

# Creation Matters

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## Semmelweis Reflex and Evolution's Ghost

by Ker C. Thomson, D.Sc.

The *Semmelweis reflex*, or *Semmelweis effect* may be defined as any erroneous scientific theory or position irrationally held within the scientific community in the clear face of existing contrary evidence. Frequently accompanied by the suppression of the contrary evidence, and often by direct harassment of supporters of relevant truth, the modern teaching of evolution and its enforcement on scientists is a case in point.

The 20<sup>th</sup> and 21<sup>st</sup> centuries have seen the arrival of the ability to directly test the Neo-Darwinian mechanism of evolution. That is, mutations + natural selection + huge numbers of living creatures in a long sequence = the changing of one kind of creature into an obviously different kind. It does not work.<sup>1</sup> The required mutations that would provide the necessary new information for the macro-evolutionary changes do not occur.<sup>2</sup> The very obvious micro-evolutionary mutational changes that provide adaptation and variation within a kind are simply irrelevant to producing macro-evolutionary changes.

Darwin conceded that paleontology did not support his thesis. The succession of intermediate forms which were needed to support the theory were lacking. However, he made a prophecy that when the world was thoroughly searched for fossils, the required missing evidence would be found. The search has occurred. Our museums are stuffed with fossils, and the fossils answer clearly — Darwin's prophecy has not been fulfilled. The long sequences of intermediate forms that the theory requires are simply



not there. There is no meaningful evidence that macro-evolution has ever occurred. The triumphal announcement, every so often, that a “missing link” has been found is surely fit stuff for the theater of the absurd. Where are the required hundreds of intervening forms? For details see Gish<sup>3</sup> or Morris.<sup>4</sup>

### Evolution's ghost

Summarizing the preceding, we may well say: There is no meaningful evidence that the postulated mechanism of evolution works, nor that evolution itself has ever occurred. There are many more minor issues that are relevant in putting down evolution, and these are beautifully handled in three books by Sarfati.<sup>5,6,7</sup> Evolution is certainly now nothing but a corpse. Unfortunately, however, it has a ghost. This ghost has come to my attention: “If evolution isn't true, how is it that most scientists believe it?”

It is worth mentioning here that “most” may be an appropriate word in the previous sentence, rather than “all,” since many scientists reject macroevolution and accept creation. For example, consider the book *In Six Days*,<sup>8</sup> produced by fifty research scientists, or the multi-hundredfold membership of the Creation Research Society.

Bergman's review<sup>9</sup> of Broad and Wade's book, *Betrayers of Truth: Fraud and Deceit in the Halls of Science*, and of course the book itself,<sup>10</sup> make a convenient starting point for an answer. The evidence

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## The Tale of the Archaeoraptor Forgery

by Jerry Bergman, Ph.D.

One of the most recent forgeries used to support evolution is that of *Archaeoraptor liaoningensis*, commonly called Archaeoraptor. Dubbed at the time as the evolutionary find of the century, it purportedly proved that birds evolved from theropod dinosaurs.

The find was first announced in October 1998 at a press conference at the National Geographic Society in Washington, D.C. The announcers included paleontologist Philip J. Currie of the Royal Tyrrell Museum of Paleontology in Drumheller, Alberta; Stephen Czerkas of the Dinosaur Museum in Blanding, Utah; and Xing Xu of the Institute of Vertebrate Paleontology and Paleoanthropology in Beijing.

### A “true” missing link

The first documentation about the Archaeoraptor find was published in a full-color, well-illustrated feature article in the November 1999 issue of *National Geographic* magazine. The article touted it as “a missing link between terrestrial dinosaurs and birds that could fly” (Sloan, 1999, pp. 99). Rowe *et al.* (2001, p. 539), wrote that the

*Archaeoraptor* fossil was announced as a “missing link” and [was] purported to be possibly the best evidence since *Archaeopteryx* that birds did, in fact, evolve from certain types of carnivorous dinosaur[s]. It reportedly came from Early Cretaceous beds of China that have produced other spectacular fossils transitional between birds and extinct

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## Archaeoraptor

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non-avian dinosaurs.

The find, “once proclaimed as a key intermediate between carnivorous dinosaurs and birds,” turned out to be a Piltown-man-forgery story all over again (Zhou, Clarke, and Zhang, 2002; Bergman, 2003, 2006). It is part of what some now consider an epidemic of fraud in science, especially in the area of evolution (Feder, 2006; Chang, 2002; Rowe, et al., 2001).

The fossil was discovered in the northeastern province of Liaoning, China, the location of many new, putative, feathered-dinosaur species. The National Geographic Society “trumpeted the fossil’s discovery ... as providing a true missing link in the complex chain that connects dinosaurs to birds” (Simons, 2000). The turkey-sized *Archaeoraptor* was also used by certain prominent paleontologists in attempts to prove that birds evolved from dinosaurs and provided a “long-sought key to a mystery of evolution” (Simons, 2000).

The “missing link between terrestrial dinosaurs and birds that could actually fly” which had the “arms of a primitive bird and the tail of a dinosaur” was touted as a “true missing link in the complex chain that connects dinosaurs to birds” (Sloan, 1999). The “true missing link” soon “soared off in a burst of media fame” (Chin, 2000).

### Suspicious arose early

The fossil caused no small sensation. *Nature* reported that as a result of the find the

“palaeontology community has been rocked by a Chinese ‘bird’ fossil that may be a new species” (Dalton, 2000a). The importance of the fossil was indicated by the 1.6 million dollar price set on it by the insurer because the experts judged it as “an important link in dinosaur and bird evolution” (Dalton, 2000a). Nonetheless, suspicions about the fossil arose early. Monastersky (2000) wrote that

Red-faced and downhearted, paleontologists are growing convinced that they have been snookered by a bit of fossil fakery from China. The “feathered dinosaur” specimen that they recently unveiled to much fanfare apparently combines the tail of a dinosaur with the body of a bird.

The paleontologists had doubts because of “the concerns about the tail” due to the fact that the bones connecting it to the body are missing and the slab showed signs of reworking. The dinosaur-bird evolution supporters had convinced themselves, however, that the two parts belonged together as part of one animal until they could no longer deny the overwhelming evidence against this conclusion (Monastersky, 2000).

