Creation Matters

Volume 19 Number 3
May / June 2014

A publication of the Creation Research Society
50th Anniversary (1963 – 2013)

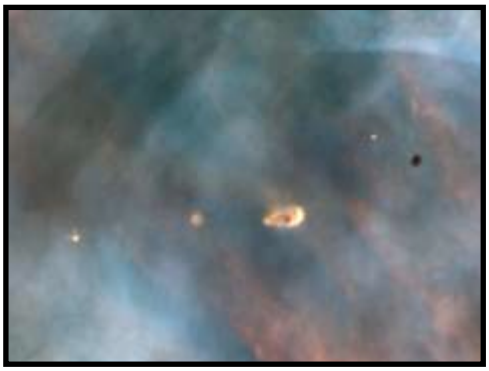


FIGURE 1. A Hubble Space Telescope close-up image of possible proplyds in the Orion Nebula. Photo courtesy of NASA and C.R. O'Dell/Rice University (http://hubblesite.org/newscenter/archive/releases/1994/24/image/b/)

Putting All the EGGs in One Basket

by Ronald G. Samec, PhD

Are they proplyds or just radiation-ravaged, free-floating cores of evaporating gas clouds?

Objects in massive gas clouds of interstellar space called *proplyds* (protoplanetary disks) are tadpole-shaped objects originally observed in the Orion Nebula. But they have now been reported elsewhere (Smith et al., 2005), such as regions in the Cygnus star clouds. They are purported to be solar systems in formation, with a central star and disk, all enveloped in a tadpole-shaped cocoon. These phenomena may be thought to give evidence for the long-standing nebular hypotheses of star formation. They are sometimes termed "stellar wombs." These "protective" wombs are believed to contain a newly born star, with a disk of gas and dust surrounding it, that is forming planets within it.

However, in a recent study which examined such objects in the Carina Nebula (Sahai et al., 2012), it was found that proplyds may simply be the left-over dense globules of molecular gas clouds, ravaged by UV radiation from nearby hot OB stars and associations (OB stars are the hottest of the spectral types, with surface temperatures of 25,000–50,000 K). Molecular gas clouds may be quite massive (large ones are referred to as "giant molecular clouds," or GMCs), and at 10^3–10^7 times the mass of the sun, may be fantastically large—some 15–600 light years in diameter. The new term for these UV–torn gas clouds is "evaporating gas globules," or EGGs. In the Cari-

... continued on p.3

Questioning Pulsar Ages

by Ronald G. Samec, PhD

A supernova remnant (SNR) is believed to be a collection of illuminated gas and dust which remains as an aftermath of a supernova explosion of a single or a binary star. Remnant G11.2-0.3 (Kaspi et al., 2001) is such an object (Figure 1). Many of these objects are ragged and distorted due to the fact that many supernova explosions are not symmetrical in nature. But this particular remnant is quite symmetrical. Although it is spherical in shape and is expanding radially, it also has a clear-marker of an SNR at its center, a pulsar. All this makes it a textbook example of an SNR. According to the NASA website (see URL, Figure 1), it

> …is a circularly symmetric supernova remnant that contains a dense, rotating dead star at its center, representing a textbook case of what the remnant of an exploding star should look like after a couple thousand years.

The distance of this object from the earth is about 15,000 light years, and its rotational period about its axis is 65 milliseconds. At dead center of the nebula is a pulsar, which is a compressed, magnetic, stellar core—a neutron star. The pulsar flashes a rotating beam of photons at the observer, creating a light curve with two peaks, the brightest of which occurs when the beam points more directly at the observer. The less direct flash is the result of the magnetic axis' not being aligned with the spin axis. This pulsar is immersed in a hot nebula called a "pulsar wind nebula," which is seen as a blue disk in Figure 1.

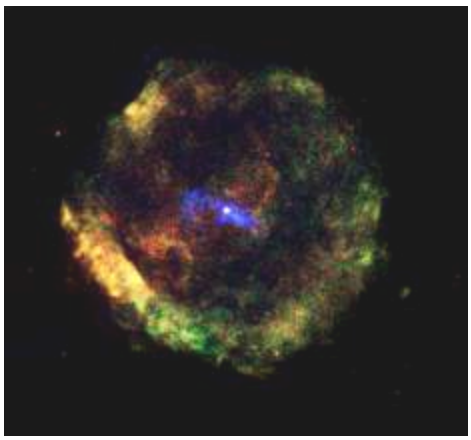


FIGURE 1. *Supernova remnant G11.2-0.3 as viewed by NASA's Chandra X-ray Observatory space telescope. Photo courtesy of NASA/CXC/Eureka Scientific/M. Roberts et al. http://chandra.harvard.edu/photo/2007/g11/*

... continued on p. 2

Pulsar Ages

...continued from page 1

But what is this object's determined age? The standard way of obtaining a pulsar's age is to infer it from the rate that it spins down. This is sometimes referred to as its "characteristic" or "spin-down" age, which is related to its energy output. The characteristic age of PSR J1811-1925 (the pulsar's designation) is some 24,000 years (Torii et. al, 1999).

