo animals or to be exposed to the lurking moral and spiritual dangers "outside" the mission in Europe. "To undertake such a journey to Europe is seen to be synonymous with leading them to their doom," complained Jacobsen. "It is sad that a people are so suppressed, and still more so that Europeans demonstrate such power."

He noted that the church "will be rightfully indignant when it is made public in the newspapers that Eskimos from Hebron are exhibited publicly in the zoos of Berlin" (quoted in Lutz, 2005, p. 9). Nonetheless,

> Abraham also let himself be persuaded by the local Hudson Bay trader, Mr. Ford, to disobey the missionaries, and to join Jacobsen's enterprise. So … ignoring all Moravian protests, Abraham, Ulrike, Sara, and Maria, as well as Ulrike's nephew Tobias, boarded the Eisbär [ship to Germany]. (Lutz, 2005, p. xviii)

They were paid three shillings per man, two per woman, and one per child. The trip to Europe was horrible — they suffered from seasickness, especially the children, and encountered some very stormy weather (Lutz, 2005, p. xx). When in Berlin they were examined by Dr. Virchow to determine their racial status (Lutz, 2005, p. xxii).

They had agreed to be in a display partly because they were misled to believe the display was set up only to show the Inuit's native way of life. The zookeepers instructed them to simply walk, talk, wear their fur parkas, and throw harpoons. The Ulrikab group, though, soon became aware of the real purpose of their being displayed: "They know fully well that they are being exhibited" wrote an article in the *Magdeburgishe Zeitung* of October 21, 1880 (quoted in Lutz, 2005, p. 23). A literate man, and an accomplished violin player, Ulrikab was a devout Christian and became the natural leader of the eight Inuits.

Within weeks of arriving in Europe and taking up residence in the zoo, the families realized they had made a big mistake. Their European keepers concluded that "the Inuit were incapable of progressing" socially and intellectually because they were the dullest of all savages. Furthermore, they were "a

vanishing, feeble race" a fact that their keepers believed justified displaying them in a zoo (Hegel, 2000, p. 43). The "exhibit" was a big success — some 16,000 people had visited the display in Berlin alone (Lutz, 2005, p. xxii). They also did "shows" in Prague, Frankfurt, Darmstadt, and Krefeld.

One fatal mistake their hosts made was, prior to leaving Canada, the Inuits were to be vaccinated against smallpox. Lack of facilities in Hebron forced the authorities to promise the required vaccination would be done in Germany. It never happened. The Inuits were vaccinated only after three of them died, but by then it was too late. Just five months after their arrival they all had died of smallpox. Ulrikab kept a diary written in his native Inuktitut in which he described in detail the hardships, terrible beatings, and humiliation that these Inuits had endured at the hands of their hosts (Lutz, et al., 2005; Baehre, 2008). According to Lutz (2005, p. xxvi) the

> … story of the eight Inuit from Labrador … presents one of many shameful and depressing episodes in nineteenth century German (and other Europeans') history … It is marked by economic greed and exploitation, by ignorance and prejudice, by scholarly and popular curiosity, and by callousness and racism.

One Berlin newspaper article (Lutz, 2005, pp. 24–25), dated October 20th, 1880, opined about the Inuit exhibitions that the writer could not

> … suppress a feeling of embarrassment about these recently proliferating "human exhibitions," and especially about "human exhibitions" in zoological gardens! There is the … species "monkey" in its countless variations. And now one is adding the "species homo," as they were recently called in a daily newspaper … We have already had opportunity to see Nubians, Negroes, Lapps, Patagonians, and … rather, our animal traders on their extensive travels will now and again be able to find some "humans" who will suffer themselves to be persuaded to co-operate.

The editor concluded (Lutz, 2005, pp. 24–25) that it is wrong to attempt

> … to demonstrate the idea that there is only a gradual difference between all the species, in this graphic way of treating human beings like exhibition pieces in zoological gardens! … this business in human exhibition pieces has something decisively repulsive. We cannot shake off the idea of the slave trade ... But to bring these "Menschenkinder" (human children), these images of God … right into the middle of zoological gardens as exhibition pieces, seems to be absolutely incompatible with science and our knowledge about humans and the essential being of humanity. … If these "interesting" human specimens need to be exhibited at all, a sense of "racial ethics" should prevent us from displaying our equals in zoos.

