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The Limits of Prigogine's Idea of Natural Self-Organization

by Timothy R. Stout

Over the years, I have considered the issue of entropy to provide one of the strongest arguments against evolution, both as it relates to chemical evolution (the origin of life) and to macroevolution (turning an amoeba into a man). It seems obvious that random changes to organized systems tend to destroy existing order. A two-year-old child left to himself in a toy store will quickly turn it into a shambles. Multiple, random, blindfolded paint strokes on a Rembrandt painting will invariably destroy the quality of the painting, not improve upon it.

Yet, recently I have talked to a number of students on various university campuses who have taken issue with me, claiming that science has demonstrated that, in truth, nature tends to organize itself. To them, spontaneous self-organization, not decay, is the normal order of things. Evolution is the natural outworking of this principle. Their hero is Ilya Prigogine.

A prize-winning idea?

Ilya Prigogine received the Nobel Prize in Chemistry in 1977 for his work in the thermodynamics of systems significantly out of equilibrium. He claims that these systems tend to spontaneously organize themselves into what he calls "dissipative structures." A dissipative structure is a self-organized, metastable structure. By definition a metastable structure is temporary in nature. It only has a limited probability of existence, not a certainty.[1]

Prigogine's thesis is that in a system far from equilibrium, dissipative structures spontaneously form, representing initial degrees of self-organization. However, if the system continues out of equilibrium, a current dissipative structure becomes the starting point for a second, more organized one. Each stage of this process is termed a "bifurcation."[2] As this process repeats, the resulting, accumulated level of organization continually increases.

Credit: National Oceanic and Atmospheric Administration (NOAA)/Department of Commerce and OAR/ERL/National Severe Storms Laboratory (NSSL)

Prigogine sees no limits to the degree of self-organization that this process can create. In effect, a dissipative structure is not constrained by entropy. For evolutionists this process represents a convenient way around the problem of entropy. Furthermore, once they have bought into Prigogine's methodology, they become inoculated against traditional creationist arguments based on entropy. To them, anyone who does not appear to understand why they believe nature spontaneously organizes itself is ignorant and not worth listening to.

The Nobel committee, in its press release announcing Prigogine's award, specifically stated,

> The formation of ordered, dissipative systems demonstrates, however, that it is possible to create order from disorder. The description of these structures have [sic] led to many fundamental discoveries and applications in diverse fields of human endeavour, not only in chemistry. In the last few years applications in biology have been

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Why Intelligent Design Leads to Theism

by Jerry Bergman, Ph.D.

Few controversies have created the level of uproar in recent years as has Intelligent Design (ID). One result of the ID movement was the court ruling against teaching ID in public schools in the recent Dover, PA, Intelligent Design court case (*Kitzmiller v. Dover* (400 F. Supp. 2d 707 [M.D. Pa. 2005])), The reason for Judge Jones' ruling can be summed up as follows: Critical analysis of evolutionism leads to intelligent design, which leads to the intelligent Creator requirement.

The Creator requirement leads to theism, and the courts have consistently ruled that the state cannot hinder or aid religion — and that since teaching ID aids religion, it cannot be taught in state-supported schools. Of the many recent examples I know of people who rejected atheism and became theists because of ID, I will cite two.

Professor Antony Flew

Antony Flew, Professor Emeritus at Reading University, was a leading 20th-century intellectual and author of many books including the highly respected texts *The Case for God Challenged* (1993) and *Atheistic Humanism* (1993). He also has published many major philosophy texts, such as *Western Philosophy; Ideas and Argument from Plato to Sartre* (Flew, 1971).

Although as a youth Flew was a Christian, during his teens he rejected Christianity due to his study of Darwinism. He concluded that evolution could fully account for the creation of all life and that there was no need for a Creator who had been displaced from his role as creator by science. Flew eventually became a leading defender of atheism,

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Design Leads to Theism

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a role he held for over half a century. His paper "Theology and Falsification," (Flew, 1968) first presented at Oxford University in 1950, became the most widely reprinted academic philosophical paper in the last five decades.

Dr. Flew kept reading and thinking about this topic, though, and eventually returned to the theism of his youth. He relates that his conversion was primarily due to his study of ID, especially the books by such writers as Michael Behe and William Dembski (Veith, 2004). His views are similar to those of the American Intelligent Design theorists who see evidence for a guiding force in the Universe's construction. Flew adds that DNA and cell biology research has provided us with an enormously powerful argument for design, and arguments from design convincingly argue that there is a God (Flew and Varghese, 2007, p. 95). Flew stresses that the main reason for "believing in a First Cause God is the impossibility of providing a naturalistic explanation of the origin of the first living reproducing organisms." (Wikipedia, 2008) He states that his whole life has been guided by the Socratic principle "follow the argument wherever it leads" and, in this case, it led him to theism (Flew and Varghese, 2007, p. 22). He concludes that the most popular and intuitively plausible argument for God's existence is the argument from design, which teaches that the (Flew and Varghese, 2007, p. 95)

> …design that is apparent in nature suggests the existence of a cosmic Designer. I have often stressed that this is actually an argument *to* design *from* order, as such arguments proceed from the perceived order in nature to show evidence of design and, thus, a Designer. Although I was once sharply critical of the argument to design, I have since come to see that, when correctly formulated, this argument constitutes a persuasive case for the existence of God. Developments in two areas in particular have led me to this conclusion. The first is the question of the origin of the laws of nature and the related insights of eminent modern scientists. The second is the question of the origin of life and reproduction.