An alternate means of arriving at a pulsar's age is by using a natural reference clock (NRC) as I have previously suggested (Samec and Figg, 2012; Samec, 2013). Super novae are expanding, and the rate of their expansion in open space is constant. What is needed is a determination of this radial velocity (expansion rate) from real time observations. Then it is a matter of simple arithmetic; viz., divide the distance of particular clumps of gas in the nebula from its center, by its known expansion rate. This gives the time since the explosion. This is the same way you might determine the travel time in your car to a distant city; i.e., divide the distance travelled by the car's rate of travel (speed).

In fact, from its expanding debris cloud, PSR J1811-1925 is found to have exploded about 1625 years ago, A.D. 386. This is verified by the Chinese record of the appearance of a "guest star" in the same year. Thus, having identified the source of this phenomenon, we have learned the true age of the pulsar, 1625 years. It is important to mention that the traditional spin-down (characteristic) age of the SNR, 24,000 years, is about 15 times older than is its true age!

The age differential argues strongly that pulsar spin-down ages are probably very wrong. This is another case where the actual age of a NRC does not match the established evolutionary time scale. The NRC, in this case, is the observed expansion rate of the super novae remnant, which is likely accurate to a year or two, depending on the observational uncertainties. Another good example is the crab nebula, whose expansion rate accurately predicts its year of origin, A.D. 1054, on the Chinese calendar.

This further emphasizes our need to use NRCs to calculate ages rather than accepting the age determinations by the evolutionary community. It should be noted here that this SNR is some 15,000 light years away, and its appearance in the heavens as seen by the Chinese in A.D. 386, in a 6,000–10,000 age universe, may necessitate the occurrence of a time dilating phenomenon such as that first postulated by Humphreys (1994).

But even in a time dilation scenario, by no means should we accept the pronouncements of the evolutionary community for the apparent ages of even deep space phenomena which are observed in the universe. These ages are laced with evolutionary assumptions unacceptable to the creation scientist. The identification of alternate NRCs is needed to determine the ages of these phenomena. And we, as creation scientists, are seeking to find them.

References:

Humphreys, D.R.1994. *Starlight and Time*. Master Books, GreenForest, AR.

Kaspi, V.M., M.E. Roberts, G. Vasisht , E.V. Gotthelf, M. Pivovaroff , N. Kawai. 2001. Chandra X-ray observations of G11.2-0.3: Implications for pulsar ages. *The Astrophysical Journal*. 560:371–377.

Samec, R.G., E. Figg. 2012. The apparent age of the time dilated universe I: Gyrochronology, angular momentum loss in close solar type binaries. CRS Quarterly 49(1):5–19.

Samec, R.G. 2013. The apparent age of the time dilated universe — explaining the missing intracluster media in globular clusters. Journal of Creation 27(2):5–6.

Torii, K., H. Tsunemi, T. Dotani, K. Mitsuda, N. Kawai, K. Kinugasa, Y. Saito, and S. Shibata. 1999. Spin-down of the 65 millisecond X-ray pulsar in the supernova remnant G11.2-0.3. *The Astrophysical Journal* 523:L69–L72.

Contents

Creation Matters

ISSN 1094-6632
Volume 19, Number 3
May / June 2014

Editor:
Glen W. Wolfrom

Assistant Editors:
Jean K. Lightner
Robert Hill

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

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

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

Creation Research Society Website:
www.creationresearch.org

Matters of Fact

by
Jean K. Lightner, DVM, MS

Harmful Mutations?

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

Q Aren't mutations always harmful?

A First, let's define mutation. At the lay level, many try to define mutations as changes in the nucleotide sequence of DNA caused by chance copying errors or accidents (e.g., injury from exposure to radiation). How do we know if a change in DNA sequence is really from an accidental error? We don't, at least not under most circumstances. It is a naturalistic (evolutionary) assumption that this is the mechanism for all such changes. Most geneticists use the word mutation to refer to any change in DNA sequence compared to wild type (i.e., a chosen reference sequence). That is something that can be scientifically documented. Other times, when wild type is not designated, different DNA sequences in a gene are called variants.

Some creationists seem to believe all mutations are harmful. They point out that the Online Mendelian Inheritance of Man (OMIM), or the Human Gene Mutation Database (HGMD), has documented tens of thousands, to well over one hundred thousand, genetic variants, and the lists are growing daily. These databases are concerned with the correlation of mutations (or variants) with disease, so some people assume most mutations cause disease. If all changes in DNA were really accidental, that would seem like a reasonable conclusion.

A closer look

While these databases do document many variants associated with disease, they also document many others which have not been correlated with any disease. For example, some mutations in the hemoglobin B gene (HBB) are associated with sickle cell disease or other blood disorders. As of March 31, 2014, HGMD recognizes nearly 800 variants in this gene. Of the 699 listed in the publically available version, 290 are listed as variants with no known disease association (290/699 = 41%). The remaining variants (59%) differ in how strongly they are associated with disease.

