



Creation Matters

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REPORT ON COSMOLOGY CONFERENCE

by Del Dobberpuhl, M.S.

This conference, organized by the Creation Research Science Education Foundation (CRSEF), was held October 31 – November 1 at the Fawcett Center on the campus of The Ohio State University, Columbus, Ohio. It was well attended by a spectrum of creation supporters with no detractors revealing their presence. More information on this conference and related materials can be obtained at the CRSEF website (www.WorldByDesign.org).

There were six technical presenters, most with multiple presentations, and an OSU campus minister, Jeff Darby. Pastor Darby discussed the real need for Bible-based research to combat the prevalent evolutionism taught on all major university campuses like OSU. He highlighted the false teachings that evolution promotes and some of the consequences for present and future generations of college students. He could not emphasize enough the importance of what this conference and the entire creationist movement are addressing, and how they are helping him

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Limited Evolutionary Potential

by Sean D. Pitman, M.D.

Imagine yourself beside a very wide river. As you look out across this river you see various stepping-stones. Close to the bank of the river there are lots of these stepping-stones such that the average distance between them is rather minimal. However, you notice that the number of stepping-stones rapidly decreases as you look out farther and farther from the bank. The average distance between the stones quickly grows, so that a simple jump from one to the next becomes impossible without getting wet.

This is the fundamental problem faced by evolutionists. How do the mindless processes of random mutation and natural selection get from one novel stepping-stone function to the next without getting wet at higher and higher levels of functional complexity?

Meaningless or meaningful

Of course, random mutations (or “letter changes”) to the codes of life do occur quite often in every living thing. These letter changes can result in the evolution of a new type or level of function or in no functional change at all. When no functional change is realized, this is called “neutral evolution.”¹ For example, a change from the letter sequence *grft* to *agrft* via the addition of the letter *a* would be a neutral change with respect to meaning in the English language system since both letter sequences are equally meaningless.

The information systems that code for all the parts of living things often have such functionally neutral mutations. In fact, the large majority of all mutational changes are thought to be functionally neutral. What is especially interesting about these neutral mutations is that nature cannot tell the difference between them, since nature only recognizes differences in function, not “spelling.”



However, on occasion, a mutation will actually change the meaning or function of a genetic word or phrase. For example, if the spelling of *vacation* happened to get “mutated” to read *vocation* or even *vu-*

cation, there would be a big change in meaning. Of course the word *vucation* has no meaning in the English language, but a loss of the meaning of the word *vacation* might be beneficial in certain circumstances, as would the gain of the meaning of the word *vocation*.

Such meaningful changes, when they happen in the genetic codes of living things, can be detected by natural selection as either beneficial or detrimental. If they are deemed to be beneficial, they are kept for the next generation to use, but if detrimental, they are eliminated from the gene pool over the course of time.

A brutal game

Nature plays a brutal game of competition,

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in his role as pastor and spiritual counselor to many students.

True believerism

The first technical presenter (and program moderator) was Dr. Jerry Bergman, who provided two talks on a topic that he called "true believerism." In his first paper he discussed a brief history of the conflict between science and religion. He focused on the Galileo myth which is still used by evolutionists today in an attempt to frame creation science as religion and not true science. According to Dr. Bergman, the facts of history show that Galileo's "true believerism" led him first into conflict, not with the Church but with the science establishment of his time. However, because the science establishment had no means to censure Galileo, they covertly induced the Catholic Church to confront Galileo on the issue of a heliocentric versus geocentric solar system. Initially, the Church just requested that Galileo state that his heliocentric views were a theory which had not yet been backed up with sufficient evidence. Although Galileo consented, he continued to promote his theory as fact. This defiance led to the Church's final action, that of censuring all his heliocentric work.

In his second paper, Dr. Bergman extended the concept of "true believerism" to the present day educational and judicial systems. He discussed his own court case against Bowling Green University in which his colleagues and the administration accused him of providing false credentials in his application for a psychology department position. He pointed out all the information that could be checked in official records that he provided the administration and the courts. Instead of checking into these data, they depended solely on his colleagues' testimonies that they did not believe (their "true believerism") his qualifications because he was a Christian and a creationist.

As a result, Dr. Bergman lost his job and the court case, not due to facts but due to someone's belief. He added that "true believerism" is found on both sides of the creation/evolution controversy, and that creationists should watch out for it in their own research as well.

Plasma temperatures

Dr. Edward Boudreaux presented two papers based on his recent work on nuclear reactions, both radioactive decay and nucleosynthesis. In the first presentation he discussed how elevated temperatures, such as those found in plasmas, increase the decay rates of all known radioactive elements that are used in dating the earth's crust, including uranium, thorium, samarium, rubidium, and potassium. At temperatures above 1×10^{10} degrees Kelvin, most of these elements in their plasma states have accelerated decay rates that yield half-lives of less than 1 sec. Only potassium has a longer half-life — approximately one hour. These same elements at normal temperatures have half-lives of billions of years and are used by evolutionists to date the earth.

Dr. Boudreaux's second paper described the effect of these same plasma temperatures on the formation of all the other elements from just water (hydrogen and oxygen) by nucleosynthesis. Again, the rates are sufficiently accelerated such that the mass and composition of the earth, as we understand it today, could have been produced in less than 14 hours. This research has a very significant impact on the creation/evolution controversy in that the age of the earth could be only thousands of years, and it could have been created in just one day in its present state if one assumes plasma temperatures during creation.