This argument not only convinced the longtime atheist Antony Flew to become a theist, but many other persons as well, including Dr. Timothy Johnson.

Dr. Timothy Johnson

The second example is Harvard Medical School professor Dr. Timothy Johnson. Dr. Johnson is best known both as an ABC news-medical correspondent and for his many excellent documentaries. His new book on ID titled *Finding God in the Questions* was a *New York Times* best seller. It was endorsed by several of his Harvard colleagues, including the dean of Harvard Medical School, Dr. Joseph Martin. Johnson's book both defends ID and reviews his own spiritual journey beginning from his childhood religious beliefs to his acceptance of skepticism and then back to belief. He discusses in detail why, as a scientist, ID was critical in his journey from agnosticism to belief.

Johnson graduated as his high school valedictorian and, after two years of college, decided to become a minister. His theology studies at the University of Chicago, instead of deepening his faith, caused him to lose it. In his words, "under the challenge of some very bright and skeptical teachers at the University of Chicago," he began to "doubt most everything" he had learned as a child about God (2004, p. 18). This included the belief that the Bible was God's Word, that Jesus was God's son, and that God rules the universe. No longer a believer, he graduated and was ordained, but he felt his doubts about God precluded entering the ministry. Rather, he elected to study medicine, partly due to his seminary field placements in hospitals.

He came to believe in God only after many years of examining in detail the major questions that trouble many persons today. He began by questioning the evolutionary belief that the universe is a product of only time, natural law, and chance. After extensively studying the scientific research, especially that done by ID scientists, Johnson concluded that our inner and outer universes are not only far too vast and complex to be the result of mutations and blind natural forces, but are constructed so as to force the conclusion that they were created by an intelligent designer (2004, pp. 46–53). Johnson concluded that the footprints of this creator are found everywhere in the uni-

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verse, from the human conscience to our basic need to form the complex social relationships that shape our lives.

Johnson cites the major ID literature, which he highly recommends, as important in his conversion from atheism to belief (2004, pp. 45, 214). His journey parallels that of many persons today, and it illustrates an important reason why ID has been a major means for many people to convert from atheism to theism, and why courts rule its teaching is religious advocacy.

The above stories are only two of hundreds of case histories involving conversion from atheism to theism due to ID. Some of these are discussed in a book titled *Persuaded by the Evidence*, published by Master Books (Sharp and Bergman, 2008). ID is not biblical creationism, but for many it is an important step in that direction. Once one accepts the reality of a creator, the door to accepting Christianity has been opened, as both Antony Flew and Timothy Johnson have acknowledged in their writings. Flew even stated that he now believes that, although he is not a Christian, the "Christian religion is the one religion that most clearly deserves to be honored," and he is open to exploring its truth (2007, p. 185).

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Limitations

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> dominating but the theory of dissipative structures has also been used to describe phenomena in social-systems.[3]

In other words, the Nobel committee was impressed not only by the implications of Prigogine's work for chemical thermodynamics, but also its carryover into biology (i.e., evolution) and even into accounting for the interaction of people in human society.

Since this line of reasoning appears to be contrary to everything I had learned about thermodynamics, I decided to read one of Prigogine's later books, "The End of Certainty."[4]

Flutes and tornadoes

Prigogine's thesis is that when one has a large ensemble or collection of particles which interact with each other and which are out of equilibrium, resonant behavior can develop between the particles as they interact. In turn, resonance can lead to self-organization. His entire concept of self-organization is based on resonance.[5]

However, common sense tells us that there are obvious limits to the self-organizing capabilities of resonance. No matter how skillful a flute player might be, he will never make a flute sound like a full symphony orchestra, complete with violins, trumpets, and tympani. Prigogine's failure to deal with the natural limitations on resonant self-organization leads to numerous fatal flaws in his work.

Prigogine mentions a vortex[6] as one form of self-organization. An example of a vortex would be a tornado in a thunderstorm. When a relatively stable mass of dry, cold air moves over a relatively stable mass of humid, warm air, a severe thunderstorm can develop, complete with a tornado. The thunderstorm represents a localized higher degree of organization than present in either of the air masses alone.

However, it is also very important to recognize that the self-organization appearing in a thunderstorm is actually extremely limited in its possible scope and is only temporary in duration. It follows a very predictable cycle. In fact, the development cycle of a thunderstorm is so predictable that weathermen can make reasonable forecasts of the timing and severity of its development, from its initial appearance to its final disappearance. Although every thunderstorm is unique, it is unique within very narrow limits of possible alternatives.

According to Prigogine, self-organization results when two conditions are met:

> Thermodynamics leads us to the formulation of two conditions for the occurrence of dissipative structures in chemistry:
> (1) far from equilibrium situations defined by a critical distance; and
> (2) catalytic steps, such as the production of the intermediate compound Y from the compound X *together with* the production of X from Y.
> It is interesting to note that these conditions are satisfied in all living systems: Nucleotides code for proteins, which in turn code for nucleotides.[7]

Prigogine sees no limitations or restrictions to the level of organization that dissipative structures are capable of forming. For starters, he claims that dissipative structures provide an adequate means for a natural formation of life: "We now begin to understand the dynamical roots of organization, the dynamics at the root of complexity that are essential for self-organization and the emergence of life."[8]

However, this is not enough. He lets his imagination run wild. He also talks about how "these concepts are now applied to a wide group of problems in biology, sociology, and economics…"[9] Finally, he summarizes, "We see that human creativity and innovation can be understood as the amplification of laws of nature already present in physics or chemistry."[10]

Experimental support?