Xu Xing evaluated the fossil and found a “strong resemblance” between the rear half of an unnamed dinosaur and the *Archaeoraptor* (Grant, 2007, p. 78). High-resolution X-ray computed tomography evaluations confirmed Xing’s evaluation. He now had clear evidence that the fossil consisted of two “unmatched pieces, skillfully pasted over” (Simons, 2000).

The body has now been identified as that of the fossilized fish-eating bird called *Yanornis martini*, and the tail as that of the small winged dromaeosaur *Microraptor zhaoianus* (Zhou, Clarke, and Zhang, 2002, p. 285). All known specimens of *M. zhaoianus*, a medium-to-large sized animal, are larger than *Archaeopteryx*, except for a recently discovered example (Xu, Zhou, and Wang, 2000).

### Amateurs involved

The forgery was not skillfully done, but was “put together badly and deceptively” by, it appeared, amateurs (Simons, 2000). When carefully examined by X-ray tomography, “it took about five minutes” to determine that the fossil had been faked (Dalton, 2000b). In the end, the whole story involved “zealots and cranks,” “rampant egos clashing,” “misplaced confidence,” and “wishful thinking” (Simons, 2000). Simons added that this is a story in which not one of those involved was entirely innocent (2000).

Even the original article noted that the bird section was part of a bird more advanced than *Archaeopteryx*, the “earliest known bird,” but the tail was “strikingly similar to the stiff tails of a family of predatory dinosaurs called dromaeosaurs.” Before the forgery’s exposure, the scientist supporters rationalized these major contradictions by claiming that this “mix of advanced and primitive features is exactly what scientists would expect to find in dinosaurs experimenting with flight.”

As Chin noted, “none of these problems

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sank in at the *National Geographic*,” so they printed their story (2000). This is one more example of evolution misleading research, resulting in incorrect conclusions, which is also exactly what happened in the Piltdown fiasco.

Paleontologist Philip Currie, a leader of the dinosaur-to-bird evolution theory and a member of the *National Geographic* scientific team that supported the validity of the find, said “this embarrassment will follow me the rest of my life” (Friend, 2000). The editor of the *National Geographic* magazine claimed that the Archaeoraptor article was “reviewed by six leading paleontologists” and the staff worked on the story “for a full year” to insure accuracy and high standards of both facts and presentation (Allen, 2000). None of these six experts detected the hoax.

## Conclusions

In the end, the Archaeoraptor fiasco was “a disaster for science” (Dalton, 2000a). In a field based on little empirical evidence, many assumptions, and strong personalities, the Archaeoraptor affair was not surprising. It also illustrates the conflicts historically common among scientists in the paleontology field (Chang, 2002).

The unprofessional, at times even fraudulent, behavior of the leading participants in this case is far from what one would expect from highly trained professionals. Holden (1981), in another context, concluded that a problem in paleontology is the fact that this field naturally excites much interest because of our curiosity about the origins of life, and

because conclusions of emotional significance to many must be drawn from extremely paltry evidence, it is often difficult to separate the personal from the scientific in disputes

raging within the field. ... The primary scientific evidence is a pitifully small array of bones ... One anthropologist has compared the task to that of reconstructing the plot of *War and Peace* with 13 randomly selected pages. Conflicts tend to last longer [than in other fields] because it is so difficult to find conclusive evidence to send a theory packing.

The fact is, paleontology is an “unexacting kind of science” (Medawar, quoted in Hill, 1986). Tattersall and Schwartz (2002) have even questioned if paleoanthropology is a science. And, although the field is more sophisticated today, the fact remains that “modern as the undertaking has become, it continues to be riddled with controversies and dominated by personalities” (Holden, 1981).

The unmasking of forgeries and new research is forcing so many revisions in the evolution field that a *Time* magazine senior science editor wrote that, as a former science teacher, many facts he believed to be true in evolution have been found to be false. He later reminisced that “just about everything” he taught his students in this area has turned out to be wrong (quoted in Headland, 1997).

This is not the first major forgery used initially to prove evolution, nor will it be the last (Chin, 2000). Nor is evolutionary biology the only scientific discipline where fraud is a problem. The related area of archaeology, which shares several features with that of paleontology, has had its share of fraud as well (Feder, 2006). Nonetheless, much progress has been made in these fields in the last century by many dedicated researchers.

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## Semmelweis Reflex

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for widespread scientific cheating and data falsification is overwhelming, according to Broad and Wade. But since the possessors of power in science have succeeded in getting “the religious foot out of the door,” why not cheat and lie and abuse others if it advances one’s own agenda since, so they apparently think, there is no judgment about which to be concerned.

## Ignaz Semmelweis

As evidence, consider the case of Dr. Ignaz Semmelweis, essentially as presented by *Wikipedia*.<sup>11</sup> Following graduation from the University of Vienna in 1844, Dr. Semmelweis took a position in 1846 at the Vienna General Hospital, in the hospital’s First Obstetrical Clinic. This clinic was closely associated with the University of Vienna and was used for the training of physicians. There was an additional clinic in the hospital, the Second Obstetrical Clinic, which was used for the training of midwives.

Dr. Semmelweis was appalled at the health conditions in these clinics. The ma-

ternal death rate from childbed fever (puerperal fever) in the physicians’ Clinic was a dreadful 10%! In the midwives’ Clinic it was dramatically less, but still a horrifying 4%. Incredibly, the death rate from street births was negligible! Aghast at the almost unbelievable disparity of death rates, such that it was safer to give birth on the street than to enter any of the hospital’s Obstetrical Clinics, Dr. Semmelweis began a scientific study of the situation.

One by one he eliminated possible causes such as religion, overcrowding, and climate, all without success. Finally, an

observation of autopsy procedures suggested a possible link to deaths in the Obstetric Clinic. He theorized that minute particles of cadaverous material were being carried by the physicians from the morgue to the clinic. (It should be remembered that the Germ Theory of disease was not known at that time. That would come some 20 years later, with the work of Lister and Pasteur.)

Following logically on the basis of his “cadaverous material theory,” Dr. Semmelweis instituted a hand-washing procedure both for himself and everyone who worked for him. Hands were to be washed in chloride of lime (the compound in modern-day bleach) after leaving the morgue, and particularly, before touching any patient. The results from this procedure were absolutely outstanding. Before Dr. Semmelweis introduced hand washing into his clinic in April of 1847, the death rate stood at 18%. Within a few months the effects of the hand washing were dramatically evident, as the death rate had dropped to about 1%!