Big bang alternatives

Dr. Patrick Young spoke on the topic of valid alternatives to the Big Bang cosmology that is the standard of the evolutionists today. The one alternate theory he emphasized is Dr. Russell Humphreys' white hole cosmology. He described that this cosmology depended on time clocks operating in different portions of the universe running at different rates due to differing gravitational potential. He showed the measurement data consistent with these phenomena on a local scale. Clocks at higher altitudes run faster than those at lower altitudes. On the scale of the universe, the earth could age a day, while stars toward the edge of the universe could age billions of years, if the earth is in the deeper gravitational well located at the center of a bounded universe. After Dr. Young's presentation Dr. Humphreys' video *Starlight and Time* was shown to give the author's own description of this theory.

Variable light speed

Barry Setterfield presented four papers related to his variable light speed theory (formerly cDK) and a newly developed cosmological theory. In his first presentation he described five anomalies in the Big Bang theory that have not been resolved. They are: 1) the decreasing speed of light; 2) the measured increase in Planck's constant; 3) the measured increase of the mass of atomic particles; 4) the slowing rate of atomic clocks; and 5) the quantized redshifts.

In his second presentation Mr. Setterfield takes these anomalies and explains them using his new cosmology which was derived from the premise of a changing zero point energy (ZPE) or vacuum energy. ZPE is essentially the energy "noise floor" found throughout the universe. When it changes, the change is instantaneously uniform everywhere. An increase in the ZPE causes light to slow down because it is absorbed and reradiated more often by the increased virtual particle pairs being formed and annihilated in vacuum of space. Conservation of energy requires that as light slows down, both Planck's constant and the mass of atomic particles must increase. Atomic clock rates slow down with the increase of atomic mass. Electrons in a lower ZPE emit lower frequency light (redshift).

In Mr. Setterfield's third presentation he described to us what his new cosmology implies about recent astronomical observations and creation. The missing mass in galaxies is not really missing -- all the early stars have less mass because they are made up of lower mass atomic particles. There is no need to invent "dark" matter. Cosmic

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General Editor: Glen W. Wolfrom

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:
<http://www.creationresearch.org>

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background radiation (CBR) uniformity is caused by increased homogenization during the early universe when, he theorizes, light was traveling much faster and had more interactions with matter in a short period of time after the formation of galaxies. The acceleration of universe expansion is an optical illusion, he said, because light is slowing down and galaxies have intrinsic redshift (give off lower frequency light), giving a false measurement of distance. Neither is there a need to invent "dark" energy. Everything that we see took place in thousands of years instead of billions.

Finally, in a fourth presentation, Mr. Setterfield presented his theory about some geological consequences after creation due to certain astronomical events occurring during earth's short history. He mentioned a cause for the flood, the splitting of a single large continent, massive volcanism, etc., and how these events fit into his model of biblical chronology. He believes all the events in the history of the universe and on earth can be corrected from atomic time (evolutionist data) to orbital time (biblical data) using the relationship he has derived in his variable speed of light model. When this conversion factor is applied, it points to six days of creation, and to approximately 6,000 years as the age of the earth and universe. More information on Setterfield's new cosmology can be obtained at his website, www.setterfield.org.

New atomic model

Dr. Glen Collins presented two papers based on his group's new physical model of the atom versus the quantum model which is popular in the physics community today. In the first presentation he described the newest helical model of elementary particles, which they call the Helicon Model. In this model, all physical forces are electromagnetic in nature, except possibly gravity (they have not yet integrated gravity into their model). Mass becomes a derived property from their premise that moving charges are the foundation of matter. To illustrate this he described the difference between a proton and an electron. They have equal but opposite charge, the same magnetic moment or spin, but different mass and physical size.

In their theory, the ratio of the size of the ring electron to the ring proton is inversely proportional to the ratio of their masses. The third basic particle, the neutron, is formed by a ring proton within a ring electron that leads to the canceling of the charge. Consequently the neutron has a slightly larger mass than a proton. The rings are actually toroids with a continuous string of charge wrapped like a helical coil on their surface. The number of coils in the helix determines the spin of the ring particle. They believe their model explains physically that which is observed in experiments with these particles. There is no need for the assumptions used in quantum mechani-

cal explanations of particle interactions, such as the Heisenberg uncertainty principle, the wave function, electron orbits, point charges, and others. Atoms then become geometrical arrangements of these elementary ring particles.

In a second paper, Dr. Collins explained how a person's philosophy drives his scientific models, and vice versa. He listed five criteria for true science: 1) no false assumptions or postulates; 2) no theories based on false assumption or postulates; 3) all theories are self-consistent; 4) all measurements of the same quantity are self-consistent; and 5) all entities in the universe act in a self-consistent manner. He showed how the ancient Greek philosophy of atomism drives recent science, and how it leads to matter being thought of as eternal and the driving force behind the evolution of the universe.