These are rather extreme claims for the ultimate capabilities of self-organization. A natural question arises: how much of this is justified by experimental observation?

The students I talked with on the various campuses always presented the claims of self-organization as being well confirmed experimentally. In the light of the scope of Prigogine's claims and the comments of the students, the evidence Prigogine presented in his book was unexpectedly meager. He primarily talks about oscillating chemical reactions, such as one called the Belousov-Zhabotinski reaction. He says, "I remember our amazement when we saw the reacting solution become blue, and then red, and then blue again. Today, many other oscillatory reactions are known."[11]

Prigogine conveniently did not mention that in real life these kinds of oscillations are also only a temporary feature.[12,13] That is it! From a test tube mixture that temporarily turns from blue to red and then back to blue again, Prigogine has developed an entire scheme supposedly capable of overcoming the laws of entropy. The observed principle of self-organization is presented as capable of forming life, man, man's social interactions — even accounting for man's innate creativity!

He mentions in passing, in *The End of Certainty*, that "There is still a gap between the most complex structures we can produce in nonequilibrium situations in chemistry and the complexity we find in biology."[14] Yes, this is true. And, so far, no athlete has been able to jump over the Empire State Building. It would be nice if Prigogine had discussed the immense size of this gap. However, that might have interfered with his train of thought, for a few paragraphs later he states unequivocally and with authority,

> Our universe has followed a path involving a succession of bifurcations. While other universes may have followed other paths, we are fortunate that ours has led to life, culture, and the arts.[15]

He cannot demonstrate in a laboratory a level of self-organization in dissipative structures which comes anywhere close to the complexity we see in biology. Nonetheless, he speaks with authority that these structures are the source of the organization apparent in our universe, even to the appearance of "life, culture, and the arts." This is Nobel Prize quality science?

Notice, though, that the organization present in a squall line is many orders of magnitude greater than that of an oscillating chemical reaction, which represents the primary experimental evidence offered by Prigogine in his book. And, it seems readily apparent that the limited degree of organization possible in thunderstorm development is not even close to what it would take to organize the first cell, let alone everything else Prigogine claimed for it. Is it possible Prigogine might be overstating his case?

Most scientists were at first very reluctant to accept Prigogine's work.[16] They wanted to use traditional, equilibrium-based concepts to explain behavior away from equilibrium; they were not open to Prigogine's ideas. In response, Prigogine stated, quoting a friend of his, "No physical concept is sufficiently defined without the knowledge of its domain of validity."[17] In other words, you do not really understand a concept until you understand the limits for which it is valid.

This dialogue intrigued me. Specifically, I was intrigued by the contradiction between Prigogine's standards for the work of other scientists versus his own. When other scientists did not properly define the limits of their theories, Prigogine became upset. However, he made no effort to make an experimental determination of the limits of his own concepts.

He cannot demonstrate in a laboratory a level of self-organization in dissipative structures which comes anywhere close to the complexity we see in biology.

So, let's see what happens when we do his work for him, when we apply his standard for others to his own work. Since it was the extrapolation of Prigogine's concepts into biology that not only impressed the Nobel Prize committee, but also has become a basis of the evolutionist's arguments against entropy, let's see if this extrapolation is reasonable.

Relevant issues

There are a number of relevant issues to consider.

1. Unavailability of raw materials. We will not dwell on this issue. If self-organization is to form life, there needs to be a pre-biotic soup containing an abundance of both RNA nucleotides and amino acids. However, if the facts are looked at honestly, there are many natural roadblocks against the existence of any such soup in real life.[18] Without the raw materials, there would be nothing to self-organize and the discussion is meaningless.

2. Contradicts central dogma. There is a fundamental flaw in Prigogine's statement we quoted earlier: "Nucleotides code for proteins, which in turn code for nucleotides."[19] This statement contradicts the central dogma of biochemistry, which was formulated by Francis Crick in 1958: "DNA makes RNA makes enzymes." Notice, proteins *do not* code for either RNA or DNA. Prigogine's justification for extrapolating dissipative structures to apply to living systems is based on a false premise. Indeed, it is the inability of protein to code for nucleotide sequences that have caused many biologists to propose an RNA world as a stage in a materialistic origin of life.

In physics, an oscillation can be over-damped or under-damped. Resonance occurs only in under-damped situations. In an over-damped situation, the losses during interactions are so great that resonance cannot occur. I believe that the problems presented by the central dogma to any kind of "resonance" between nucleotide sequences and protein sequences effectively produce the equivalent of an over-damped situation. There is not enough freedom of interaction between the nucleotides and protein to allow resonance to develop. There is no feedback mechanism between protein and the nucleotides.

If there is no resonant behavior, then there is no self-organization. If there is no self-organization, then dissipative structures have nothing to do with the origin of life or with macroevolution.

3. Information. There is another serious flaw in Prigogine's application of dissipative structures to living systems: all living systems are information based. The activity within flutes, oscillating chemical reactions, and squall lines are all based on free interactions between the constituent particles making up the systems. Such freedom of interaction does not exist in an information-based system.