The Inuit today

The Inuit then, and today, strongly objected to being labeled an inferior race and put on display. One modern example comes from the government in Quebec which "ordered some private evangelical schools to teach evolution" as fact. As a result several

> Parents in a remote Inuit community on Ungava Bay complained that their children arrived home from school claiming their ancestors were apes. When the local principal reprimanded his new science teacher for teaching evolution to an increasingly evangelical population, the minister of education himself stepped in to order the provincial science curriculum restored, an intervention that won no applause from at least one aboriginal mother in the town of Salluit. "The minister may have come from apes," Molly Tayara told the *Montreal Gazette*, "but we're Inuit and we've always been human." (McDonald, 2010, p. 196)

Thus, the struggle against forcing Darwinism on groups of people still goes on today, not only with the Inuit, but with other ethnic groups (Sewell, 2009).

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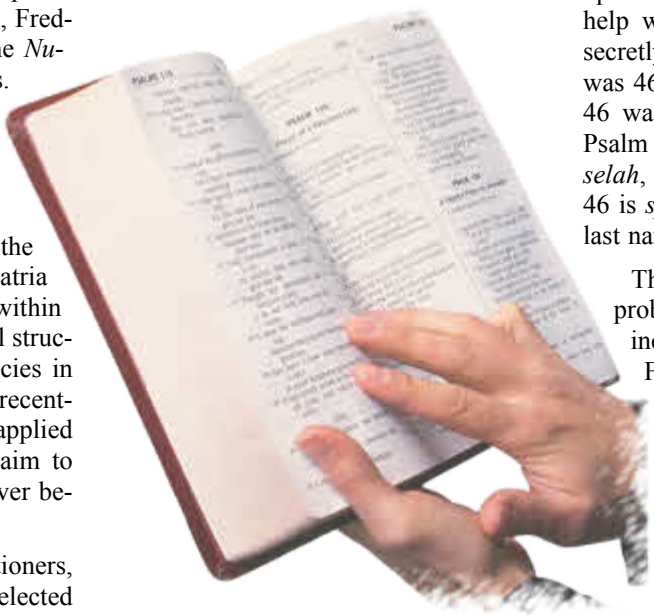
The Bible Code

Great effort has gone into the search for hidden messages in Scripture. Back in 1897, for example, Frederic W. Grant produced the *Numerical Bible*, in seven volumes. Grant looked for number or word symbolism in the arrangements of the Bible's books, chapters, and verses.

While such efforts fall under the broad category of numerology, gematria is the name given to the practice within Jewish tradition to find mathematical structures, hidden messages, and prophecies in the Bible or other holy books. More recently, the term "Bible Code" has been applied to popular books whose authors claim to unlock deep secrets in Scripture, never before known.

In some applications by practitioners, particular patterns of letters are selected from the text to spell out messages. For example, every 50th letter might be combined to produce a word or phrase. Efforts also include selecting letters falling in the same column of a manuscript, and then combining them either forward or in reverse order to construct meaningful words. One can also choose letters which occur on a diagonal across a page. The possibilities of selection are nearly endless and many cryptic messages may result.

One possible motive behind these efforts is to prove the supernatural origin of these writings. However, this is an improper use of Scripture. As Isaiah 45:19 declares, God has "not spoken in secret, from somewhere in a land of darkness." It is nonsensical and misleading to search for deep numerical secrets in the Bible.



Author Michael Drosin has written several best-selling books on this topic including *The Bible Code, Bible Code II: The Countdown,* and *Bible Code III: Saving the World.* One may suspect that the hidden motive of these writing projects is financial gain.

An extreme example of a bogus "Bible Code" discovery concerns the classic King James translation. This version of Scripture was completed in 1611. There is a popular, apocryphal story that the translators called upon William Shakespeare (1564–1616) to help with the project. Shakespeare then secretly slipped his name into the text. He was 46 years old in 1610–1611 and Psalm 46 was his target. The 46th word in this Psalm is *shake* (verse 3). Also, not counting *selah*, the 46th word from the end of Psalm 46 is *spear* (verse 9), which completes his last name.

This "urban legend" has a number of problems. Shakespeare's name is spelled incorrectly by adding shake and spear. Furthermore, there is no record of any involvement by William Shakespeare in translating the King James Bible.