A second example is the MC1R gene, known to have certain mutations associated with red hair and susceptibility to skin cancer. Over 60 variants are documented, 53 of which are in the publically available HGMD database. Of the latter, some are clearly associated with disease; for example, 11 are associated with an increased risk of skin cancer (melanoma or basal cell carcinoma). Others might be, namely 21 which are suspected to increase the risk of melanoma. Some variants are merely associated with an increased probability of red hair (10), fair hair (1), or freckles (3).

From these two examples we see that some variants can cause disease, others are risk factors, and still others have no clear association with disease. One estimate of the effect of nonsynonymous mutations (i.e., those affecting the amino acid sequence of the resulting protein) on the human genome suggested that 27–29% were neutral, or nearly so, 30–42% were moderately deleterious, and nearly all the rest were highly deleterious or lethal (Boyko, et al., 2008).

Evolutionary implications of patterns of mutation

Creationists have pointed out that mutations which may be beneficial in a specific environment often degrade pre-existing biological processes or pathways. This is true of many mutations underlying bacterial resistance to antibiotics (Anderson, 2005) and

... continued on p. 4

EGGs

...continued from page 1

na study, it is stated (Sahai et al., 2012),

> EGGs are most likely the surviving high density concentrations in a cloud as the ionization front sweeps through it.
>
> … EGGs are unique probes of the effects of the harsh UV radiation and strong stellar winds from massive stars ... .
>
> … it is likely that the true nature of many or all of these objects has been misunderstood, and that some (or even all) of the previously classified proplyds in Carina, especially those which are significantly larger in size than the Orion proplyds, are really frEGGs [free floating EGGs].

It may well be that these EGGs will continue to evaporate into nothingness as the nearby stars continue to erode these masses. Instead of stars and planets, we may end up with just free-floating atoms. The results may indicate that the frEGGs were once accreting mass, but they have ceased due to external radiation. They may represent end points rather than starting points of star formation. Further, I suggest that the Orion objects are small and more eroded complements of the ones studied by Sahai et al. (2012).

This is a major result that may impact the very important question of whether star formation is now occurring in the universe. It also has implications for creation models of the cosmos. If stars form, and if they form at a rate sufficient to spawn new generations of stars, then the time-dilation cosmologies are on the right path (e.g., Humphreys, 1994), and others are suspect. Otherwise, time-dilation cosmologies are in trouble. Proplyds and related phenomena bear closer scrutiny in the future by creation cosmologists.

References

Humphreys, D.R.1994. *Starlight and Time*. Master Books, GreenForest, AR.

Sahai, R., R. Gusten, and M.R. Morris. 2012. Are large, cometary-shaped proplyds really (free-floating) evaporating gas globules? *Astrophysical J. Letters* 761:L21.

Smith, N., J. Bally, Y. Shuping, M. Morris, and M. Kassis. 2005. Thermal dust emission from proplyds, unresolved disks, and shocks in the Orion Nebula. *Astronomnical J.* 130:1763.

some changes in coloration (e.g., in MC1R mutations the resulting protein often no longer responds to its signaling molecule, MSH; Lightner, 2008). Thus, even beneficial mutations have never been shown to increase genomic complexity. However, the information on mutations from the databases mentioned above creates additional problems to standard evolutionary explanations.

Notice the lack of strongly beneficial mutations. Natural selection is usually promoted as the primary means for increasing the prevalence of beneficial mutations. However, it is only effective where there is a strong effect on survival and/or reproductive success. Near-neutral mutations are not significantly affected by natural selection. So, natural selection does not appear to be a viable mechanism for increasing the proportion of beneficial mutations.

Another problem is related to the high proportion of mild to moderately deleterious mutations. Realistic numerical simulation shows that natural selection is also ineffective at removing these deleterious mutations. Indeed, since they are considerably more numerous than beneficial mutations, they are actually fixed by genetic drift faster than beneficial mutations can be fixed. This leads to a strong downward pull on the genome over time, an effect which has been termed Haldane's ratchet (Rupe and Sanford, 2013). Evolutionary time would be the death of genomes.

Adaptation: beneficial or deleterious?

In a biblical model, we recognize that creatures were created by God to reproduce and fill the earth (Genesis 1:21, 22, 28; 8:17; Isaiah 45:18). In filling the various habitats around the world, they have needed to adapt to many different conditions. Some of this adaptation has been through genetic changes, i.e., mutation. In the creation model we recognize a Designer who can pre-program the genome for such changes, so we don't have to rely on lucky accidents to produce adaptive mutations, nor natural selection to fix them (Lightner, 2013).

What should the pattern of mutations be if some are the result of intelligent programming that enables God's creatures to adapt as they fill the earth? They won't be the types of mutations that change one kind of creature into a completely different kind. Instead, these genetic changes would be long-term changes that help a creature adapt to a specific set of conditions. The result would be specialization, which may actually be detrimental under a different set of conditions. So a particular variant may be beneficial in one context, but deleterious in another.

In fact, it is often the case that gene variants which may be advantageous in one environment can be a disadvantage in another. An extreme example is found in the malaria resistance afforded by the sickle cell trait. Other mutations in hemoglobin genes are associated with adaptation to high altitudes in some mammals and birds (Lightner, 2014); these variants would not be expected to be as favorable for long term residence at low altitudes. The fairer complexion associated with MC1R mutations is believed to allow people further from the equator to synthesize vitamin D more readily, a significant concern given the lower levels of UV exposure where they live.