## Persecution

One might have thought that Dr. Semmelweis would have been greatly honored for solving this childbed (puerperal fever) death problem and, over time, saving myriads of women and babies from premature death. Such was not to be the case. Incredibly, his efforts produced intense anger, and ultimately fierce persecution, from the medical and scientific fraternities of Europe.

The story gets worse. The thunder of hatred directed against Dr. Semmelweis from all over resulted in his being forced to leave the Vienna General Hospital. He returned to his native land, Hungary, and to the city of Budapest (at that time called Pest). He was not, as he might have hoped, received with the honors due him for his remarkable achievements in saving the lives of hundreds of babies and mothers. The obstetricians in Budapest, and in particular the Professor of Obstetrics at the University of Budapest, E.F. Birly, did not agree with Semmelweis’ methods. Whatever the reason, the only position Dr. Semmelweis could get was as *the volunteer, unpaid* Head Physician at the obstetric ward of the small St. Rochus Hospital!

Puerperal fever was rampant in the ward when he took over. In a few months he had eliminated the problem, with his hand washing methods. After six years of dramatically successful work by Semmelweis at St. Rochus, the position of Professor of Obstetrics at the University of Budapest opened. It was occasioned by the death of

Professor Birly. In the face of considerable opposition and delay, Dr. Semmelweis got the position. Just as before, he was wildly successful in essentially eliminating child-birth fever at the University of Budapest maternity clinic.

At this point in his career Dr. Semmelweis had excellent, direct, empirical evidence for the absolute success of his ideas and methods. For this success he encountered the furious hatred of an ever-widening circle of the medical fraternity of Europe and England. University training was replete with mockery of Dr. Semmelweis’ ideas and methods, straight into the face of their obvious experimental truth. Rudolph Virchow is remembered as one of the most successful medical scientists contemporaneous with Dr. Semmelweis. However, his name is blackened by his adamant opposition to the antiseptic practices of Dr. Semmelweis, which are now recognized as absolutely correct. Indeed, the entire medical science community of Europe, at the time, is indicted.

## A conspiracy?

This sordid scientific tale gets even worse. It seems possible that the scientific hatred for Dr. Semmelweis may have created a conspiracy resulting in his murder. The details of Dr. Semmelweis’ death vary among available sources. Again, I have been guided by the information in *Wikipedia*.<sup>12</sup> Perhaps as a result of the medical community’s rejection of his ideas, over the years he had become increasingly bitter toward his critics, even attacking them in a series of open letters. His public and private behavior had also become inappropriate.

In 1865, one medical colleague wrote a referral for Dr. Semmelweis to an insane asylum. Another colleague thereafter invited him to inspect a new hospital wing. Upon arriving there, Dr. Semmelweis realized what was being done to him, and he tried to escape. He was furiously beaten by the guards, rupturing many of his internal organs. The guards “treated” him for insanity by securing him in a straight jacket, administering castor oil, and dousing him with cold water.

Ironically, he died a few days later of pyemia, that is to say, what would in an obstetrical clinic be called childbed fever. His death was carefully ignored by the medical and scientific community of which he was a part. Following Dr. Semmelweis’ death he was replaced by Janos Diescher in the responsibility for the Budapest Univer-

sity maternity clinic. Shortly thereafter the death rate in the clinic jumped upward by a factor of six!

## Semmelweis reflex today

Some may say that all this happened one hundred fifty years ago; today it is different. Not so fast, please! Three weeks before the United Nations Climate Change Conference convened in Copenhagen, Denmark, on December 7, 2009, “Climategate” broke into the news. Climategate has been described as: “the still developing scandal involving the release of thousands of emails and documents from a British climate research center. The leaked documents expose some of the biggest scientific names in the global warming debate to serious charges of fraud, unethical attacks on colleagues, censorship of opposing viewpoints, and possible criminal destruction and withholding of evidence.”<sup>13</sup>

The parties involved in these unethical scientific practices are all “supporters” of man-caused Global Warming. The scientists whose persons and work are vilified by the supporters of Global Warming are the “deniers” of man-caused Global Warming. So here we have again, in a very modern context, political correctness on a scientific subject of dubious veracity, forced on the rest of the scientific community by what appears at this point to be a deliberate conspiracy of an influential immoral few.

Today, doubting evolution receives the same disrespect from the scientific community that Dr. Semmelweis and his hand-washing practices received in the mid nineteenth century. Hardly any scientist today, with very, very few exceptions, dares to even hint that there may be anything questionable about the theory of evolution. The result is widespread, harsh persecution of any scientist who dares to question evolution in any way whatever. This has all been thoroughly documented by Bergman<sup>14</sup> in his recent book, *Slaughter of the Dissidents*. In the space available here I mention only one example, the case of Dr. Caroline Crocker.

## The case of Dr. Crocker

Dr. Crocker evidenced unusual scholastic aptitude from childhood, graduating from high school at sixteen and obtaining, in short order, successive university degrees of B.S., M.S., and Ph.D. She became a professor of biology and was involved in research and teaching at various institutions. Her teaching brought excellent student reviews and commendations for her work. She was

successful in obtaining grants. She produced a steady output of significant research results in cell biology, and had 29 publications to her credit when trouble broke out at George Mason University.

She had been teaching two courses for five years, one in general biology and one in cell biology. In a single lecture in 2004, she mentioned that there were problems in accommodating her scientific observations within an evolutionary framework. Almost instantly she was disciplined, being told that she would not be teaching cell biology in the following semester. Shortly thereafter, her contract was terminated. As it happened, she was also teaching at Northern Virginia Community College. On hearing of her termination at George Mason, the community college also terminated her. As of the time of Bergman's account, she has not been able to get another position, having apparently been blacklisted.

## Conclusion

The Crocker case is but a sample of widespread suppression of information, demonstrating problems with the theory of evolution, and of the persecution of those who may want to bring out the truth in this matter. Application of the term Semmelweis reflex to Neo-Darwinism is fully ap-

plicable.

But it is not just evolutionists and biologists who are indicted as practitioners of Semmelweis reflex. The Climatology example above demonstrates that scientific malpractice of every kind is widespread in science. Getting the religious foot out of the door has opened science to a new religion, one having no longer a moral basis for a good work ethic. Why then should we be surprised at the breakdown in science which is taking place before our eyes?

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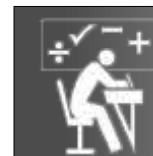
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## Math Matters

by  
Don DeYoung, Ph.D.