Extreme efforts to locate secret meanings in Scripture are both remarkable and futile. As Mark Twain crudely but aptly said more than a century ago, "It ain't those parts of the Bible that I can't understand that bother me, it is the parts that I do understand." (Ayres, p. 24)

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Matters of Fact...

Poorly Engineered Arguments

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 **Some evolutionists claim that certain features in our body are poorly engineered. Do poorly designed features really support evolution?**

A The question is loaded as it assumes that examples of poor design exist in our bodies. First, it is important to recognize that someone can claim something is poorly designed when it is actually very well designed. It is easy to find fault with a structure's design when one doesn't take the time to research it thoroughly. The majority of poor-design arguments fall into this category.

The retina

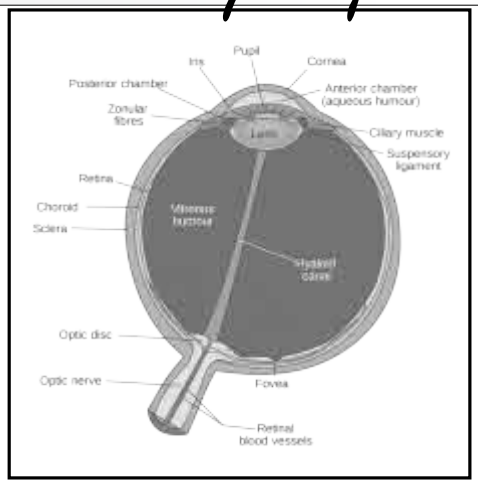
One such example is the claim that the human retina (at the back of the eye) is wired backwards. This has always seemed outlandish to me. Eyesight is something for which we should be thankful to God. Instead, according to some evolutionists, we are encouraged to disparage this awesome gift from God.

It is claimed that the eye of an octopus is more logically wired, but I don't see anyone standing in line to have their eyes altered to be like those of an octopus. This misinformed claim has been well addressed using information from the scientific literature (Sarfati, 2010).

Second, it is important to realize that the biblical worldview recognizes that deterioration of good design has taken place as the result of the Curse that followed Adam's and Eve's disobedience (Genesis 3). Thus, design deterioration and failure is a reminder that sin leads to disaster and death.

Although we can see awesome design, we can also see that our world is broken. This should encourage us to reach out for a Savior. Our Creator is the only real savior (Isaiah 43:11; 45:21-22; Hosea 13:4; Colossians 1:13-17; Hebrews 1:3).

In reality, there is no good evidence that poorly designed features exist in our bodies. Instead, we see excellent design, for which we can gain a deeper appreciation as we study it. We also see design deterioration and failure because we live in a fallen world.



Another example is the vas deferens in the human male which takes a circuitous route around the ureter, rather than following a more direct route from the testes to the penis. If it were intelligently designed, wouldn't one expect it to take a more direct route? My answer is *no*, based on my knowledge of anatomy and embryology. Let's look at this topic more closely.

The vas deferens

The vas deferens does more than just convey sperm to the penis in humans and mammals. Along the way there are various fluids added from accessory sex glands (seminal vesicles, prostate gland, and bulbourethral glands in humans). This adds considerable volume to the mixture and includes components that are important to reproduction. Since these glands are located behind the bladder, the path of the vas deferens, up and over the ureter, is quite reasonable from a design perspective. More detailed explanation of the overall anatomy and the function of fluids from accessory sex glands can be readily found.

Also relevant to this discussion is embryology. The engineering challenges of forming healthy individuals in one environment (inside the womb) while preparing them to live in another (outside the mother) are beyond comprehension. For example, how do the necessary functions of an organ get carried out when the organ has not yet had time to develop?

To overcome these challenges, sometimes temporary organs or structures are formed that meet these immediate needs. These temporary organs later disappear as others take over. For example, the yolk sac is an essential temporary organ that forms red blood cells and is involved in nutrient and gas exchange prior to the formation of other organs (e.g., liver, bones, placenta, etc.) that will carry out these tasks (see also Lightner, 2011).

To understand the formation of the reproductive system in males, we need to first look the development of the kidneys. While the developing individual does need some kidney function early on, it does not need to be as elaborate as what will be required following birth. Initially, nephromtomes develop. These are quite simple structures, and soon something more complex is needed.