But this theory is based on false assumptions and contradicting measurements. For example, in this theory everything develops from simple to complex and from chaos to order due to a mindless, random cause, the cosmological principle. In contrast, when scientists take a close look at all the processes within the universe, they find design, order, and information intrinsic in every process, moving in a direction away from the original perfection (i.e., the second law of thermodynamics). If man's philosophy were based on an all-powerful Creator, this is what would be expected. So the

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Bible's claim that the creation shows the handiwork of the Creator, is demonstrated everywhere in science. Modern theories abandoning this philosophy will surely be proven false in the future.

Radiohalos

Dr. Charles (Bill) Lucas, the final presenter, covered two topics related to Dr. Collins' model of science and applicable to a new creationist cosmology. First, he discussed the topic of polonium-214 radiohalos, made popular by Dr. Robert Gentry in the 1960's, that can be used to determine the age of the earth. He cited a computer model that very accurately predicts the diameters of these radiohalos in any material. From this model one can calculate the time it took to form the rock involved. Because of the short half-life of polonium-214, and the large amount of this element necessary to fully form the radiohalo, the computer model predicts that the rocks of the earth had to have formed in less than one second. He believes there is no other explanation that fits the data.

In his second presentation Dr. Lucas pointed to what he believes is a fingerprint

of God in His creation. By applying the Helicon model to an atomic element structure model, an atomic nucleus structure model, a solar system structure model, and finally to a galactic structure model, he noted that all these models have a 3x3x3 symmetrical helical fiber structure in common. Furthermore, all these models predict characteristics of their regimes that no other theory predicts from basic principles.

Dr. Lucas claimed this symmetrical structure is a universal symbol of God's creation, and that it can be found mentioned in the Bible. He gave two examples: Ezekiel 1:15-21 and the symmetry of the Hebrew language used in Genesis 1:1. He maintained that the Bible-based, recently-revised, electrodynamics theory (Helicon) is replacing eight basic theories of physics -- from quantum mechanics to general relativity -- currently held by the scientific establishment. Let's hope their theory is proven consistent with all the data known now and found in the future. More information on the topics discussed by both Dr. Lucas and Dr. Collins can be found at the Common Sense Science website, www.CommonSenseScience.org.

Conference overview

This conference brought together a wide cross-section of creation scientists who are pursuing various aspects of cosmological research. At least three different approaches to a creation cosmology were presented together with biblical and astronomical data consistent with each. In my opinion all three have some good points as well as some areas for which answers have yet to be found.

There were certain common threads sewn into all the presentations, such as: the universe was intelligently designed, the universe is very young, and the universe is degrading from a more perfect form. A lot of work remains for these scientists and others to come up with a single creation cosmology that is self-consistent, consistent with all the verifiable data, and based on biblical truths. It was encouraging that personalities and egos did not enter into the questions and discussions following each presentation.

Del Dobberpuhl has a Master's degree in Physics and is employed part time at the CRS Van Andel Creation Research Center in Chino Valley, AZ.

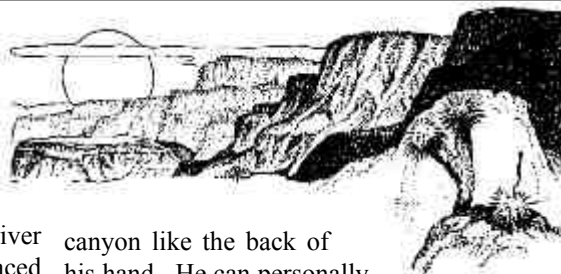
Speaking of Science

Commentaries on recent news from science

"Accepted Science" or Censorship by NPS?

What's a national park bookstore vendor to do? A beautiful new book of photographs and quotations on Grand Canyon, entitled *Grand Canyon: A Different View*¹ by veteran river rafting captain Tom Vail, has been placed on sale in the national park bookstore. One would think it would not stand out too much along with hundreds of other items on varying subjects and viewpoints. Yet, as reported in an AP story on the CNN website,² this one book has come under fire because it presents a Biblical creationist view of the canyon.

Tom Vail is a creationist and Bible-believing Christian, yes, but he quotes other creationists, who have Ph.D.'s in geology, who present *scientific* evidence that the Grand Canyon is not as old as claimed. Having led numerous raft trips down the Colorado River, Vail knows the



canyon like the back of his hand. He can personally vouch for all the scientific claims made. Anyone with an open mind who looks at the evidence would surely realize that there are major, serious problems with the "accepted science" view, and the youthful canyon view deserves a fair hearing, whether or not one ties it to a Biblical flood.

If the National Park Service (NPS) removes the book, it might be accused of censorship, but if it keeps it, the scientific establishment is offended by its interpretation that the canyon is only thousands, not millions, of years old. The AP story quotes a spokesman for "Public Employees

for Environmental Responsibility" who claims the park is approving a religious book. He claims, "The overall concern is that the top managers of the park service are implementing **a conservative agenda that is at odds with their duties** as custodians of the nation's heritage," (emphasis added) which is odd, since the book makes no conservative political statements, but only scientific claims. But can such a book be dismissed on religious grounds?