Stored information is used both to build and to operate all the components of a living organism. However, there is no feedback loop available such that modifications to the structures of an organism can result in a

corresponding modification to the information stored in a nucleotide sequence. There is no mechanism of resonance between information content and the structures using the information. Without a mechanism of resonance between information content and structures, there is no pathway for self-organization to generate information. We may summarize this situation with the statement that "Resonance does not generate information."

4. An information decoder and copier. The issue of information adds yet another layer of difficulty. Even if information were to appear suddenly, it would be useless without a decoder. Yet, in living systems it takes an extensive body of information to build and use a decoder. Hence, the initial appearance of information must be at least in an adequate quantity to define the mechanisms required to interpret the information. The problem is that it takes about a hundred or so components to build a decoder.

As an illustration of irreducible complexity, none of these components have any value unless all of them are present. An information copying system also needs to be defined in the information. The copier also needs to be present and working from the time information first appears.

In reality, neither a decoder nor a copier can work without an energy source. Ultimately, the entire system (the entire cell) needs to make its initial appearance in a single step. The single-step requirements associated with building a functioning, information-based system are not compatible with a series of bifurcations providing gradual increases in order, such as are characteristic of Prigoginian self-organization.

Prigogine's claim that dissipative structures provide a suitable mechanism to bring about the origin of life is off the mark. It does not apply to the real world. It is philosophical speculation whose possibility is contradicted by known, observed facts.

It should be brought out that even during the observed self-organization of standing waves in flutes and of thunderstorms, the overall entropy of the system still increases. In a flute, the increase in entropy resulting from irreversible losses caused by the total air column moving within the flute is greater than the decrease represented by the standing wave. In a thunderstorm, the increase in entropy caused by the cold and warm air masses neutralizing each other is greater than any temporary, localized decrease represented by the organization of a thunderstorm. Even Prigogine acknowledges that there is still an overall increase in entropy as a nonequilibrium system approaches equilibrium, even though the system has localized dissipative structures of self-organization and lower entropy.[20]

The reality

The reality is that in real life, self-organization is only a temporary phenomenon of extremely limited scope. Even this momentary self-organization does nothing to stop the overall increase in the entropy of the system. The temporary self-organization we observe in nature does not offer a methodology to overcome the problems of entropy which are associated with the origin of life or macroevolution. Prigogine's principle of an endless series of bifurcations of ever-increasing order is contradicted by the examples of self-organization we see in real life.

It is sad, but the students I spoke with who accepted at face value the testimony of their professors were terribly misled. Nature is *not* characterized by an unlimited capacity of self-organization. Nature's supposed unlimited ability to self-organize has *not* been proven experimentally. Dissipative structures are *not* a way around the roadblock entropy presents against a natural origin of life. The laws of entropy *still* teach against the possibility of a natural, materialistic origin of life and against the possibility of macroevolution.

There is only one rational explanation for the organization we see in the world around us, an organization present in both living and non-living systems. A brilliant, all-powerful, Living God placed it there when He created it. "You are worthy, O Lord, to receive glory and honor and power; for You created all things, and by Your will they exist and were created."[21]

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20 Ref. 1, p. 63–68.

21 Revelation 4:11.

Mr. Stout has a B.S. in physics from UCLA, has 30 years of experience in industry as a design engineer, and holds three U.S. patents in desalination technology. He is president of Creation Truth Outreach, Inc. (www.creationtruthoutreach.org/).

The Pre-Flood/Flood Boundary in the Grand Canyon: Clarification of a Barnhart Reference

W. R. Barnhart (2008) wrote a letter concerning an article by Froede and Oard (2007) on the pre-Flood/Flood boundary in the Grand Canyon. He references a viewpoint article by DeRemer et al. (2007) on the first four days of Creation. As authors of the latter article, we would like to clarify our position on two points related to his use of our article as a reference.

First, the amorphous liquid-like mass he refers to couldn't be the perfect fluid raw material God created at the beginning. Second, the events of the third day, as described in various Biblical references, allow for major erosion of the original planet surface to produce sediment for soil and even to form sedimentary rock.

Our article clearly states that the original use of the word 'earth' in Genesis 1:1 doesn't refer to a planet or the material that is now found in a planet. The use of the word 'unformed' in Genesis 1:2 to describe the newly created 'earth' clearly excludes from consideration a formed, concentric-shelled spherical shape like a planet. The use of the word 'darkness' in that same verse implies the absence of every form of light, because it hasn't been formed yet. That also excludes the existence of any atomic matter as found in a planet. All atoms are held together by electromagnetic forces and emit or absorb light at some frequency; see any modern physics textbook or the popular book *The Elegant Universe* by Brian Greene (2000) for more details. All light frequencies were brought into existence at the same time on the morning of the first day (Genesis 1:3-5). From the liquid raw material that was created in darkness, God formed light (Isaiah 45:7), and by logical deduction, at the same time, atomic matter.

The article also explains that the original use of the word 'waters' didn't refer to molecular water as we know it today. We believe that, originally, the 'waters' were a perfect fluid that God created at the beginning (Genesis 1:1-2) and used to make the entire physical universe. By the start of the second day, the waters were the products of God's forming light and separating it from darkness (Genesis 1:3). One by-product of forming light (generally all electromagnetic radiation) is the particles that form atomic matter. They make up a 'conversion pair'; that is, each can be converted physically into the other. The waters that existed at the beginning of the second day were separated into all the celestial spheres in the universe and an expanse of space formed between them (Genesis 1:6). A particular planet of fluids, probably made of molten chemical compounds, was formed (Genesis 1:7), and we speculate that as it cooled, an amorphous crust formed on its surface. The reason for the speculation of a cooled crust is that the planet would have stopped emitting visible light at the end of the second day (Genesis 1:8).