Next the mesonephros develops. Since the baby develops in an environment in which it is surrounded by fluid, there is no need to be able to concentrate urine at this stage of development. Unsurprisingly, the structure of the mesonephros is much like that of creatures that spend their adult lives in aquatic environments (surrounded by fluid), since such a design is optimal for those conditions. This provides for the baby's needs while allowing time for the more elaborate metanephros (permanent kidney) to develop.

Once the permanent kidneys are formed and functioning, the mesonephros regresses. Through an impressive economy of design, some of the mesonephric ducts and tubules, which are near the forming testes, are incorporated into the male genital system. So the initial location of the testes is in the abdomen near the kidneys. In humans and most mammals, this is not where they will remain since internal body temperatures are too high for optimal sperm formation.

During later prenatal development, through a series of well controlled steps, the testes travel over the pubic bone and descend through a special opening in the abdominal wall into the scrotum (Carlson, 1999). This explains why the path of the vas deferens is also over the ureter; going under the ureter and then over the pubic bone would not make much sense anatomically.

A renowned expert in human embryology once wrote (Blechschmidt, 2004, p. 11):

Investigations of human ontogeny

have shown conclusively that the notion of evolution is totally unnecessary for an understanding of individual development and anatomy.

Practical and effective design is amply demonstrated in the development and function of the urinary, genital, and other body organ systems. These facts should contribute to a sense of awe regarding God's engineering abilities. (See also Sarfati, 2008.) Although evolutionists try to understand these design features within their worldview, such attempts often fall short, engendering misunderstandings about the adequacy of the design.

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Speaking of Science

Editor's note: Unless otherwise noted, S.O.S. (Speaking of Science) items in this issue are kindly provided by David Coppedge. Opinions expressed herein are his own. Additional commentaries and reviews of news items by David, complete with hyperlinks to cited references, can be seen at: http://crev.info/. Unless otherwise noted, emphasis is added in all quotes.

Methuselah Seed Now a Tree

The world's oldest viable seed is now a tree 8 feet tall. The Methuselah palm, discovered in the 1960s as a seed at the Judean fortress of Masada, sprouted in 2005 under controlled conditions. Its antiquity was verified by radiocarbon dating to be from the time the Romans were besieging the mountain fortress built by Herod the Great, some 2,000 years ago.

The *Jerusalem Post*[1] reported that the palm tree, now 2.5 meters tall, has been transplanted to a kibbutz in the Arava (Jordan rift) in southern Israel, where botanists will analyze its genetic lineage for clues. They expect the tree (the first of several that sprouted) will produce edible fruit and perhaps medicinal compounds, which were valued in ancient times. Modern date palms from the region are genetically different from the ones known to the ancients, which disappeared from the land in the time of the Crusaders. These trees are depicted on Roman coins from the period. "The species was known then to have therapeutic qualities and a delicious taste," the *Jerusalem Post* said.

Could humans create a car that could still drive after 2,000 years? This is truly amazing. A seed — a tiny package of life, containing molecular machines and a library of code — still worked, despite millennia of cosmic rays and other mutagens. This means that DNA repair mechanisms must have still been at work inside this dormant package. Don't underestimate the wonder of seeds.

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Simplest Explanation: Dinosaurs Drowned

Why are dinosaur skeletons so often found with head arched backward and tail up? The simplest explanation, according to one experimenter, is that they drowned in water. According to an article in *New Scientist,*[1]

> When palaeontologists are lucky enough to find a **complete dinosaur skeleton** — whether it be a **tiny Sinosauropteryx** or an **enormous Apatosaurus** — there's a **good chance it will be found with its head thrown backwards and its tail arched upwards**.

This phenomenon has been known for a century. There's even a name for it: the "**the opisthotonic death pose.**"

Alicia Cutler and her colleagues at Brigham Young University decided to check out why this happened so often for dinosaurs. Some had suggested dessication. Kevin Padian's theory was that it represented the dinosaur's final death throes. Cutler tested how plucked chickens reacted to dessication and dunking. According to the article, "**it all comes down to a dip in the wet stuff.**" The dunked chickens immediately went into the characteristic opisthotonic death pose.