The creation model explains the evidence

The pattern seen in mutations is consistent with a biblical view of the world. There is evidence of a God who provides for his creatures, and in some cases this is through genetic change that allows them to adapt as they reproduce and fill the earth. There is also evidence that the world is cursed, as many mutations are associated with disease, or an increased risk of disease. The latter reminds us of the fact that our world is broken as a result of sin and we need a Savior. Fortunately, God has provided for our salvation as well (Romans 5:8; Acts 16:31).

References

Anderson, K.L. 2005. Is bacterial resistance to antibiotics an appropriate example of evolutionary change? *CRS Quarterly* 41(4):318–326.

Boyko, A.R., S.H. Williamson, A.R. Indap, et al. 2008. Assessing the evolutionary impact of amino acid mutations in the human genome. *PLoS Genetics* 4(5):e1000083.

HGMD® (The Human Gene Mutation Database) at the Institute of Medical Genetics in Cardiff. Retrieved April 11, 2014, from http://www.hgmd.cf.ac.uk/ac/index.php

Lightner, J.K. 2008. Genetics of coat color I: The melanocortin 1 receptor (MC1R). *Answers Research Journal* 1:109–116.

Lightner, J.K. 2013. Meiotic recombination—designed for inducing genomic change. *Journal of Creation* 27(1):7–9.

Lightner, J.K. 2014. Adaptation of endotherms to high altitudes. *CRS Quarterly* 50:132–140.

OMIM® (Online Mendelian Inheritance in Man®) An Online Catalog of Human Genes and Genetic Disorders. Retrieved April 11, 2014, from http://www.omim.org/

Rupe, C.L. and J.C. Sanford. 2013. Using numerical simulation to better understand fixation rates, and establishment of a new principle: Haldane's ratchet. In Horstemeyer, M. (editor), *Proceedings of the Seventh International Conference on Creationism*. Creation Science Fellowship, Pittsburgh, PA.

Math Matters

by

Don DeYoung, PhD

Why Were Dinosaurs so Large?

Even though giant dinosaurs get the most publicity, many dinosaurs were smaller. Of the hundreds of known distinct species, the average adult size was that of a dog or sheep. For example the adult *Compsognath* weighed about 15 pounds, the size of a large cat. The *Psittacosaur* was smaller yet, similar in size to a squirrel.

With that qualifier, however, the sauropod dinosaurs were truly impressive with massive torsos, pillar-like legs, and long necks. The herbivore *Argentinosaur* may have been the heaviest beast ever to walk on land. Also found in Argentina, the largest predator may have been *Gigantosaur*, an economy-sized Tyrannosaur 42 feet long and weighing 8 tons (Schreeve, 1997).

Table 1 gives the weights of several representative animals (DeYoung, 2000). The values given for dinosaurs are estimates based on the size of their bones and on reconstructed models. Uncertainties in actual dinosaur body weights may be as much as 50 percent due to incomplete fossil remains.

Many reptiles grow throughout their lifetimes, gradually tapering off with age. An example is the Nile crocodile, the largest of the living reptiles. Some mammals, such as elephants, also grow slowly throughout their lives. The largest dinosaur fossils, therefore, may be from creatures that had lived for centuries.

Two evidences suggest a rapid early growth rate for the dinosaurs. First, few half-grown dinosaur fossils have been found. Thus, dinosaurs may have rapidly passed through their juvenile phases. It may also be that specimens having smaller, fragile bones simply did not often survive the burial and fossilization process. Second, dinosaur bone texture, especially for the stegosaurs, shows evidence of rapid youthful growth. Robert Bakker estimates that stegosaurs may have grown from an egg to five tons in just one decade (Bakker, 1986).

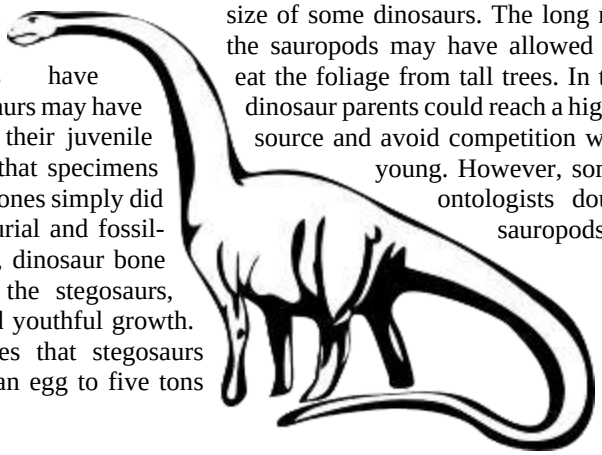


Table 1.
Typical weights of representative adult animals, including dinosaurs, in order of decreasing size.