Our second point of clarification addresses events of the third day and how they relate to erosion. In our article, we describe the amorphous crust that formed on the planet at the end of the second day as consisting of solid rock with chambers filled with liquid and gaseous compounds. This is where the molecules of these volatile chemical compounds could form from their atomic elements and where they were trapped as the rock hardened.

The first part of God's command on the evening of the third day is for the waters to gather in one place (Genesis 1:9). We speculate that this causes the trapped gases and liquids to burst through the surface and the molecular compound fluids to flow laterally to cover the Earth. This birthing event of the oceans and atmosphere is described in more detail by God in Job 38:8-11. The majority of liquid that is initially released consists of hot seawater. The released gaseous compounds form the thick, dark, original atmosphere of the planet. This seems to describe an extensive event of massive volcanoes and geysers everywhere on the Earth. It is a major erosion event and the first source of sediment.

We speculate that the atmosphere was cleared later at dawn of the third day by the burning of gases like methane, hydrogen, and oxygen, plus solids of carbon and sulfur in the atmosphere. The majority of gaseous compounds that resulted were transparent like carbon dioxide, carbon monoxide, and water vapor. Solids that helped form the dark atmosphere were turned into transparent gases or they precipitated out as carbonates, sulfates, and nitrates that fertilized the new soil on the surface of the dry land.

The second part of God's command on the third day is for the dry land to appear above sea level. The birthing event of the dry land is described in more detail in Psalm 104:6-9. From a planet covered with seawater, God raises at least one continent and forms the ocean basins using the processes of mountain building and valley lowering. We speculate that the raising of the land is initially a gigantic pluton or batholith of molten granite that pushed up through the crust of the earth and displaced seawater and sediment that had covered the surface. During this event, the water running off the continent was a second major source of erosion that could cause a large amount of sediment. It is even possible sedimentary and metamorphic rocks were formed due to the high temperatures and pressures that the gigantic pluton could generate as it came up through the crust and spread laterally to form the continent(s).

As our viewpoint article explains, God made everything that exists in the universe except animals and mankind in the first four days of His work week. He used the raw materials He created from nothing on the first day to accomplish this making. It is our opinion that God used natural processes accelerated to supernatural rates to make the universe and the planet Earth, probably in addition to other supernatural feats. At the same time, He instituted the natural laws that have governed the universe ever since. These laws of nature determine our capability to measure time, space, and matter, in the habitat He created and made for mankind. They will not help us determine the supernatural actions God used to establish these laws.

D. Dobberpuhl
F. DeRemer

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Speaking of Science

Commentaries on recent news from science

Editor's note: All 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: www.creationsafaris.com/crevnews.htm. Unless otherwise noted, emphasis is added in all quotes.

Few Typos Get Past Your Spell Checker

Inside your cells are thousands of spell checkers that put any human typist to shame. In a process critical to all living things, RNA Polymerase II transcribes DNA into RNA rapidly and with high fidelity. Even very similar chemical letters are accurately discriminated by this wonder of a molecular machine that is described in *ScienceDaily*.[1]

The article describes its performance as "**exquisite precision**" and "**unerring accuracy**." RNA Polymerase II (Pol II) has been studied for years, but new secrets continue to pour forth. Two teams have gleaned more details about how the proofreading works. Mutations, they found, caused severe losses in fidelity.

> The researchers said their findings not only offer unprecedented details about the **fidelity mechanism** of Pol II, but likely about fidelity in **all cellular genetic copying machines.**

What? You mean there's more? Absolutely. From transcription to translation, each stage of protein manufacture from the DNA template is checked for errors by molecular machines. When those machines break down due to mutations, bad things happen. The last word:

> As DNA polymerase is responsible for gene replication, the result of its **malfunction** could be a burst of gene mutation causing an **'error catastrophe'** that could lead to **genome instability** and **cancer formation.**

This is the science of intelligent design (ID) at work. No mention of the E-word (evolution) was heard in this article. The researchers were hot on the heels of major discoveries about how biological machines achieve phenomenal accuracy. And at what do they achieve phenomenal accuracy? the translation of coded *information*. Information is a very ID-friendly word.

Evolutionists speak very little about information. What can they say? That material particles subject to various non-intelligent forces built the most accurate code-storage and translation mechanisms known in nature? Let's take off the darwinian leg irons and propel science full speed into the Information Age.

1. Cell Press. 2008. How cell's master transcribing machine achieves near perfection. *ScienceDaily* (6 June). www.sciencedaily.com/releases/2008/06/080605120701.htm

Alien Messages via Neutrinos

Three scientists are suggesting that SETI researchers comb neutrinos for alien messages. Nothing natural could produce high-energy neutrinos, they said in *Science*,[1] so aliens may use their cosmic accelerators to send neutrino packets across the intergalactic internet. They suggested watching for them in the neutrino detector at the South Pole.

Let's strive to understand this reasoning. The three scientists believe we could reasonably infer the existence of intelligent design in subatomic particles, which carry no information, due strictly to their physical characteristics. But finding a coded language in DNA, and calling that intelligent design, would undoubtedly be criticized as a religious argument. They think that high-energy neutrinos could only be produced by non-natural intelligent causes. They probably believe DNA, however, with its sophisticated language transcription and translation systems, was produced by natural causes.