### Is There an Evolutionary Theory of Mathematics?

There indeed have been efforts to equate mathematical progress with evolution. One rationale is to explain why modern mathematics is so powerful in modeling the details of nature. An analogy is drawn from the biological concept of natural selection, whereby inferior organisms are assumed to be "weeded out" of the gene pool. Likewise, mathematics paths which are not sufficiently productive are soon abandoned. Through time, various mathematical models of reality continue to experience birth, a period of dominance, and then many decline or go extinct. The "fittest" mathematical theories survive and become dominant, at least for a while.

One of the newer mathematical "evolutionary" developments is promised by Stephen Wolfram (2002). In a book titled *A*



*New Kind of Science*, Wolfram promises to completely replace our current infrastructure of science and mathematics formulas with simple computer programs and algorithms.

The evolutionary view of mathematics currently is popular, but it also is fatally deficient. It entirely fails to explain the predictive power of mathematics. That is, theoretical mathematics ideas are often for-

mulated long before any practical application is known. Then, at a later time, the concepts are found to exactly describe existing physical phenomena in nature. In Einstein's words, "How is it possible that mathematics, a product from human thought that is independent of experience, fits so excellently the objects of physical reality?" (Wigner, 1960) How indeed, other than mathematics being the intelligently-planned, embedded language of creation.

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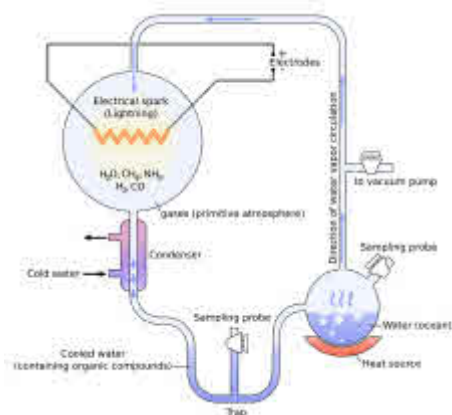
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Evolutionary theory can appear to make sense. It offers superficially plausible explanations for the entire gamut of life across history, starting from an initial spontaneous appearance of building block amino acids and nucleotides, to self-replicating molecules, to living cells, to advanced multi-cellular organisms such as man.

By contrast, the Bible proclaims that a living God created the universe as well as the life that exists within it. Evolutionists frequently claim that the evidence for evolution is so established that there is then "...insufficient evidence for belief in the supernatural; it is either meaningless or irrelevant.... Promises of immortal salvation or fear of eternal damnation are both illusory and harmful" (Kurtz and Wilson, 1973). Before one becomes overly impressed with the evolutionist's claims, though, he should be aware of a significant observation. Essentially all of the evidence that initially appears to support evolution falls apart when it is looked at closely. The details frequently show that issues presented as teaching *for* evolution actually teach *against* it.

Charles Darwin, who discovered the principle of natural selection and laid the foundation for much of modern evolutionary theory in his book, *The Origin of Species*, constantly fought this problem. In the previous issue of *Creation Matters*, Stout (2010) showed how Darwin was repeatedly forced to invent imaginary explanations to resolve the discrepancies between what he believed the observed evidence should have been and what it actually was.

In this article, we will look briefly at another representative example of this situation, Miller's "origin of life" experiment. In 1953, Stanley Miller performed an experiment which is still discussed in almost every introductory biology textbook today. He mixed water vapor, methane, ammonia, and hydrogen in a spark chamber. When a high voltage arc was introduced across the gases in the chamber, he produced a number of complex molecules including several different kinds of amino acids. Evolutionists claim that this experiment demonstrates how natural physical processes could have produced the building-block molecules which in time turned into the first living cells. Therefore, a Creator was no longer needed as the source of life.



At first glance it can appear that Miller's experiment helps the case for evolution. That is why the textbooks still talk about it. However, the problems are in the details. There are a number of principles from biochemistry that teach against a natural origin of life. Let's see how a detailed analysis of Miller's results confirms the validity of these principles.

1. *Unusable ratio of amino acids.* Many kinds of amino acids are possible; living systems primarily use 20. The different kinds have varying chemical properties. The most important property is whether a particular kind of amino acid is attracted to water molecules or repelled by them. In life, the ratio between the two needs to be fairly even. The simplest and easiest to make of the amino acids are water repelling. Miller's experiment gives skewed results: it produces about 100 times as many water-repelling amino acids as water-attracting (Miller, 1959), consistent with what we would predict on chemical equilibrium principles. *Random* processes could never do anything useful with such a skewed ratio.

2. *Tar.* 80% of Miller's product was an inert tar useless for life. Only 2% was amino acids. The amino acids that he did get would have become tar, except he used his skills as a biochemist to design a method to remove them from the spark chamber before they became tar. This is true of all similar experiments. They produce tar or nothing (Shapiro, 1986). The hypothetical "primordial soup" talked about so frequently by evolutionists has never been simulated in a laboratory.

3. *Fatal molecules.* Many of the compounds produced by the experiment are poisonous to life, including formic acid. They are very aggressive chemically, and

readily attach themselves to and would ruin any complex compound molecules that appear. In fact, the experiments produced twice as much formic acid as the combined amount of amino acids (Miller, 1959).

4. *Too much hydrogen.* No one has been able to get results comparable to Miller's initial experiment. There is a good reason for this. Miller used a high proportion of hydrogen in his mix. Rocks on earth indicate that such high amounts never existed. However, when the amount of hydrogen is reduced to a more realistic value, the results are severely impacted (Anonymous, 2003).

Thus, Miller's experiment illustrates phenomena that would work against and ultimately prevent a natural origin of life. It was when we considered the details that we discovered this. Miller's experiment is not unique. Wherever one looks, he can find similar examples where the details contradict the claims of evolutionists.

There is a reason for this. God designed the universe to give testimony of Himself as the Creator. The data of science properly interpreted should lead a person to Him. The testimony God gives us is so clear and so strong that *He* counts a person who ignores it to be "*without excuse.*"

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Graphic of 1953 Miller-Urey experiment courtesy of Wikimedia Commons, retrieved June 23, 2010, from [http://en.wikipedia.org/wiki/File:Miller-Urey\\_experiment-en.svg](http://en.wikipedia.org/wiki/File:Miller-Urey_experiment-en.svg)

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## Matters of Fact...

by Theodore J. Siek, Ph.D.