	Weight	
Animal	**Pounds**	**Tons**
Blue whale	400,000	200
Argentinosaur	200,000	100
Brachiosaur	160,000	80
Ultrasaur	110,000	55
Apatosaur	70,000	35
Supersaur	60,000	30
Diplodocus	36,000	18
Tyrannosaur	16,000	8
Stegosaur	10,000	5
African elephant	10,000	5
Hippopotamus	5,000	2.5
Allosaur	4,000	2
Polar bear	1,600	0.8

Table 2.
Relative size of animals and their necessary supporting bones.

Relative Animal Size	*Required Bone Diameter
1	1
2	2.8
3	5.2
4	8
5	11.2
6	14.7

*Numbers in the second column are the 3/2 power of the first column.

The creation view sees purpose and design in nature, including the impressive size of some dinosaurs. The long necks of the sauropods may have allowed them to eat the foliage from tall trees. In this way dinosaur parents could reach a higher food source and avoid competition with their young. However, some paleontologists doubt that sauropods could extend their necks upward. In general, large dinosaur size also provided defense against attack from smaller foes. In the animal world there is a measure of safety in large size. Predators rarely attack something that is big and strong enough to injure them.

There are physical limits to the maximum size a creature can attain because the supporting bones and muscles must increase rapidly as the animal's weight increases. Consider elephant bones which are so large that the legs themselves must be greatly thickened. Whales require smaller bones because of water buoyancy, but are in danger of fractured ribs if stranded out of water.

Suppose we double the size of an animal in all three dimensions including its length, height, and width. The animal's volume and weight will then increase 8 times (2^3). However, the bone strength only increases 4 times (2^2). This is because the bones' supporting strength depends on the cross-sectional area. The numerical comparison made here is between volume and area. If we could make a creature 10 times larger, its weight would increase 1,000 times (10^3) while its bone strength becomes only 100 times greater (10^2). The implication is that, for large animals, bone size must increase disproportionately more than body size. Galileo first wrote about this limitation on large size in 1638, nearly four centuries ago.

Table 2 gives some comparative bone diameters for a variety of relative animal sizes. Animals much larger than the dinosaurs would require bones too bulky to be practical. Notice that bone size must increase substantially out of proportion to animal size. King Kong and Godzilla can exist only in movies—not in the real world. The same area-volume reasoning also limits the possible size of trees. Perhaps you have seen the wide trunk needed to support a 350-foot redwood tree.

References

Bakker, R.T. 1986. *The Dinosaur Heresies* New York: William Morrow and Company, Inc.

DeYoung, D. 2000. *Dinosaurs and Creation: Questions and Answers.* Grand Rapids: Baker Books (Kindle edtion).

Schreeve, J. 1997. Uncovering Patagonia's lost world. *National Geographic* 192(6):120–137.

Timeless

a devotional by Kenneth G. Dale, DDS

I knew you before I formed you in your mother's womb.
—Jeremiah 1:5 (NLT)

Considerations for Jeremiah 1:5

1.) Does this passage reference our spiritual existence that precedes our physical existence?

2.) Is this passage specific to Jeremiah, and not to mankind in general?

3.) Does this passage reference God's knowledge of the future?

4.) Are these mutually exclusive considerations?

The high and lofty one who lives in eternity, the Holy One, says this: "I live in the high and holy place..."
—Isaiah 57:15 (NLT)

God knows

God knows everything past, present and future simultaneously. In other words, time is not a boundary of God's knowledge. Without time, God can know us exhaustively—thoroughly, completely, intricately, and eternally—before we even existed. Believing that God knows us before our existence requires thinking and believing outside of our own experience (of time). It's hard to believe in more than what we experience; it requires an element of faith that Scripture defines in terms of "what we do not see" (Hebrews 11:1).

I can never escape from your Spirit! I can never get away from your presence! If I go up to heaven, you are there; if I go down to the grave, you are there.
—Psalm 139:7-8 (NLT)

Be careful

We should be careful when thinking of time—God and man experience it differently. God exists outside of time and space. God is timeless; man is time-bound. Mankind needs words like "history" and "future." God does not—He is omnipresent. Time is a dimension with effects only on man. Man remembers the past, experiences the present, and anticipates the future; God has no separation of the past, present, and future—they occur simultaneously to Him. *Whoa and Wow!* God sees through time. God transcends time! God knows "the end from the beginning." And God's knowledge is exhaustive, including even those things yet future (Isaiah 46:10).

Only I can tell you the future before it even happens. Everything I plan will come to pass, for I do whatever I wish.
—Isaiah 46:10 (NLT)

Possibilities

It is possible that our bodies and souls were created simultaneously at the moment of conception—a glorious union, biologic and sacred, that reflects the very nature of God (Genesis 1:27). If body and soul were created simultaneously, this would be God's quintessential creation. The "sanctity of life" would reach a pinnacle of importance and meaning if the body and soul began together. A truly magnificent and glorious event pinpointed with time only to be superseded when our souls are united with our new heavenly bodies, eternally (maybe timelessly) present with God (2 Corinthians 5:1-10).