This must be valid scientific reasoning, because *Science* said so. The practical outcome would be that these scientists would think it worth the money to sift through signatures of ghostly particles at the South Pole to infer design, but not to advance the design inference from DNA into a reasoned investigation whether a Designer capable of creating the most densely-packed and information-rich structures in the universe might have also communicated with humans in more accessible ways.

1. Holden, C. (ed.). 2008. Random Samples: An alien hello? *Science* 320(5881):1267.

Preparing the World for Aliens

Some people are so convinced there are alien intelligences in the universe, we should be getting ready to meet them. *The Telegraph*, a UK newspaper, reported that at the University of Wyoming NASA has partly financed a creative writing class on "interstellar message composition."[1] Professor Jeffrey Lockwood wants to help the 11 students think about what we might say to an alien intelligence. One student "created a poem about menstruation with syllables arranged in a mathematically harmonious order, known as the Fibonacci sequence."

The course is being advised by Douglas Vakoch, director of interstellar message composition at the SETI Institute. Who better than writers, he said, to express the human condition to our stellar neighbors. "It could be tomorrow that we'll need to be ready to decide if we reply," he said. Don't expect a lively dialogue, though; each one-way message could take thousands of years.

Over the Rockies at Denver, Jeff Peckman is asking the city council to create an "Extraterrestrial Affairs Commission," reported the *Denver Post*.[2] He believes the federal government is already aware of extraterrestrials and is spending a great deal of taxpayer money to conceal the fact. Peckman is gathering signatures for a ballot initiative to create an 18-member commission, at the cost of $75,000 a year, to decide on policies for dealing with space beings. The *Rocky Mountain News* said that Peckman believes he saw an alien winking through a window on a video of a UFO.[3]

Which of these space alien stories is absurd, pseudoscientific, and an egregious abuse of taxpayer money? Pick any two.

1. Leonard, T. 2008. Nasa sponsors course on how to talk to aliens. *Telegraph.co.uk* (19 May). www.telegraph.co.uk/news/newstopics/howaboutthat/1989062/Nasa-

sponsors-course-on-how-to-talk-to-aliens.html
2. Osher, C.N. 2008. Ballot plan wants E.T. to dial 303. *Denverpost.com* (9 May). www.denverpost.com/news/ci_9199445
3. Chacon, D.J. 2008. Evidence of space aliens? ET ballot issue backer says video provides proof. *Rocky Mountain News* (29 May). www.rockymountainnews.com/news/2008/may/29/evidence-of-space-aliens-promised/

Noah's Ark Gets Balanced Treatment

Reuters has given balanced treatment to the question of how Noah fit all the animals on the Ark.[1] Evolutionists, of course, deny that Noah existed or a boat ever saved representatives of all the animals on earth. The article quoted mocking comments to the effect that there is no way up to 50 million species with vastly different environmental needs could have lived in a floating zoo for a year.

But reporter Alister Doyle also quoted Dr. David Menton, from Answers in Genesis, explaining factors that would have allowed God's directive to be carried out. Doyle agreed that the biblical description of the Ark is "far from the tiny vessel depicted in many children's books with giraffes' heads sticking out the top." He gave Menton surprisingly ample space in the article.

Scale model exhibit at AIG's Creation Museum showing how the Ark may have looked based upon dimensions provided in the biblical account. Photo by G. Wolfrom.

The question stemmed from a meeting May 19-30 of the UN Convention on Biological Diversity. Scientists are considering how to preserve earth's biodiversity with some kind of modern-day refuge. A picture of a large wooden ship taking shape with a Mount Ararat in the background adorns the article.

Thank you, Alister Doyle, for attempting to give fair and balanced reporting on this question. Was a floating refuge for the animals possible? Don't ridicule it till you've heard it defended with competence.[2,3] Consider also that dozens of people groups have legends of a worldwide flood during which people and animals were preserved on a floating vessel. Only the biblical account comes close to feasibility and plausibility. Don't forget, too, that geology provides evidence of sedimentation and erosion on colossal scales far greater than anything occurring today. For more evidences of a global flood, see a brief article by geologist Dr. Andrew Snelling.[4]

1. Doyle, A. 2008. How did Noah's Ark float? New species cram aboard. *Reuters* (15 May). www.reuters.com/article/environmentNews/idUSL0811445020080515?pageNumber=1&virtualBrandChannel=0
2. Woodmorappe, J. 1996. *Noah's Ark: A Feasibility Study*. Institute for Creation Research, San Diego.
3. Sarfati, J. 1997. How did all the animals fit on Noah's Ark? *Creation* 19(2):16-19. http://creationontheweb.com/content/view/595/
4. Snelling, A.A. 2007. Geologic evidences for the Genesis Flood, Part I: An overview. *Answers Magazine* (18 September). www.answersingenesis.org/articles/am/v2/n4/geologic-evidences-part-one

Noah's Ark Goes Dutch

Noah's ark has landed in the Netherlands. Johan Huibers, a Dutch contractor, built the model to showcase the Biblical story and renew interest in Christianity in a country that has lost its faith. *FoxNews.com*[1] and many other news sources carried versions of the Associated Press story.