Still smarting from the recent flap over Bible verse plaques at the canyon, the NPS has found a way to censor the book without getting into the quagmire of religious discrimination. It will recommend that the Grand Canyon bookstore not restock the book, says AP, because "the book makes **claims that fall outside accepted science** — which **maintains** the canyon is **millions of years old**" (emphasis added). NPS spokesman David Barna thinks this pro-

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Does the Modern Pattern of Extinction Fit the Darwinism Prediction? — A Brief Response

As a fellow creationist, I greatly appreciated Dr. Jerry Bergman's recent article ("Does the Modern Pattern of Extinction Fit the Darwinism Prediction?" *Creation Matters*, Vol. 8, No. 3, May/June 2003). I agree with his conclusion that observed patterns of extinction do not fit with the predictions of the evolution model. However, as a wildlife biologist who routinely works with endangered species issues, I must provide some clarification pertaining to his use of endangered species as a means to reach this conclusion.

Dr. Bergman states "...there are only 44 species of insects on the U.S. Department of Interior Endangered Species List out of over 950,000 types identified (0.0046%), but there are 73 species of mammals out of only 4,630 identified types (1.58%). This means that mammals are 343 times more likely to be endangered than are insects — the exact opposite of what we would expect according to Darwinism." Later in the article, Dr. Bergman states "...the above discussion pertains to the U.S. only..."

In actuality, Dr. Bergman has mixed his data sets. The 44 species of insects and 73 species of mammals he referred to are from the U.S. However, the 950,000 types of insects and 4,630 types of mammals are worldwide figures. Although I agree with his conclusion, the percentages should have been calculated using the total number of U.S. insect and mammal types.¹

The U.S. Fish and Wildlife Service (FWS) is responsible for listing, recovering and delisting species, subspecies and distinct populations on the Threatened and Endangered Species List.² However, the listing and delisting process involves many complex variables that may not always accurately depict the species' true ecological status. The decision to list a species, not list a species or delist a species may be influenced by nonscientific factors. For example, political influences may weigh heavily in the process, as well as policy and budgetary priorities.

Another major factor is that the FWS

often lacks sufficient information to list a species. Since the Federally Threatened and Endangered term is a legal term, the FWS must have sufficient information to legally defend decisions to list, not list or delist. The end result is that there are likely some species which are threatened or endangered from an ecological perspective, but are not legally protected by being listed. The opposite is also likely true. Some species may be listed based on the limited information available, but may be later delisted if found to be more common than originally thought.

The lack of sufficient information is especially problematic with insect species and other taxonomic groups which are not "charismatic megafauna." Our knowledge base is much larger for vertebrates than for invertebrates. Since there is a dearth of ecological (i.e., distribution and abundance) data for the taxonomic groups on the lower end of putative evolutionary scale, it is not appropriate to compare them with the much better studied and supposedly more highly evolved taxonomic groups in order to reach the article's conclusions.

Given that the term Federally Threatened and Endangered is a legal one and may not accurately represent the true ecological status of all species, and given the inequities in the level of study of the taxonomic groups, the author would be more justified in using known extinction data rather than endangered status to draw his conclusions.

Notes

1. The total number of all species in the U.S., listed by taxonomic groups, can be found at www.natureserve.org. The information is deeply imbedded in their site, but it is there. Please note that not all sources agree on the exact number of all species in the U.S., but they are close.
2. The total number of federally listed species in the U.S. can be obtained from the following U.S. Fish and Wildlife Service Website: <http://endangered.fws.gov/wildlife.html#Species>. Scroll down to and click on "Our summary of the number of listed species, updated monthly (our box score)."

— Gary Jordan, M.S.

Dr. Bergman Replies

I appreciate the clarification by Gary Jordan and fully agree with all of his points. I would like to add that space limitations prevented a discussion of most of the points he noted, such as the political nature of the list. For this reason I welcome publication of Mr. Jordan's discussion.

One area that he noted was the fact that I used world data and not United States (US) data for the total number of species. The reason was I could not locate a source of accurate US data. Now that a source has been located, I will need to recalculate the data.

My supposition is that the same relationship will be maintained. Another approach is to use world data for endangered species. The problem here is that the world data for numbers of endangered species are even more problematic than are the US data. Nonetheless, it is my conclusion that the same general relationship will still hold.

Mr. Jordan's suggestion to use known extinction data is an excellent idea which I have already tried. So far, I have found the same results (but also some of the same problems, such as we are more certain of the extinction of larger animals). I will continue to work on this topic to address some of these problems. The input of Mr. Jordan and others is sincerely appreciated.

— Jerry Bergman, Ph.D.

Following up

In *Creation Matters* Volume 8, No. 4 (July/August 2003) there was an article by Paul Humber entitled *Debating Dawkins*. This concerned the matter of a debate held many years ago between, among others, creationist A.E. Wilder-Smith and evolutionist R. Dawkins.

It has come to our attention that copies of the debate on CD can be purchased at the following web site:

[www.tonguesrevisited.com/
oxford_union_debate.htm](http://www.tonguesrevisited.com/oxford_union_debate.htm)

— Editor

[note: The CRS does not necessarily endorse other materials on this web site.]

where the strongest survives to pass on genetic information while the weakest, along with the weaker genetic information, dies out. However brutal this game of survival is, it is a real game and it works very well as a preserving force that keeps the strong and gets rid of the weak. The question is, are there any examples of mindless evolutionary processes actually creating novel functions that were not there before?