Would results differ in salt water? Some might think so, but Cutler said, "Although the roads to the opisthotonic death pose are many, **immersion in water is the simplest explanation**."

In other dinosaur news, *PhysOrg*[2] reported a nest of 15 Protoceratops juveniles found in Mongolia, the first nest of their genus ever found. The paleontologist from University of Rhode Island said "I suspect" they were buried in a sandstorm, but admitted they had to be buried rapidly to be preserved in such detail.

And although extinct marine reptiles are not dinosaurs, *PhysOrg*[3] also reported on an exceptionally-preserved mosasaur fossil discovered in western Kansas. *LiveScience*[4] said of this specimen, "In the **fossilized skin** samples, the researchers can **see not only the animal's scales, but also imprints of the protein fibers that made up its skin**." The discovery was reported in *PLoS ONE* by Lindgren *et al*.[5]

LiveScience[6] reported a nest of bird fossils from the dinosaur era that they say was buried in a local flash flood. The article states, "the **limestone** block contains **remarkably complete egg fossils, representing hundreds of eggs**." Speaking of birds, *PhysOrg*[7] reported evidence of a dinosaur that ate birds. A fossil of *Microraptor gui* (depending on how one classifies this as a dinosaur) appears to have a small bird fossil in its stomach. And what could it possibly mean that a giant long-necked titanosaur has been found in Antarctica? See *LiveScience*[8] for details.

OK, so does that make a global flood the inference to the best explanation for this death-pose phenomenon? After all, we're talking about a wide range of fossils all over the globe, from tiny to huge. Many have in common an observable characteristic that can be caused by immersion in water — so common it has been popularly called "**the dinosaur death pose**" (see headline of *NewScientist*'s article[1]). It should be no secret that it's watery. We're dealing with experimental science here, not the teachings of some historical text. Where does the evidence lead?

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Discovery Upsets Geological Dating

For a long time, geologists have used microscopic crystals called zircons as "time capsules" for dating rocks. The tiny crystals are so durable it was believed they were virtually impermeable. Now, however, inclusions inside the zircons appear to be vastly different in age. This could have drastic effects on how certain formations are dated.

According to *Science Magazine News*, Earth's time capsules "**may be flawed**."[1] An Australian team took a look at about 7,000 zircons from the Jack Hills of western Australia, a conglomerate formation containing pebbles that have undergone heavy bouts of metamorphism. The zircons were thought to be between 2.65 and 3.05 billion years old. A few had inclusions, and some of the inclusions that were dated using radiometric means came out as young as 800 million years — the assumed date of the surrounding metamorphic rock.

This means that zircons are not as protected from outside influence as previously thought. The scientists could find no way for younger radioactive material to get inside some of the "young" inclusions — no hairline fractures, for instance. If carried in by fluids, "the fluids may have traveled along defects in the zircon's crystal structure caused by radioactive decay or along **pathways that are either too small to see or oriented such that they're invisible**." Reporter Sid Perkins described how this finding may "**stir people up**":

> In recent years, some researchers have used analyses of zircons and their inclusions — and in particular, the temperatures and pressures they've been exposed to since their formation — **to infer the presence of oceans or of modern-style plate tectonics on Earth more than 4 billion years ago**, well before previously suspected, Rasmussen says. **But based on the team's new findings**, which will be reported next month in *Geology*, **those conclusions are suspect**, he notes.

Another geologist was even more worried. "The results 'suggest that **analyses of zircon inclusions can't be trusted much at all,'** adds Jonathan Patchett, an isotope geochemist at the University of Arizona in Tucson." Another geologist was not so pessimistic but warned that use of zircon dating information will have to be done more carefully from now on. But how careful is careful enough?

The pathways into the zircons are invisible. Geologists have had a habit of using the data they like for their preconceived timeline, and tossing out the anomalies. Well, the RATE team at ICR and CRS found plenty of anomalies for them, dating these rocks at thousands, not millions of years old (let alone billions). It's all published online; go look at it at ICR.org/rate. If the secular geologists weren't so wedded to Darwin, they would have to take these anomalies seriously, even if they disagree with the world view of the creation scientists.

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Incredible Small Creatures That Deny Evolution

While the largest of animals impress us with their size and bulk, some of the most amazing are those you could hold in the palm of your hand. Here are three worth appreciating.