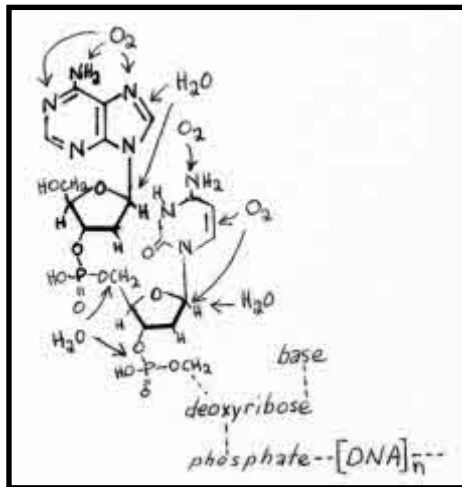
# Ancient DNA?

*Editor's note: Dr. Theodore J. Siek serves as guest respondent to this issue's featured question. You may submit your question to Dr. Jean Lightner at [jean@creationresearch.org](mailto:jean@creationresearch.org). It will not be possible to provide an answer for each question, but she will choose those which have a broad appeal and lend themselves to relatively short answers.*

**Q** DNA from remains supposedly tens of millions of years old has been found in horse, dinosaur, bird and other fossils. Creationists respond that DNA can't survive degradation for millions of years. What evidence—chemical, biochemical, and anecdotal—backs the proposition that DNA would not be recognized as DNA after millions of years?

**A** DNA is fast becoming an everyday word, even among the scientifically illiterate. This is because a kind of DNA reductionism has developed from the promotion of this particular molecule as defining almost all of life itself, since DNA is the genetic biochemical. I will not discuss the function and limits of DNA here, but rather deal with the question posed, the survival time in years of recognizable DNA. A primary reference used herein is the advanced textbook, *Biochemistry*, by Voet and Voet (2004).

DNA is the abbreviation for “deoxyribonucleic acid,” which is an enormous biopolymer consisting of a phosphate ester backbone with deoxyribose in the chain, and one of four different nucleotide bases attached to each deoxyribose (Fig. 1).



*Figure 1. A DNA sequence beginning with adenosine base, followed by cytosine as the next base. The amino group on cytosine can be oxidized to uracil (a “mutation”). Note the phosphate ester bonds which link the DNA polymer together. These bonds are readily susceptible to hydrolysis. Drawn by author.*

The single strand of DNA is chemically bonded by hydrogen bonds to form the now-famous “double helix,” structurally elucidated by James Watson and Francis Crick, for which these two were awarded a Nobel Prize.

The number of DNA base pairs (bp) in the human genome is  $3.2 \times 10^9$ . This contrasts with so-called simpler forms of life such as the Polyoma SV 40 virus which has 5,200 bp. *Drosophila* have  $1.37 \times 10^8$

bp, and lungfish surprisingly have  $1.02 \times 10^{11}$  bp. The contour length of DNA in humans is 1.1 meters (average). The fact that DNA is long and thin can be emphasized in this manner: the human DNA, if enlarged by a factor of 500,000, would resemble an 18 kilometer long strand of uncooked spaghetti.

The chemical covalent bonding in DNA includes phosphate esters, primary amines (on the bases), the hemiacetal form of sugars, C–H, N–H, and C–OH bonds. Water will attack and break phosphate ester bonds, the ring structure of deoxyribose, and C–N bonds. Oxygen attack on C and N atoms cannot be prevented in the presence of oxygen. RNA is more susceptible to base hydrolysis than is DNA. The fundamental fact of chemistry here is that phosphate esters are readily hydrolyzed, and that such hydrolysis would gradually but completely break up the DNA polymer, since the chain is linked by phosphate ester bonds.

Supporting the fact that hydrolysis and other reactions occur are these observations:

1. DNA hydrogen bonding (which maintains the double helix) is ruptured at approximately 80°C. This is called denaturation. The double helix comes apart with low energy input.
2. *In vivo* DNA is hydrolyzed at

## 2010 CRS Board of Directors and Professional Staff

**T**he CRS Board of Directors met for their annual meeting in Prescott, AZ on June 17–19.

Standing from left to right are: Jean Lightner, Ted Aufdemberge, Kevin Anderson, Diane Anderson, Mark Armitage, Mike Oard, Ron Samec, Russ Humphreys, Gene Chaffin, Gary Locklair, and Danny Faulkner. Seated are Glen Wolf from, Don DeYoung, and Dave Kaufmann. Kevin Anderson\* is Director of the CRS Van Andel Creation Research Center, and his wife Diane\* is Administrative Assistant. Board members not pictured are John Reed and David Rodabaugh.

*\*Professional Staff*



physiological pH, at a rate of 1000 base pairs per day. This projects to 8700 years to completely hydrolyze the  $3.2 \times 10^9$  bp of human DNA at near neutral pH.

3. A common mutation in DNA is the conversion of the nucleotide cytosine to uracil, which takes place by the oxidation of the cytosine's amino group to a keto group.

4. Voet and Voet (2004) discuss DNA degradation in amber-entombed insects, making the statement, "over geological time spans, DNA decomposes mostly through hydrolysis of the sugar-phosphate backbone and oxidative damage to the bases."

5. It is estimated that survivable DNA is limited to a few thousand years in a warm climate and perhaps up to one hundred thousand years in cold regions such as Siberia (Voet and Voet, 2004, p.115).

A very active area of investigation is DNA profiling (sequencing) for forensic purposes. For example, Goodwin (2003) reported severe hydrolysis of DNA in a specimen of human bone in a pond for 30 years; only short fragments of DNA remained, with 300 base fragments of DNA barely present after the amplification treatment.

In a recent study, Herren *et al.* (2010) reported the survival of DNA on postage stamps (bottom side) stored up to 83 years in houses. Tests for amylase were carried out to ensure saliva had been used in applying the stamps. Of the 15 postage stamps, 14 had amylase activity and 12 had extract-

able DNA. However, of the extractable DNA, only 40% of the stamps had DNA sufficient for DNA profiling for identification of individuals. In other words, within 83 years, considerable degradation of DNA by hydrolysis had occurred.

The storage of DNA by forensic laboratories is another consideration. In storing DNA for future testing, absence of water is a must; however, freezing is *not* recommended. Freezing is not used because of shear breakage and hydrolysis in the frozen state. This is consistent with the length to thickness dimensions of DNA.