The clear answer to this question is *yes*; mindless evolutionary processes do actually create novel functions in creatures that were never there before. For example, antibiotic resistance is a famous case of evolution in action. As it turns out, all bacteria seem to be able to rapidly evolve *de novo* resistance to just about any antibiotic that comes their way. But how, exactly, do such novel functions evolve?

Antibiotic resistance

In the case of *de novo* antibiotic resistance, such rapid evolution is made possible because there are so many beneficial “stepping-stones” so close together, right beside what the bacterial colony already has. Success is only one or two mutational steps away in many different directions since a multitude of different single mutations will result in a beneficial increase in resistance.

How is this possible? In short, this is made possible because of the way in which antibiotics work. All antibiotics attack rather specific target sequences inside certain bacteria. Many times all the colony under attack has to do is alter the target sequence in just one bacterium by one or two genetic “characters” and resistance will be gained since the offspring of this resistant bacterium, being more fit than their peers, will take over the colony in short order.

A simple “spelling change” made the target less recognizable to the antibiotic, and so the antibiotic became less effective. In other words, the pre-established antibiotic-target interaction was damaged or destroyed by one or two monkey-wrench mutations. As with Humpty Dumpty and all the king’s men, it is far easier to destroy or interfere with a pre-established function or interaction than it is to create a new one, since

there are so many more ways to destroy than there are to create.

So, do all functions within living things evolve as easily as the antibiotic resistance function? As it turns out, those independent functions that are not based on the destruction of or interference with other pre-established functions are much more difficult to evolve. For example, single protein enzymes catalyze many biochemical events within living things. They help to build and break down other molecules via their own independent abilities, which are not based on the gain or loss of any other system, function, or interaction. It is true that several forms of antibiotic resistance are based on the production and activity of various enzymes.

Perhaps the most famous anti-antibiotic enzyme is the penicillinase enzyme, which is produced by various bacteria having the

Creating a block to a previous function is like breaking Humpty Dumpty, while creating the function of an independent enzyme is like putting Humpty Dumpty back together again.

proper penicillinase code in their DNA. What the penicillinase enzyme does is chop up part of the penicillin antibiotic so that it can no longer attack its target and kill the bacterium. Many people think that bacteria evolve this enzyme just like they can evolve other forms of antibiotic resistance. This is simply untrue.

All the king’s horses

The information required to produce an enzyme which is specific enough to chop up penicillin is far greater than the information required to block the antibiotic-target interaction, since there are far fewer ways to make such a specific enzymatic function compared to the number of ways to block a specific antibiotic function. Creating a block to a previous function is like breaking Humpty Dumpty, while creating the function of an independent enzyme is like putting Humpty Dumpty back together again.

As it turns out, the required code needed for producing the penicillinase enzyme has never been observed to evolve in any bac-

terial colony *de novo*. Either a penicillinase-producing colony already had this code before it was exposed to penicillin, or it gained this code by genetic transfer from some other bacterial population that already had the code.² Simply put, the penicillinase enzyme does not evolve, or at least not often enough to have been observed in real time, while other forms of antibiotic resistance that are based on interference with or destruction of pre-established functions or interactions evolve all the time.

Evolution in action?

But what about other enzymes? Have any novel enzymatic functions ever been shown to evolve in real time? Interestingly enough, several enzymes with entirely new and beneficial functions have been shown to evolve in real time. For example, Kenneth Miller, in his book, *Finding Darwin’s God*, references a very interesting research study published by Barry Hall, an evolutionary biologist from the University of Rochester.³ In this study, Hall deleted the lactase genes in certain *E. coli* bacteria. These genes produced and regulated the production of a lactase enzyme called β -galactosidase. What this enzyme does is break apart a type of sugar molecule called lactose into two smaller

sugar molecules called glucose and galactose — both of which *E. coli* can use for energy production. Obviously then, without the genes needed to make this lactase enzyme, the mutant *E. coli* were no longer able to use for energy the lactose sugar in their lactose enriched environment, unless of course they evolved a new enzyme to replace the one that they lost. And sure enough, they did just that. In just one or two generations these *E. coli* successfully evolved a brand-new gene that produced a new lactase enzyme. Aha! Evolution in action yet again!

Obviously then, without the genes needed to make this lactase enzyme, the mutant *E. coli* were no longer able to use for energy the lactose sugar in their lactose enriched environment, unless of course they evolved a new enzyme to replace the one that they lost. And sure enough, they did just that. In just one or two generations these *E. coli* successfully evolved a brand-new gene that produced a new lactase enzyme. Aha! Evolution in action yet again!

Although most descriptions of Hall’s experiments stop right here, including the one found in Miller’s book, what Hall did next is most interesting. He deleted the newly-evolved gene as well, to see if any other gene would evolve the lactase function . . . and nothing happened! Despite tens of thousands of generations with large population numbers and high mutation rates, no new lactase enzyme evolved. Hall himself noted in his paper that these double mutant

bacteria seemed to have “limited evolutionary potential.”

Limited potential

Other unfortunate bacteria seem to be just as limited in their evolutionary potential. Even though they would significantly benefit, many types of bacteria, after more than a million generations, have not been observed to evolve a relatively simple lactase enzyme. This is fewer generations than it supposedly took humans to evolve from ape-like creatures. One should also note that these same bacteria, unable to evolve a lactase enzyme, are all able to evolve, in relatively short order, resistance to any antibiotic that comes their way.