Visitors were stunned by the size of the model. One visitor described it as "past comprehension." She said, "I knew the story of Noah, but I had no idea the boat would have been so big." She might be more stunned to learn that Huibers' model is only one-half the original as described in Genesis (see *ChristianAnswers.net* for measurements and artists' reconstructions[2]).

The AP story quipped that this might help people concerned about rising sea levels resulting from global warming. Nowhere did the reports claim that Huibers expected his model to be seaworthy, though. It's more a museum. It will have a 50-seat theater, "ancient tools and old-fashioned barrels, exotic stuffed animals, and a wax model of an exhausted Noah reclining on a chair in the forecastle." Huibers only looked half as exhausted.

This is certainly better than the cartoony representations of Noah in a floating bathtub with elephant and giraffe heads sticking out the top. The true Ark's dimensions ranked with those of large ocean liners. Anything that helps elucidate the actual story instead of mocking might help a jaded, secularized public think about Bible history more seriously. Maybe this limited project will inspire someone to build a full-size model. That would be a real stunner. Better start soon; it might take 100 years.

1. Associated Press. 2008. Replica of Noah's Ark opens doors to visitors. *FoxNews.com* (30 April). http://www.foxnews.com/story/0,2933,269090,00.html
2. Taylor, S.E. and P.S. Taylor. n.d. Could Noah's Ark really hold all the animals that were supposed to be preserved from Flood? *ChristianAnswers.net* (accessed 27 June 2008). www.christiananswers.net/q-eden/edn-c013.html

Canyon Formation: Another Catastrophic Rethink

Amphitheater-shaped canyons are common throughout the West — and even on Mars. Geologists had them pretty well figured out. Water seeps out the bottom of a wall, weakening the face of a cliff. Gradually, material collapses and leaves a large alcove that continues to recede headward. That idea is now questioned by a new theory that says catastrophic flooding produces these canyons suddenly.

Space.com has a summary of a paper published in *Science* this week that re-evaluated a classic case, Box Canyon in Idaho. The new theory is that sudden flooding, perhaps from melting ice sheets to the north, released a torrent of water that cut the canyon at one time. The article estimated the complete canyon, cut into solid basalt, was eroded in 35 to 160 days at most. The flood theory explains unusual features, like scour marks on the walls and large boulders sitting out in the middle of nowhere, that were difficult to explain with the old theory.

An idea of the size of this "megaflood" was given in the article. Michael Lamb, geomorphologist at UC Berkeley, said, "Imagine forcing a quarter of the flow in the Mississippi through a chute 32 times as narrow and 1,000 times as steep as the Mississippi River channel." 800 to 2,800 metric tons of water could have blasted through the channel at 22 miles per hour.

Space.com reported this article because of its implications for Mars research. If megafloods also formed the amphitheater-shaped

canyons on the red planet, perhaps calm water did not exist for long periods — a blow for those hoping life would have time to exist.

Another old-age paradigm has had to shift under new investigation. These kinds of canyons are very common in the arid southwest, like in the Grand Canyon. Where did the water come from in the desert? In the aftermath of a worldwide flood, such phenomena would be expected, but not in a place where geologists feel huge seas of Sahara-like sand ruled for millions of years.

1. Choi, C.Q. 2008. Ancient flash floods sculpted Earth, Mars. *Space.com* (22 May). www.space.com/scienceastronomy/080522-canyon-flood.html

Vestigial Organs Have a Function: to Smear Creationism

Are there body parts you could live without? Sure; people get by without fingers, teeth, legs, or even brains (figuratively speaking). Some people think this is proof of evolution. *New Scientist*, rather than showing how new organs and structures could arise by mutation and natural selection, listed "five things humans no longer need" as evidence for Darwin's theory.

Laura Spinney's article resurrects the "vestigial organs" argument for evolution, which "has come under attack from **creationists anxious to deny** that vestigial organs **(and hence evolution) exist at all.**" Her list includes: (1) the vomeronasal organ, (2) goose bumps, (3) Darwin's point (on the outer ear), (4) the tail bone (or coccyx), and (5) wisdom teeth. Each of these structures, she argues, gives evidence of animal ancestry and not creation.

Incidentally, Spinney did confess that "Probably the most famous example," the appendix, may have dropped off the list. She said "it is now an open question whether the appendix is really vestigial." The article suggested a function may be found for the tonsils — another erstwhile vestigial organ. Spinney also was equivocal about goose bumps; they "may have taken on a minor new role," like signaling emotions or heightening the pleasure of listening to beautiful music.

So here we have a fine thing; evolutionists using the *loss* of something as evidence that humans had bacteria ancestors. Tell us how to get an ear, teeth, a spine, skin and a nose in the first place before picking at little bits to call useless.

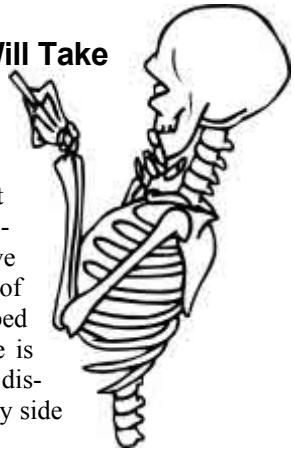
A number of questions should be raised about this old vestigial-organs argument. Did Spinney connect any of these items with its actual effect on reproduction? Are people with wisdom teeth dropping out of the dating game and failing to have children? Are people with malformed bumps on their ears failing to hear the call of love? Are people with a coccyx unable to have kids? Is she a Lamarckian? Does disuse itself lead to loss of structure? Why isn't evolution more effective at getting rid of vestigial structures if humans have been around for 300,000 years? Stickleback fish got rid of their armor, and got it right back within human memory, according to a recent news report (*Seattlepi.com*) that tells us "Evolution is much faster than people give it credit for." Why has evolution been so slow at getting rid of useless structures in our case?