You have searched me, LORD, and you know me. You know when I sit and when I rise; you perceive my thoughts from afar. You discern my going out and my lying down; you are familiar with all my ways. Before a word is on my tongue you, LORD, know it completely. You hem me in behind and before, and you lay your hand upon me. Such knowledge is too wonderful for me, too lofty for me to attain.
—Psalm 139:1-6 (NIV)

Glory to God

Many people believe that our souls exist prior to our bodies. But do they? If God is bound by time, then Jeremiah 1:5 would be evidence to support this belief (at least for Jeremiah, and maybe for all mankind). However, God is not bound by time and, therefore, more possibilities must be considered. Ponder and reflect on the possibilities, and within them all, give all glory to God by every measure of time while in awe of His greatness!

Nothing is hidden from God! He sees through everything...
—Hebrews 4:13 (CEV)

CM

...without excuse!

The Testimony of Cement Brownies

by Timothy R. Stout

Creation science represents one aspect of natural revelation. We are in the midst of a cultural war between humanism and all forms of theism, including biblical Christianity. The arguments presented by humanists are actually logically tight and rational, given the supposition that there is no Creator God, and that, therefore, we are here purely as a result of natural, unguided processes. On the other hand, if there is a Creator God, then the arguments of humanism are worthless. God reveals Himself so clearly through the things He has made that He counts a person to be without excuse who suppresses this evidence.

On occasion I have opportunities to speak before church audiences about creation science and how God reveals Himself through natural revelation. My task as a Christian and a creationist in these situations is to present the subject at a level which is understandable to non-scientists. Many people are typically intimidated by scientific terms that are not already in their vocabularies. This makes it difficult to talk about things like peptide bonds, aspartic acid, formic acid, amino acid side chains, stereoisomers, etc. Nonetheless, I have found that simple, dramatic illustrations can help people understand a concept.

One of my favorite demonstrations ties in with Miller's famous origin-of-life experiment (Miller and Urey, 1959). When Stanley Miller mixed hydrogen, ammonia, methane, water, and electric sparks, he produced amino acids. Introductory biology textbooks cite this experiment on a regular basis, supposedly showing how natural processes can make amino acids, the fundamental building-block chemicals of life. What they typically do not mention, though, is that the experiment also produced four times as many contaminants as amino acids. These contaminants were comprised of chemicals that react with the amino acids and would thereby prevent their assembly into proteins.

When discussing this topic in churches, I include a chart listing the products of this experiment and showing their concentrations. Then I add a column indicating whether the products are amino acids or contaminants. I emphasize to the audience that the new column is actually the only one to which they need to pay attention. As stated previously, four times as many contaminants were produced as were amino acids. Although they seem to understand the individual words — four times as many contaminants — in most cases they still do not grasp the implications.

I have found a simple illustration to be very effective in making the repercussions clear. I pour the contents of a box of brownie mix into a bowl, add some water, and make brownie batter. After tasting a sample and talking about how good it tastes, I bring out a jar of concrete mix. Next I mix some water with four parts concrete mix and one part brownie mix. I then ask if anyone in the audience would like to taste some of the new mixture. I warn them that the mixture is poisonous and if they do eat some of it, they will probably need to go to the hospital. Of course, no one has ever volunteered.

Then I ask a critical question: "How long would you need to stir concrete mix and brownie mix together, in these proportions, in order to make brownies that are good to eat?" Invariably, someone in the

audience shouts out, "Never." At which time I respond,

> "That is correct. By the same token, the products of Miller's experiment will never produce protein. Carbon and nitrogen can make millions of different chemical combinations. Uncontrolled energy sources and uncontrolled chemical reactions will always produce many more contaminants than products useful for life. The contaminants overwhelm the small fraction of products which might be suitable for life. This is why no experiment has ever started with simple chemicals, such as Miller used, and produced a protein or a nucleic acid. Natural processes cannot get past the first step in creating life. Experiment confirms prediction. This is true not only for Miller's experiment, but also for all similar ones."

It is then appropriate to quote evolutionists' claims that time solves and overcomes all problems that might interfere with evolution. However, if a chemical process is unsound, repeating it billions of times does not suddenly make it sound. There is no excuse for knowledgeable chemists to pretend that natural, unguided processes can take raw chemicals and transform them into life-supporting proteins and nucleotides, let alone a living cell.

Reference

Miller, S. and H. Urey. 1959. Organic compound synthesis on the primitive Earth. *Science* 130:245–251.

Photo credit: Wikimedia Commons. 2012. Making chocolate brownies. Retrieved April 17, 2014, from http://commons.wikimedia.org/wiki/File:Chocolate_brownie_2.jpg

Speaking of Science

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

Moon's Origin and Age Solved?

A number of popular articles are claiming the moon's age is all but solved, until one reads below the headlines.

When *Nature*[1] published a new paper that added a piece of evidence to models that the moon formed by impact, and when John Chambers in *Nature*[2] suggested that the new piece of evidence provides a "chronometer," popular media took this to mean that the moon's age has been "revealed" and a lunar mystery has been "solved" (see *Space.com*[3] and *National Geographic*[4]). Apparently they didn't take note of all the escape hatches in the original articles: the abundant use of "probably," "suggests," and "could be," as well as mention of new puzzles that the latest modeling creates.