So what is it, exactly, that “limits” the evolutionary potential of living things, like bacteria, in their ability to evolve some functions but not others? I propose that the answer can be found in the number and density of beneficial “stepping-stones” available (in the form of genetic sequences). For forms of antibiotic resistance that are gained by blocking the antibiotic-target function, there are lots of beneficial stepping-stones very close together, but not so for the enzymatic functions of lactase or penicillinase. Relatively speaking, there are very few such enzymes, compared to the total number of possible sequences.

For example, there are 676 potential two-letter words in the English language. Of these, 96 are defined as meaningful, creating a ratio of meaningful to meaningless of 1 in 7. Now, there are 296 more meaningful three-letter words, totaling 972, but the total number of potential words increases 26 fold to 17,576. Since the number of meaningful words only increased by a fraction of this amount, the ratio of meaningful to meaningless dropped to 1 in 18.

A random walk

Still, such ratios are relatively high, and random walk can get from any one-, two-, or three-letter words to any other via a path of meaningful words, as in the stepping-stone sequence of cat – hat – bat – bad – bid – did – dig – dog. “Evolution” (changing meaning or “function”) at this level is rather simple because the stepping-stones are so close together. But, with each additional

minimum letter requirement, the growth of the meaningless sequences quickly outpaces the growth of the total number of meaningful sequences, and the ratio of meaningful to meaningless gets smaller and smaller at an exponential rate.

For example, there are around 30,000 meaningful seven-letter words and combinations of smaller words totaling seven letters, but there are 8,031,810,176 **potential** seven-letter sequences. This produces a situation in which an average meaningful seven-letter sequence is surrounded by over 250,000 meaningless sequences. Obviously then, compared to three-letter stepping-stones, it is much harder to “evolve” between meaningful seven-letter stepping-stones without having to cross through a little ocean of meaningless sequences.

The same thing happens with the ge-

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netic codes in living things. The more genetic letters that are required to achieve a particular function, and the higher the level of the specificity of their arrangement, the more junk there is compared to the relatively few beneficial sequences at such a level of complexity. For example, a simple BLAST⁴ database search of known proteins will show that the shortest working lactase enzyme found in a living organism seems to require well over 400 amino acids at minimum with at least a fair degree of specificity. Some estimates suggest that the total number of beneficial sequences at the 400-amino-acid level of specified complexity totals less than 10^{100} sequences.^{5,6}

Now, considering that the total number of atoms in the entire known universe is around 10^{80} ,⁷ this 10^{100} number seems absolutely huge! Huge, that is, until one considers that there are over 10^{520} possible sequences at this level of complexity, which creates a ratio of beneficial to non-beneficial sequences of 1 in 10^{400} (which is like finding

a single atom in zillions of universes).

Real life

Of course, since nature cannot tell the difference between two meaningless genetic sequences, it cannot select between them, making natural selection blind to such neutral changes. Since there are no recognizable “stepping-stones” close by, all that nature has left, to find new beneficial sequences, is a blind random walk through enormous piles of junk sequences. Of course, this random, curvy walk takes a lot longer than a direct walk would take, and the time involved increases exponentially with each increase in the minimum sequence and specificity requirements for a particular function.

This prediction is reflected in real life by an exponential decline in the ability of mindless evolutionary processes to evolve anything beyond the lowest levels of functional complexity. Many simple functions, such as *de novo* antibiotic resistance, are easy to evolve for any bacterial colony in short order. Moving up a level of complexity, there are far fewer examples of single protein enzymes evolving where a few hundred amino acids at minimum are required (and many types of bacteria cannot evolve even at this level).

However, there are absolutely no examples in the scientific literature of any function requiring more than a thousand or so amino acids working at the same time (as in the simplest bacterial motility system) ever evolving — period. The beneficial “stepping-stones” are just too far apart due to all the junk that separates the few beneficial islands of function from every other island in the vast universe of junk sequences at such levels of informational complexity. The average time needed to randomly sort through enough junk sequences to find any other beneficial function at such a level of complexity quickly works its way into trillions upon trillions of years — even for an enormous population of bacteria with a high mutation rate.

At this point the mindless processes of evolution simply become untenable as any sort of viable explanation for the high levels of diverse complexity that we see within all living things. The only process left that is known to give rise to functional systems at comparable levels of complexity involves human intelligence or beyond. No lesser

intelligence, and certainly no other known mindless processes, have ever come close to producing something like the informational complexity found in the simplest bacterial motility system.⁸

"For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and God-head." Romans 1:20

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8. For further information and greater detail concerning this topic see additional information by the author at www.naturalselection.0catch.com.

Dr. Pitman graduated from the Loma Linda University School of Medicine in 1997 with a US Army scholarship. He served four years in the Army as a battalion and brigade surgeon. Upon finishing his military obligation he returned to Loma Linda and started a pathology residency at LLU where he is currently.

Speaking of Science

...continued from page 4

vides a way to remove the offending book without a political or religious fight: "To me, this is a decision you can make that has nothing to do with religion."