■ **Frog hopping**: Grad student Henry Astley at Brown University is showing us that those infamous frog dissections in school are not for naught. Actually, his experiments with professor Thomas Roberts thankfully leave the poor creatures alive and well, as they analyze their amazing ability to hop. A student of biomechanics, Astley was interested in how frogs get more mileage than their muscles allow[1] He filmed them in super slo-mo and found that as they crouch, ready to hop, the leg muscles transfer elastic energy into the tendons, loading them like a spring. A video clip shows how the little amphibians are superbly engineered hopping machines.

■ **Butterfly scratching**: Imagine being able to smell with your feet. (Actually, some human feet smell, but that's a different connotation.) Butterflies drum and scratch leaves to identify their host plants for egg-laying. They have special sensors on their feet that, along with their tasting proboscis, distance-smelling antennae, and superb eyesight, allow them to find the plants that their caterpillars will need to eat. *PhysOrg*[2] reported on this, but there is much more information with visuals on the new documentary *Metamorphosis* — a masterwork on Blu-Ray or DVD (see trailer and ordering information on MetamorphosisTheFilm.com).

■ **Shrimp webbing**: Speaking of feet, shrimp may have something in common with spiders — the ability to build silk webbing material — but they do it with their feet! The *BBC News*[3] story included a short clip of the "spinnerets" on the shrimp's legs used to extrude a sticky material the animal uses for building its house from surrounding pebbles and sand grains. Moreover, this material, described in the article as "**nature's way of engineering a highly functional material**," is salt-water resistant. Little is known about its properties, but one of the Oxford researchers expects the material to be strong and stretchy, like that of spider webs.

Only the last article mentioned evolution, and that was just in passing. The reader is told that "the thread **has evolved** to be spun underwater and to stay underwater throughout its life, **so it will have a few tricks to be able to perform** in ...[its] environment." The focus of the article was actually more on revealing biological secrets for human benefit and inspiration. "**It's not that we want to copy things from nature**," one of the Oxford zoologists said. "**It's more that we want to be inspired by nature to see how she does the job.**"

We're glad the Oxford team is inspired, but they need to stop the Darwinian fantasizing and think logically — the only possible conclusion from the observations is that nature reveals an all-wise, all-powerful, benevolent Creator.

One way to win hearts and minds away from the Darwinian mindset is to share the details of plants and animals like these and ask, "How could that evolve?" It worked for Dr. Jobe Martin, whose film series *Incredible Creatures that Defy Evolution* (available at CRSbooks.org) are a testament to his kicking the Darwin habit after being challenged with that very question. Now, as a creationist, he is filled with inspiration and enthusiasm, and spreads his enthusiasm about the wonders of nature to others. Study up on some of these animal observations for some productive conversation with friends.

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...without excuse!

The Testimony of Minimum Genome Size

by Timothy R. Stout

A major problem facing those who believe in a purely natural, mindless origin of life concerns the source of the information used in the first living cells. Living cells are information-driven machines. This means that internal processes are controlled by a block of information stored in a medium (DNA). In the context of this discussion, the term genome is meant to include the hereditary information stored on chromosomal DNA, as well as extrachromosomal or non-coding DNA.

However, information by itself is useless. There needs to be a support mechanism for reading the information and then applying it to accomplish its intended purpose. There also need to be control mechanisms and feedback loops to determine when and how the information gets used.

In a cell, the mechanisms to read and use a genome's information are built using the information to be decoded. Therefore, the existence of information, together with support and control mechanisms, is irreducibly complex; i.e., information is useless without the support mechanism to use it. Yet, this mechanism itself requires information and an already-existing support mechanism in order for it to be built.

Actually, all of the major components of a cell — the cell membrane, an energy system, a replication system, a metabolic system, a waste removal system, etc. — need to have been specified in the very first genome that came into existence. Thus, all the components of an irreducibly complex system such as a living cell need to have made their appearance in a single step. In contrast, by definition the appearance of a cell's fully functioning genome in a single-step is the opposite of evolution.