Space.com[5] provided some historical context: a gallery of "**5 Wild Lunar Theories**" for the moon's formation that were believed strongly in the past, but became untenable in light of further evidence. Charles Darwin's son George, for instance, had championed the fission theory, Mike Wall says, but now, "Most scientists discount the fission hypothesis." The fact that the current leading impact theory is one of Wall's "5 wild lunar theories" implies something about the state of the art.

1. Jacobson, S.A., A. Morbidelli, S.N. Raymond, D.P. O'Brien, K.J. Walsh, and D.C. Rubie. 2014. Highly siderophile elements in Earth's mantles as a clock for the Moon-forming impact. *Nature* 508:84–87.

2. Chambers, J. 2014. Planetary science: A chronometer for Earth's age. *Nature* 508:51–52.

3. Choi, C.Q. (2014, April 2). Moon's age revealed, and a lunar mystery may be solved. *Space.com*. Retrieved April, 14, 2014 from www.space.com/25331-moon-age-revealed-lunar-mystery.html

4. Lee, J.J. (2014, April 2). New method for estimating moon's age seeks to put an old debate to rest: A new way of looking at the Earth's formation attempts to answer when the moon was born. *National Geographic Daily News*. Retrieved April 14, 2014, from http://news.nationalgeographic.com/news/2014/04/140402-moon-formation-earth-age-space-science/

5. Wall, M. (2014, April 2). How the moon formed: 5 wild lunar theories. *Space.com*. Retrieved April 14, 2014, from www.space.com/25322-moon-formation-wild-theories.html

Fossil Plant Soft Tissue Didn't Evolve

Original material in a fossil has been detected, this time from a leaf that is identical to modern leaves, despite an alleged 50 million years.[1]

Shouldn't the evolutionists have been astonished? According to a press release from the University of Manchester, the fossil leaf they examined in X-rays was identical to modern leaves. It even had the feeding tubes of caterpillars on it, as if they had munched on the leaf yesterday. It even contained primordial material from the living plant. The leaf, though, found in the Green River Formation in Wyoming, is supposed to be 50 million years old.

The authors didn't blink an eye. It was still millions of years old, in their account. But when they shined the equivalent of a "million suns" in X-rays on this leaf, they found original copper, zinc, nickel, and other primordial materials. The details were exquisite — and familiar:

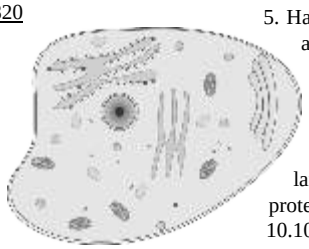
> The work shows that the distribution of copper, zinc and nickel in the fossil leaves was **almost identical to that in modern leaves**. Each element was **concentrated in distinct biological structures**, such as the veins and the edges of the leaves, and the way these trace elements and sulphur were attached to other elements was **very similar to that seen in modern leaves** and plant matter in soils.…
>
> "In one beautiful specimen, the leaf has been **partially eaten by prehistoric caterpillars — just as modern caterpillars feed** — and their **feeding tubes are preserved on the leaf**. The **chemistry** of these fossil tubes **remarkably still matches that of the leaf on which the caterpillars fed**."

How could this leaf be so well preserved for so long? The authors dreamed up "**a way in which these specimens are so**

beautifully preserved over millions of years" — the copper acts as a natural biocide to preserve the original leaf tissues. One wonders why they didn't propose that museums sprinkle all their specimens with copper powder. And according to their own eyeballs, this plant and the caterpillar that ate it had not evolved at all in 50 million years.

1. Anonymous (2014, March 26). Million suns shed light on fossilized plant: Scientists have used one of the brightest lights in the Universe to expose the biochemical structure of a 50 million-year-old fossil plant to stunning visual effect. *University of Manchester*. Retrieved April 14, 2014, from www.manchester.ac.uk/aboutus/news/display/?id=11820

Your Cells Work for You



Most of us are completely unaware of what goes on in each cell of our bodies. If we knew, we might take better care of our team. At a cellular level, the human body has a dizzying array of workers. Here are a few recently discovered examples.

1. A protein rescues cellular factories when they get stuck.[1]
2. Cell repair stops during cell division to keep telomeres from fusing together.[2]
3. The circadian clock is like a symphony with many conductors.[3]
4. Your walking motors get turbo-charged when they join together. [4]
5. One of your walking motors can wave its lever arm and get others to cooperate.[5]
6. Your cellular trash cans go through a series of checks before compacting the trash.[6]
7. Worried about hypermutation in your antibody genes? Enhancers take care of it.[7]
8. Your stomach does spring cleaning by bleaching away its bacteria, but the good bacteria know how to survive.[8]
9. Surprise: those precious multipotent stem cells scientists want from embryos are already present in many of your body tissues.[9]
10. A student discovered a protein that protects "genomic integrity" during meiosis.[10]

LiveScience posted descriptions of "10 Little-Known Body Parts" so that you can "Know Thyself Better."[11] Reporter Bahar Gholipour found some interesting tidbits in the knee, eye, chest, voicebox, ear, fingernails, lip, backbone, skeleton, and stomach. The only one suggested as an "evolutionary leftover" is the philtrum (medial cleft in the lip), but Gholipour ends, "However, scientists are still **interested in this little body part** because it is **formed during specific embryonic ages**, and an unusual form of the upper lip area is a clue to disruptions during the development of the fetus." Maybe there's an undiscovered function for this part that is built during specific embryonic stages.