Voet and Voet (2004) ascribe the DNA of million-year-old fossils to human contamination. And the Voets (2004, p. 116) are willing to grant special immunity from hydrolysis and oxidation for the DNA in alleged 25 million year old bacteria in a bee's stomach (the bee encased in amber). The bacteria were successfully cultured in this case.

My chemistry and biochemical intuition revolts at the suggestion that DNA can be found in recognizable form after 10,000 years, let alone 25 million years. There are a dozen or more bond types on the DNA molecule susceptible to attack by water and oxygen; phosphate esters are particularly susceptible to hydrolysis; the phosphate ester chain is exposed, since it forms the outside contour of DNA; forensic DNA specialists store DNA by excluding water, but not by freezing. So freezing does not preserve DNA to evolutionist time scales. Chemical reactions occur at a faster rate at higher temperatures. At lower temperatures, the reactions are just slower, but equilibrium will be reached sooner or later. And the

equilibrium for DNA lies decisively in the direction of the individual nucleotides, nucleosides, and phosphoric acid, just as the equilibrium of proteins decisively favors the amino acids.

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## Letters

### The Moon's Origin

The article by Carl Froede, Jr. (2010) on the origin of the Moon correctly discounts the naturalistic account of a planetary collision providing the material for it to evolve. But does the account in Genesis 1 report that God created all the heavenly hosts on the fourth day? Or did He make them all by separating the "waters" on the second day? On that day He made what He then called the "heavens," and He waited until the fourth day to ignite the stars.

This alternate view of when God made the physical heavens and all its spherical

celestial bodies was first presented in an article by DeRemer, Amunrud, and Dobberpuhl (2007). Could ordinary water (H<sub>2</sub>O) exist in a vacuum without emitting black-body radiation which contains visible light photons? All atomic matter at a temperature above absolute zero emits such radiation.

The whole sequence of events in the first four days is explained in more detail in a book that is being written by DeRemer and Dobberpuhl (2010).

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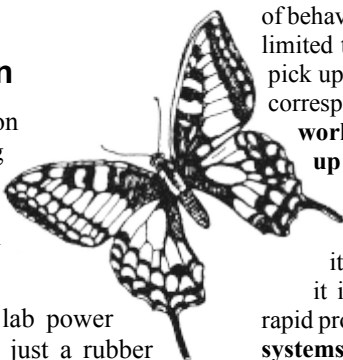


# Speaking of Science

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

## Butterfly Wing Veins Are Not in Vain

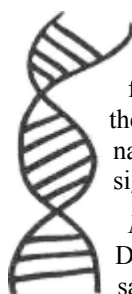
Inventors made an artificial butterfly modeled on the tiger swallowtail. First they made the wing without veins. It didn't fly as well as when they added veins like the real butterfly, according to a short video clip in an article on *New Scientist*.<sup>1</sup> The veined wing provided more lift.



The inventors at Harvard's microrobotics lab power their "butterfly-type ornithopter" or BTO with just a rubber band. It's the first flying insect replica that matches the real thing in size and weight, they said. The article notes that their project has been published in *Bioinspiration & Biomimetics*.<sup>2</sup>

1. Coghlan, A. (2010, May 21). Replica butterfly flies just like the real thing. *New Scientist*. Retrieved May 27, 2010, from [www.newscientist.com/article/dn18946-replica-butterfly-flies-just-like-the-real-thing.html](http://www.newscientist.com/article/dn18946-replica-butterfly-flies-just-like-the-real-thing.html)
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## If Humans Build DNA Machines, Is It Intelligent Design?



Two teams have succeeded in building little robots that work on DNA tracks. These resemble in many respects the machines that cells use to perform their functions on DNA. No one denies that humans engineered these nanobots on purpose, but Darwinist scientists claim natural cellular machines evolved without purpose or design. What's the difference?

*Nature* reported on work by two teams that built such DNA robots. Lloyd Smith commented on these in the same issue as a kind of science fiction come true.<sup>1</sup> He made it clear that these are information-rich systems:

There are several interesting concepts lurking in these papers. Lund *et al.* point out that macroscopic robots generally have to **store a fair amount of information** to provide "**internal representations of their goals and environment** and to coordinate sensing and any actuating of [their] components." Molecular robots, however, have limited ability to **store such complex information**. In both devices, the motion of the walkers is thus **programmed into the DNA surface**, rather than into the walkers themselves. Similarly, by setting the cargo-donating machines into **predetermined loading or non-loading states**, Gu *et al.* also **use information stored** in the walker's environment to **control the outcome of their system**....

Although both papers integrate DNA walkers with origami landscapes, they differ in one important respect. Lund and colleagues' device is autonomous — no **external intervention** is required for it to **execute the program built into the system**. By contrast, Gu and colleagues' device relies heavily on external interventions, most importantly the addition of

new DNA strands **to drive the movements** of the walkers and the **operation** of the cargo-carrying **DNA machines**. The reward for this lack of autonomy is greater complexity of behaviour: whereas Lund and colleagues' robot is currently limited to walks along a path, Gu and colleagues' robot can pick up cargo while walking, and can adopt eight states that correspond to different manufacturing possibilities. **Future work will seek to maintain autonomy while ramping up the attainable complexity of behaviour programmed into molecular systems.**

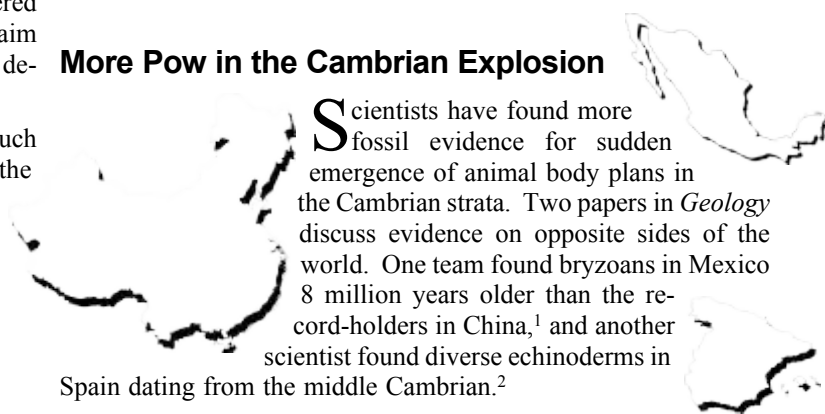
Although we remain far away from the possibilities imagined for nanotechnology by science fiction, it is **inspiring** nonetheless to see such **creativity** and rapid progress in the development of **autonomous molecular systems that can execute complex actions**. This is undoubtedly a field to watch.