World Net Daily also has an article³ on this story, and so does *Nature* Jan 15, 2004.⁴ WND says that the National Park Service has been swamped by emails about it. Apparently the book had been unanimously approved by a panel. *Nature*, as expected, quotes the American Geological Society, calling it a "narrow religious view," even though numerous Ph.D.'s contributed to the book, including several with doctorates in geology. Apparently the flap originated with Wilfred Elders (U of Calif., Riverside), and unnamed others, who got seven geological organizations to complain to the NPS.

As a partial compromise, the book has been moved from the science section to the inspirational section of the store; but the author and his allies complain that it contains a discussion of scientific evidence — by scientists. Now it's a neck-and-neck battle over the email campaigns by the book's detractors and supporters.

Tom Vail, for his part, probably never expected such notoriety. On the bright side, he's getting a lot of publicity: radio interviews, stories by CNN and major newspapers, and lots of hits on his website, Canyon Ministries.⁵ The Alliance Defense Fund may take up his defense. The *Nature* editorial is cautious, knowing that censorship can backfire. Dalton writes,⁴

"Vail says that an alternative to evolutionary science should be offered to members of the public visiting the canyon. "Who is to say whose material should be or shouldn't be in the bookstore?" he asks. That's **the tricky question** that the NPS review will seek to answer, as it **weighs issues** such as the display of sound science, the right to free speech and the avoidance of censorship charges." (emphasis added)

1. Vail, T. 2003. *Grand Canyon: A Different View*. Master Books.
2. Associated Press. 2004. Issue of religious displays before National Park Service. www.cnn.com/2004/LAW/01/07/religious.displays.ap/index.html

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How and Why Whiskers Whisk

Scientists at Weizmann

Institute found

some interesting

things about whisk-

ers, reports Eu-

rekAlert. While working with rats, they

noticed that the whiskers are always in

motion, twitching and sensing objects

around them. They discovered that two

kinds of neurons are involved in sending

whisker signals to the brain. The

"whisking" neurons are active all the time,

whether or not the whiskers feel any ob-

jects. When an object is touched, "touch"

neurons come into play. Some detect the

first touch, some send a signal when touch

is lost, and others relay information during

the duration of contact. The report says

this indicates that "perception is a dynamic

dance in which hands, eyes and whiskers

move towards the world to actively seek

out sensation."

It wouldn't be surprising if this neurological response is active all over the body, even in human skin. Skin has tiny vellum hairs all over, even on the palms of the hands. Consider how your skin is sensitive to the slightest brush, even without touch if static electricity is about. Probably similar neurons are involved. All these sensations require specialized neurons and a brain that can process them.

How do touch sensations differ between women and hairier men? What are beards for? Are they just for looks, or do they have functions related to typical male roles? They do seem to amplify the touch response. Do they provide sensory data when crawling through dark caves? Protection from the cold while hunting mammoths? Are they wind indicators? Love handles? Maybe such questions will stimulate some experiments to prove they are not just vestigial leftovers of ape ancestry but have a function. If it's there, there's probably a reason for it. Maybe you shav-



ers should stop depriving yourself of vital sensory information.

Kids might want to experiment on the pet cat (gently). Watch how much the cat whiskers twitch in wake and sleep. Observe different reactions to touch, temperature, prolonged touch, stroking, and release. Tell the kid that pulling is not allowed, on either the cat or Dad.

1. Anonymous. 2004. Twitching whiskers tell all. *EurekAlert* 20Jan04. www.eurekalert.org/pub_releases/2004-01/wi-twt012004.php

Fossil Worm: Does It Help Solve Cambrian Explosion Puzzle?

A soft embryo of a Cambrian worm, exquisitely preserved, makes Graham Budd (U. of Uppsala, Sweden) ask some hard questions about it and other recently-discovered embryo fossils in the Jan. 15 issue of *Nature*:¹



These fossils **raise several questions, to say the least**. First, **how could they possibly be preserved?** Second, why are they **concentrated in a period** (600–500 million years ago) that is **already unfairly overstocked with exceptionally preserved fossils**, such as those of the Burgess Shale in the Canadian Rockies? Third, **do they tell us anything about animal evolution?** (emphasis added)

He spends most of his article on the third question, but seems to end up with more questions than answers about the “**miraculous preservation** of these embryos.” The BBC News² has a report and pictures of the embryos.

Ask yourself how soft tissues could be exquisitely mineralized and preserved for 600 million years, when many later fossils have been mangled by storms, glaciers, moving continents and asteroid impacts. More interesting than the data that seem to fit the reigning myth are the anomalies that do not. This find does nothing to help evolutionists in their Cambrian explosion predicament. Graham Budd has been pushed by the disconnect between his expectations and the facts to the ultimate no-no in science: invoking miracles.