And who says they are useless, anyway? Evolutionists told us the appendix, the pineal gland, the pituitary gland, and a hundred other things were vestigial, only to have science find out they all have functions after all. How do we know that they are not wrong now about these five items? If an organ or structure has a function at some stage in development, is it valid to call it vestigial? If it is deformed in today's physiology due to a congenital defect that became established in the population, but was once well adapted, is it valid to call that vestigial? Has Spinney done any experiments to show what happens when the item is surgically removed? Dare say she would not sit comfortably without her coccyx. Many people were exposed to increased infections during the tonsillectomy craze of the 1960s.

Spinney alleged that creationists have been anxious to deny that vestigial organs and evolution exist at all. Let's turn that ploy around. We hereby allege that evolutionists have been anxious to deny that complex specified information (and hence creation) exist at all. We allege that Darwinism is a vestigial philosophy from an atheistic past. Prove us wrong.

1. Spinney, L. 2008. Five things humans no longer need. *NewScientist.com* (19 May). www.newscientist.com/article/dn13927-five-things-humans-no-longer-need.html?DCMP=ILC-hmts&nsref=news9_head_dn13927
2. Stiffler, L. 2008. Fish in Lake Washington rapidly evolved — in reverse. *Seattlepi.com* (16 May). http://seattlepi.nwsource.com/local/363263_oddfish16.html

Hobbit Prophecy: Somebody Will Take a Big Fall



The men of muddle earth are wondering what to do with their hobbit prisoners. Elizabeth Culotta wrote in *Science* about the ongoing debates among paleoanthropologists about how to interpret the diminutive skeletons found in the Liang Bua cave of Flores in Indonesia, affectionately dubbed hobbits.[1] After four years of study, there is still no consensus on whether they were diseased modern humans or some evolutionary side branch of hominids from Africa.

Paleoanthropologists meeting in Columbus, Ohio earlier this month got their first views of the LB1 skeleton. William Jungers of State University of New York at Stony Brook claimed the creature had a slow gait, due to abnormalities with its feet. He believes the hobbit provides a window into the primitive bipedal foot of australopithecines. For that to be true, Leslie Aiello of New York City countered, it would have had to have remained unchanged for a long time. "How it got there and managed to persist — that's clearly a challenge to explain." Others said there is no evidence for a migration like that. To invent such a story is clearly a case of "special pleading."

In short, no consensus has emerged about these small humans. "Given the wildly diverging opinions on the hobbit," Culotta ended, "'Somebody's going to take a big fall here.'" She was quoting paleoanthropologist C. Owen Lovejoy of Kent State University. Maybe the fall will become evident by fall (autumn, that is) since another research team will be excavating the cave this summer.

Evolutionists would love to have another case of chimps becoming humans here. The early hopes have not materialized. Our prediction: the skeletons will be shown to be human. Wait and see.

1. Culotta, E. 2008. When hobbits (slowly) walked the earth. *Science* 320(5875):433–435.

2008 CRS Board of Directors and Guests

The CRS Board of Directors met for their annual meeting in Florence, KY on June 12–14. Pictured from left to right are: Ted Aufdemberge, Gary Locklair, Mark Armitage, Ron Samec, Danny Faulkner, Russ Humphreys, Dave Kaufmann, Gene Chaffin, Don DeYoung, Kevin Anderson, Glen Wolfrom, Mike Oard, Wayne Frair, and George Howe. Frair and Howe are retired from the Board. Anderson is Director of the CRS Van Andel Creation Research Center. Board members not pictured are John Reed, Lane Lester, and David Rodabaugh.

Photo credit: G. Locklair

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All by Design

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

Angling for Sight

Evolution attributes the unique physiology and behavior of animals to accidental forces working over immense periods of time. Peregrine Falcons argue against accidental development.

Peregrines possess two regions of the retina, known as foveae, specialized for sharp vision. The deeper one, which is angled 40–45º laterally, is designed for maximum visual acuity at long distances. The shallow fovea, which is angled 15º laterally, is for sharp vision at short distances. Falcons prey upon birds, using the deep foveae to spot prey as far away as 1,500 m. Turning the head by about 40º keeps one deep fovea focused on distant prey. However, flying in a straight line toward prey with the head turned would increase the aerodynamic drag coefficient on the falcon's body by a factor of two or more.

To decrease drag, falcons hold their heads straight, but fly in a logarithmic spiral toward prey. This keeps the head angled about 40º from the prey, but focuses the prey image on the deep fovea. When prey is within close range, falcons break out of that spiral and fly straight toward the prey, focusing with the shallow foveae. This approach allows the falcon to cover the longer distance quicker than if it flew in a straight line all the way with the head turned.

Peregrine Falcon
Credit: U.S. Fish and Wildlife Service.
Photo by Craig Koppie, USFWS

Peregrines possess both a specialized eye structure and the mathematical "wisdom" to know how to best approach prey. That this species exists at all suggests that this behavior and physiology were in place from day one and did not evolve in stages.

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