So if we do it, it's intelligent design, but if nature does it, it's blind evolution? You realize, of course, that the natural machines in cells are far ahead of us: they are not only autonomous, but attain very complex behaviors that are programmed into their molecular systems. Not only that, they belong to complexes of molecular machines, which belong to networks of signal processing systems, that boggle the mind — and they belong to entire systems that have a coded library, and can reproduce all their parts!

Why should not scientists find it "inspiring to see such creativity" of "autonomous molecular systems that can execute complex actions" and ascribe it to design? Molecular biology should be filled with God-fearing, worshiping, praise-singing scientists shouting Hallelujah!

1. Smith, L.M. 2010. Nanotechnology: Molecular robots on the move. *Nature* 465:167–168.

## More Pow in the Cambrian Explosion



Scientists have found more fossil evidence for sudden emergence of animal body plans in the Cambrian strata. Two papers in *Geology* discuss evidence on opposite sides of the world. One team found bryozoans in Mexico 8 million years older than the record-holders in China,<sup>1</sup> and another scientist found diverse echinoderms in Spain dating from the middle Cambrian.<sup>2</sup>

The author of the echinoderm paper, Samuel Zamora, said, "Because many of these taxa appear close to the beginning of the middle Cambrian, it seems **likely that their origins must be placed in the early Cambrian**."<sup>2</sup> He argued that his evidence militates against the slow-and-gradual appearance of echinoderms in the early Cambrian. "This shows that, **even by the earliest middle Cambrian, a variety of novel body plans and ecological strategies already existed** among echinoderms, **pushing back the timing** of important divergences **into the lower Cambrian**." Not only that, the ones he found are among the "**most diverse of anywhere**." He did not use the word *evolution*, nor did he comment on how these complex body plans could have emerged and diversified in such a short time.

Bryozoans were thought to have made their appearance on earth in the Ordovician. Landing, English and Keppie reviewed the history of thinking about the Cambrian explosion, “**Perhaps the most intensely dissected of these dramatic biotic diversity changes.**”<sup>1</sup> They said that until recently: “One mineralized group, the phylum Bryozoa, seems to have ‘missed’ the Cambrian radiation.” Their discoveries in Mexico now confirm “that **all skeletal metazoan phyla appeared in the Cambrian.**”<sup>1</sup> These authors also had little to say about how bryozoans emerged, other than to claim that they did — and now earlier than had been thought. The discovery of these specimens in the late Cambrian does not preclude the possibility that bryozoans will some day be found in lower Cambrian strata elsewhere.

The trend of evidence has been clear for decades now. Every major animal body plan is found in the Cambrian. Each one is being found earlier and earlier. The earliest ones are just as complex as are the later ones. Where is the evolution? Abrupt appearance of complex body plans is not evolution. If you want to believe Darwin’s story of slow and gradual evolution, you believe it not because of the evidence, but in spite of it.

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2. Zamora, S. 2010. Middle Cambrian echinoderms from north Spain show echinoderms diversified earlier in Gondwana. *Geology* 38:507–510.

## **Archaeopteryx Fossil Retains Original Soft-Tissue Material**

We are usually told that fossils involve the complete replacement of original living material by rock, except in rare cases (such as amber), because organic material is quickly destroyed. One of the most famous rock fossils is *Archaeopteryx*, the bird that has often been claimed to be a missing link from dinosaurs. An international team used X-rays to probe one of the nine known specimens of *Archaeopteryx*. To their surprise, they found original atoms from the feathers and bones of the animal still residing in the rock impressions — this after 150 million years has past since the bird died, according to the evolutionary chronology.

*ScienceDaily*,<sup>1</sup> the *BBC News*,<sup>2</sup> and *New Scientist*<sup>3</sup> all reported the paper that appeared in *PNAS*.<sup>4</sup> The team, including scientists from Stanford Linear Accelerator Laboratory, Black Hills Institute of Geological Research, University of Pennsylvania, and University of Manchester, UK, used synchrotron rapid scanning X-ray fluorescence (SRS-XRF) to detect atomic species in the rock and the fossil impressions of the Thermopolis *Archaeopteryx* specimen. Their color-coded map of the data shows enriched zinc and copper in the bone impressions relative to the rock, and enriched phosphorus and sulfur in the rachis [main stems] of the feather impressions. They interpret these as remnants of original soft tissue from the specimen, rather than having been leached material from the rock sediments:

Here we present **chemical imaging**, ... which shows that portions of the feathers are not impressions but **are in fact remnant body fossil structures**, maintaining elemental compositions that are completely different from the embedding geological matrix.

This was the first detailed chemical analysis of this fossil ever performed, they said. They referred to another study on dinosaur bone that supports

...**our most striking result**: that elevated Zn levels associated with the skull and other bones **have persisted over geological time** and most likely, along with phosphorous and sulfur, are **remnants of the original bone chemistry**.

The authors seemed to like that word “striking.” They used it 4 times, e.g.,

...**striking and previously unknown details** about the **chemical preservation of soft tissue**, elemental distribution patterns **most likely related to the organism’s life processes**, insights into the chemistry of the fossilization process, and details of curation history.

The paper and the popular articles spoke of evolution in various ways. The original paper had very little to say about it, other than some opening generalizations. The abstract began, for instance, with “**Evolution of flight** in maniraptoran dinosaurs is marked by **the acquisition of distinct avian characters, such as feathers**, as seen in *Archaeopteryx* from the Solnhofen limestone.” They did not elaborate on how the said acquisition of pennate flight feathers might have occurred by the unguided process of natural selection.

The opening sentence of the paper followed, saying, “*Archaeopteryx* are rare but occupy a **pivotal place in the development of Darwinian evolution** because of their possession of both reptilian (jaws with teeth and a long bony tail) and avian (feathered wings) characters.” After that, the E-word did not appear further, except for a brief suggestion, without evidence, that *Archaeopteryx* appears transitional between dinosaurs and birds.