1. Budd, G.S. 2004. Palaeontology: Lost children of the Cambrian. *Nature* 427:205.
2. Rincon, P. 2004. Fossil embryos delight scientists. *BBC News Online*. <http://news.bbc.co.uk/1/hi/sci/tech/3393543.stm>

Centromere Shows More Gems in “Junk DNA”

A biochemist at University of Wisconsin-Madison and a colleague sequenced a hard-to-sequence part of the rice genome, the centromere, and found four genes in it.¹ Previously, it was thought to be a vast wasteland of repetitive, non-coding DNA. The scientist, Jiming Jiang, thinks his work provides a “window to evolution” of the centromere, according to writer Terry Devitt:



The **evolutionary** progression of the centromeres, Jiang suggests, **may be analogous** to how temperate forests **evolve** from more diverse ecosystems to climax forests where a single species of tree dominates. In the rice centromere, it **may be that evolution** has not yet **purged active genes** to be replaced by the long and repetitive blocks of DNA that mark the centromeres of most organisms. (emphasis added)

Where’s the evolution? If you start with genes and end up with more junk, you’re going downhill. He should be celebrating that junk DNA is not junk after all. Only a committed Darwin Party member could make an evolutionary spin out of these data.

1. Devitt, T. 2004. Rice centromere, supposedly quiet genetic domain, surprises. *News@UW-Madison*. www.news.wisc.edu/9294.html

Why You Need Sleep

A study in the Jan. 22 issue of *Nature*¹ claims that sleep gives you inspiration. Sleep is not just a waste of a third of your day; it helps consolidate memories, and provides pivotal insights. “Insight denotes a mental restructuring that leads to a sudden gain of explicit knowledge allowing qualitatively changed behaviour,” the five researchers explain. Human subjects trained in a new task uncovered a “hidden rule” after sleep, regardless of time of day. Various aspects of their experiments led the team to conclude that “sleep, by restructuring new memory representations, facilitates extraction of explicit knowledge and insightful behaviour.”

Don’t feel guilty about sleep. Everything has its purpose, even letting your mind wander as your body goes limp in horizontal position once a day. A lot is going on in that brain. So now you have new justification for that power nap. But sleep *after* the boss’s meeting, not during. (Same rule applies to the Sunday sermon.)

1. Wagner, U., S. Gais, H. Haider, R. Verleger and J. Born. 2004. Sleep inspires insight. *Nature* 427:352.

Editor’s note: All S.O.S. (Speaking of Science) items in this issue are kindly provided by David Coppedge. Additional commentaries and reviews of news items by David can be seen at: www.creationsafaris.com/crevnews.htm.

... CRS Laboratory Update ...

As many of you know, the CRS has a laboratory facility in north-central Arizona. Named the Van Andel Creation Research Center (VACRC), the lab is ideally located for geological and biological fieldwork by visiting creation scientists as well as by CRS staff. Laboratory space and a greenhouse are also available for approved research projects.

Last fall Dr. Kevin Anderson was installed as the new director of the Research Center. Kevin has quietly begun to make his mark on the operation of the Center and as a popular speaker on creation/evolution topics. Additionally, he is continuing as chief editor for the CRSQ.

Although Kevin has personally moved to the area, his family has had to remain behind in Ames, Iowa until their home there is sold. **Your prayers are encouraged**, not only for the work at the VACRC, but also that a buyer would be found for Kevin’s home in Iowa. For additional information, please contact Kevin by phone or email:

928-636-1153
vacrc@creationresearch.org

Thanks to everyone for your continued prayers and financial support!!

Creation Calendar

Note: Items in "Creation Calendar" are for information only; the listing of an event does not necessarily imply endorsement by the Creation Research Society.

June 3-5

Annual Meeting, Creation Research Society Board of Directors
Phoenix, AZ

June 9-11

Discovering the Creator (early registration deadline May 1, 2004)
Baraminology Study Group Conference
Bryan College, Dayton, TN 37321
www.bryancore.org/bsg/discovering04
Contact: conference@bryancore.org,

June 27 - July 2

Twin Peaks Family Science Adventure

Fun-filled vacation for families, near Collbran, CO
Sponsored by Alpha Omega Institute, Grand Junction, CO
Contact: (970)523-9943, www.discovercreation.org

August 1-6, August 8-13

Redcloud Family Mountain Adventure

Fun-filled vacation for families, near Lake City, CO
Sponsored by Alpha Omega Institute, Grand Junction, CO
Contact: (970)523-9943, www.discovercreation.org

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

Cells of a Different Color

Evolutionists have a difficult enough time accounting for the evolution of complex biological structures in a single species, and even more so when the same structures appear in multiple species. One such structure is a special type of skin cell, called a chromatophore. Chromatophores are pigment cells, which may contain a number of different pigments.

Within these cells lie thousands of tiny fibers called microtubules, which radiate out from the cell nucleus like a porcupine's quills. Pigment granules can travel back and forth along these fibers. If a certain type of pigment is distributed evenly throughout a cell, that cell will take on that particular color. The same color can be made to fade out if the pigment granules are clustered at the center of the cell.

It is in this way that such animals as



flounder, chameleons, octopi, and at least one species of tree frog can alter their appearance. These color changes can be used to absorb more or less heat from the sun, provide camouflage, or signal mood changes.

Human beings, the supposed pinnacle of evolution, can't even begin to accomplish this sort of color change. Our skin can do little more than get a suntan. It just goes to show you that biological complexity has nothing to do with any sort of evolutionary progression. The very idea is sheer non-

sense. The evolutionist's reasoning becomes even more fragile as one realizes that fish, reptiles, mollusks and amphibians are classified in completely separate branches of the "evolutionary tree"!

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Dr. O'Quinn is a podiatrist with a Master's degree in physiology. He has written this series of essays to illustrate the marvels of design that can be seen all around us.