The first cell

Evolutionists like to postulate that the first cell eventually appeared out of a primordial soup in a progressive sequence such as:

1. the appearance of a prebiotic soup supplying raw nutrients
2. the assembly of raw nutrients into building block molecules, such as amino acids or nucleotides
3. the appearance of self-replicating molecules among the building-block molecules

4. the evolution of self-replicating molecules into more efficient replicators
5. the organization of groups of self-replicating molecules into a symbiotic relationship with each other, with specialists forming among the molecules
6. the development of groups of symbiotic, self-replicating molecules into an information-driven cell

This classic sequence appears with minor variation in school textbooks ubiquitously.

A discussion of potentially insurmountable difficulties in every step of the above sequence is beyond the scope of this article. However, evolutionists like to claim that once an evolving self-replicating molecule appeared, as in step 4, it became only a matter of time until the first fully-functioning cell appeared (Dawkins, 1984).

By contrast, the gap between a hypothetical collection of symbiotic self-replicating molecules in step 4 and an information-driven cell in step 6 is effectively infinite. This is because in an information-driven entity, be it a machine or a cell, the information plus the mechanism to use it must be present simultaneously — not appearing by a gradual, step-by-step process.

A question naturally arises concerning the minimum amount of information required for the genome of the first, fully-functioning, living cell. It is interesting to consider the bacterium, *Carsonella ruddii* strain Pv (*Carsonella*-Pv), which lives in a symbiotic relationship with an insect host (Nakabachi et al., 2006). It is not capable of self-existence, thus requiring less information in its genome than would a stand-alone organism. With 159,662 base pairs in its single circular chromosome, its "genome … lacks many genes for bacterium-specific processes."

What are the odds?

Thus, it seems reasonable that the first living cell would need to have a much larger genome than does *Carsonella*-Pv; viz., a genome much *larger* than 160,000 base pairs. The odds against getting this amount of information in a single step is staggering. Since four base pairs are available for each nucleotide in a molecule of DNA, the odds against matching this sequence through random processes compute to 1 in $4^{160,000}$.

As large as this number is, it is still inadequate to account for the origin of a complete ensemble of genes that is required for independent living. However, our main concern is to understand the difficulty for evolutionary processes to produce *any* kind of cell capable of independent life. The foregoing discussion establishes that there will likely need to be well over 160,000 base pairs in any such genome.

In an effort to make the situation even more favorable to evolution, let us suppose that the specification of only one out of every ten base pairs would be critical, and that the other nine could be random. In other words, to specify the genome of a living cell, it would be adequate to specify only 16,000 of the 160,000 bases. While this scenario seems unrealistically low to the point of ridiculousness, the odds against even this would still be 1 in $4^{16,000}$. This is the mathematical equivalent of approximately 1 in $10^{10,000}$. An honest person will acknowledge that such odds are so overwhelming that they are effectively impossible to overcome.

Science therefore teaches us that because a living cell is an information-driven machine, the first self-existing cell could not have been formed through natural, unguided, mindless processes as taught in typical textbooks. In fact, the testimony is so clear that a person who does not acknowledge it is "without excuse."

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All by Design

Fastest Beak Around

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

Hummingbirds have an extremely high activity level, requiring not only lots of plant nectar, but protein and other nutrients from small insects such as fruit flies, consuming roughly 300 of these flies per day. The apparent problem with this, however, is the long, needle-like beak of the hummingbird, which is clearly suited for flowers.

What most people do not know is that the hummingbird beak is also perfectly suited for catching these tiny insects. Instead of having a cartilaginous hinge at the base of the beak, like most other insect-eating birds, hummingbird beaks are solid bone. However, the bone of the lower bill is incredibly thin and flexible.

When a hummingbird opens its mouth to snatch a fruit fly, muscle force imposed upon the lower bill flexes the lower bill about 25 degrees and widens the bill at the base to increase surface area. The elastic energy thus stored in the bone of the lower bill quickly reaches a threshold level, at which it then suddenly snaps shut in less than 1/100th of a second, much faster than the hummingbird could accomplish by muscle power alone. This extreme speed assists the hummingbird in catching these tiny flies.

As is seen everywhere in nature, the hummingbird bill's form perfectly fits its function. The fact that this bill had to function flawlessly from day one indicates that it could not have developed randomly and in stages. This demonstrates intentional, intelligent design which speaks dramatically to the existence of a Creator.

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Photo credit:
Broad-tailed Hummingbird (*Selasphorus platycercus*)
National Park Service Photo, www.nps.gov,
courtesy of Paula Hamilton

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