Jeff Hecht at *New Scientist*,<sup>3</sup> however, drew from this the notion that “**Copper and zinc are key nutrients for living birds, and their presence in the fossil bones shows the evolutionary link with dinosaurs**” — even though the original paper did not state such a thing. He did quote Roy Wogelius [U of Manchester] of the team, saying, “It’s **amazing that that chemistry is preserved after 150 million years**,” and “There is **soft-tissue chemistry preserved in places that people didn’t expect it.**”

The *BBC News*<sup>2</sup> referred twice to the fossil as a “**snapshot of evolution**” and called it “a **‘missing link’ that documents a fabulous transition from dinosaur to bird**,” even though the paper was really not about evolution or dinosaurs at all. *ScienceDaily*<sup>1</sup> gave the story the misleading headline, “**X-Rays Reveal Chemical Link Between Birds and Dinosaurs**” when, again, the paper made no such claim. Moreover, the article called it a “**150-million year old ‘dinobird’ fossil**” and claimed that “When the first *Archaeopteryx* specimen was uncovered a century and a half ago, just a year after **Charles Darwin published On the Origin of Species**, the discovery **provided the strongest evidence yet for the theory of evolution.**”

None of the popular articles dealt with the question of whether preservation of original organic material from an animal as frail as a bird, which usually decays completely within days or weeks, is possible for 150 million years. None considered whether finding such material should call into question the age of the specimen.

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## Venter Group Plagiarizes Genetic Code

Is plagiarism a form of intelligent design (I.D.)? We think of intelligent design in terms of God and creation, but in generic terms, I.D. only refers to purposeful, designed action by an agent — viz., any agent, large or small, good or evil. A planned murder, for instance, can be an evil form of intelligent design. A forensic team can use design detection techniques to ferret out the evidence of death by murder over death by natural causes. In the same way, an attorney general can determine, using design detection techniques, whether an ad campaign broke copyright laws, and a professor can discern whether a student borrowed someone else's material to write a term paper.

The news has been filled with dramatic announcements that Craig Venter's lab has created an organism with the first "synthetic genome." How should this achievement, dramatic and groundbreaking though it is, be understood?

*Live Science* headlined the story, "First Live Organism with Synthetic Genome Created."<sup>1</sup> The word "created" was emphatic in the article; "the J. Craig Venter Institute says they have succeeded in **creating the first living organism with a completely synthetic genome.**" It almost sounds like the lab created something entirely new from scratch — "artificial life." *New Scientist* even used religious overtones, dubbing it an "Immaculate Creation."<sup>2</sup>

A closer look, though, shows that the "synthetic genome" still used the four-letter code of a living bacterium, and used its own transcription and translation machinery. It would be a little like a programmer inserting a USB drive with a program into an existing computer; the computer has to have the operating system and software to recognize the code. This is a far cry from making a computer with its own code and operating system, as the terms "artificial life" and "completely synthetic genome" imply.

*ScienceDaily*'s headline was a little more accurate, saying, "Scientists 'Boot Up' a Bacterial Cell With a Synthetic Genome," but even then, Venter's team relied on an operating system and

coding system that was already defined.<sup>3</sup>

The Venter Institute found out some things about genomes, by experience. Notably, they are not very forgiving. "Even a tiny inaccuracy could prevent the inert DNA from activating into a live bacterium, making accuracy paramount," the *Live Science* article recounted. "At one point, a single base pair mistake set the entire program back three months." The team also added panic code that would kill the organism if it left the lab, and took part in a bioethical review before the project was begun. "It's part of an ongoing process that we've been driving, trying to make sure that the science proceeds in an ethical fashion, that we're being thoughtful about what we do and looking forward to the implications to the future," Venter said.

Unlike surreptitious plagiarizers, the Venter Institute proudly planted watermarks in their genome. "The researchers deliberately inserted four sequences of DNA that serve as watermarks so they could distinguish between the naturally occurring and synthetic bacteria," *Live Science* reported. "The watermarks contain a code that translates DNA into English letters with punctuation, allowing the scientists to literally write messages with the genes." So what did they write? The 46 researchers included their names, and the names of some famous scientists, "and a URL that anyone who deciphers the code can e-mail."

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## What Are Creationists Thinking about ...?

*As new scientific discoveries make the headlines, have you ever wondered how your fellow creationists are reacting? Have you ever thought of a "crazy" new idea about origins and wanted to bounce it off another creationist?*

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*Participation is limited to CRS members in good standing.*



May / June 2010  
Vol. 15 No. 3

## All by Design

by Jonathan C. O'Quinn,

# The Incredible Barreleye Fish

**T**he world is full of magnificent creatures whose structure and design defy attempts to chalk up their existence to chance. Let us look at the barreleye fish as one such example.

Living in pitch-black darkness at depths of 2,000–2,600 feet, the barreleye is a small fish, several inches in length. It lives at depths below which sunlight cannot penetrate the oceans. The top of the barreleye's head is covered by a thin, transparent membrane that is filled with crystal clear liquid and literally forms a bubble, with two huge eyes located inside its head and pointed upwards. The tubular eyes contain bright green lenses and are ultra-sensitive to light from the many bioluminescent fish and jellyfish that also live at these depths.

When the barreleye spots a meal, it rotates the eyes forward and swims up to catch its prey. The green pigment in the eyes



is thought to filter out sunlight at shallower depths, so any penetrating sunlight does not impede its ability to spot bioluminescent prey, or their silhouettes, at shallower depths. The transparent shield protects the fish's eyes from the stinging cells of the jellies it most loves to eat. Additionally, barreleyes have large, flat fins that allow them to "hover" essentially motionless in the water, scanning the waters above for prey with minimal energy expenditure.

As we see everywhere in nature, the complex designs of living creatures function perfectly in the specific environments in which we find them and cannot have evolved in stages.

## Bibliography

I. Robinson, B.H. and K.R. Reisenbichler. 2008. *Macropinna microstoma* and the paradox of its tubular eyes. *Copeia* 4:780–784.

### Figure caption:

*Winteria telescopa*, a species of barreleye (Opisthoproctidae). From Brauer, A., 1906. Die Tiefsee-Fische. I. Systematischer Teil.

In C. Chun. Wissenschaftl. Ergebnisse der deutschen Tiefsee-Expedition 'Valdivia', 1898-99. Jena 15:1–432.

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**Editor's note:** The reader is referred to video of the barreleye fish, *Macropinna microstoma*, provided by Monterey Bay Aquarium Research Institute at:

[www.youtube.com/watch?v=RM9o4VnfHJU](http://www.youtube.com/watch?v=RM9o4VnfHJU)

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