1. Johns Hopkins University School of Medicine (2014, March 19). Protein 'rescues' stuck cellular factories. *PhysOrg*. Retrieved April 14, 2014, from http://phys.org/news/2014-03-protein-stuck-cellular-factories.html

2. Lunenfeld-Tanenbaum Research Institute (2014, March 20). Cells do not repair damage to DNA during mitosis because telomeres could fuse together. *Medical Xpress*. Retrieved April 14, 2014, from http://medicalxpress.com/news/2014-03-cells-dna-mitosis-telomeres-fuse.html

3. University of Michigan (2014, March 27). The circadian clock is like an orchestra with many conductors. *PhysOrg*. Retrieved April 14, 2014, from http://phys.org/news/2014-03-circadian-clock-orchestra-conductors.html

4. Soppina, V., S.R. Norris, A.S. Dizaji, M. Kortus, S. Veatch, M. Peckham, and K.J. Verhey. 2014. Dimerization of mammalian kinesin-3 motors results in superprocessive motion. *PNAS*. Published online before print April 2, 2014, doi: 10.1073/pnas.1400759111

5. Hariadi, R.F., M. Cale, and S. Sivaramakrishnan. 2014. Myosin lever arm directs collective motion on cellular actin networks. *PNAS*. Published online before print March 3, 2014, doi: 10.1073/pnas.1315923111

6. Unverdorben, P., F. Beck, P. Śledź, A. Schweitzer, G. Pfeifer, J.M. Plitzko, W. Baumeister, and F. Förster. 2014. Deep classification of a large cryo-EM dataset defines the conformational landscape of the 26S proteasome. *PNAS*. Published online before print March 24, 2014, doi: 10.1073/pnas.1403409111

7. Public Library of Science (2014, April 1). Enhancers serve to restrict potentially dangerous hypermutation to antibody genes. *Medical Xpress*. Retrieved April 14, 2014 from http://medicalxpress.com/news/2014-04-restrict-potentially-dangerous-hypermutation-antibody.html

8. Reynolds, S. (2014, April 2). Bleach vs. bacteria: How the body does Spring cleaning. LiveScience. Retrieved April 14, 2014, from http://www.livescience.com/44552-bleach-bacteria-spring-cleaning-nigms.html

9. Mary Ann Liebert, Inc. (2014, April 1). First evidence that very small embryonic-like stem cells from human adult tissues are multipotent. *PhysOrg*. Retrieved April, 14, 2014, from http://phys.org/news/2014-04-evidence-small-embryonic-like-stem-cells.html

10. Shackford, S. (2014, March 28). Student may have found 'missing link' of meiosis. *Medical Xpress*. Retrieved April 14, 2014, from http://medicalxpress.com/news/2014-03-student-link-meiosis.html

11. Gholipour, B. (2014, April 3). Know thyself better: 10 little-known body parts. *LiveScience*. retrieved April 14, 2014, from www.livescience.com/44610-little-known-body-parts.html

Carbon Cycle Keeps Earth from Fate of Venus, Mars

Another delicate balance, making Earth habitable, has been identified: the carbon cycle. It's the "Goldilocks principle" again. Too much or too little would not be just right, but deadly. According to *Science Daily*,[1] USC scientists found Earth sits in another sweet spot:

> Scientists have shown how **geologic process regulates the amount of carbon dioxide in the atmosphere.** Researchers have documented evidence suggesting that part of the reason that Earth has become **neither sweltering like Venus nor frigid like Mars** lies with a **built-in atmospheric carbon dioxide regulator — the geologic cycles** that churn up the planet's rocky surface.

Geologic processes like plate tectonics are oblivious to concerns about balance in the atmosphere or habitable temperatures. This means that independent factors conspire to keep the Earth in the Goldilocks zone.

> Scientists have long known that "fresh" rock pushed to the surface via mountain formation **effectively acts as a kind of sponge, soaking up the greenhouse gas** CO_2. **Left unchecked, however**, that process would simply **deplete**

atmospheric CO_2 levels to a point that **would plunge Earth into an eternal winter within a few million years** during the formation of large mountain ranges like the Himalayas — which has **clearly not happened**.

And while **volcanoes** have long been pointed to as a **source of carbon dioxide, alone they cannot balance out** the excess uptake of carbon dioxide by large mountain ranges. Instead, it turns out that **"fresh" rock exposed by uplift also emits carbon through a chemical weathering process**, which **replenishes the atmospheric carbon dioxide** at a comparable rate.

Mark Torres of USC realizes that our presence on Earth is dependent on this finely-balanced carbon cycle. "The **Earth is a bit like a big, natural recycler**," his co-author said. In addition to the carbon cycle, Earth enjoys a nitrogen cycle, an oxygen cycle, and a water cycle. Atmospheric winds and ocean currents also cycle about with some predictability as Earth cycles through its rotation and orbit.

1. University of Southern California. (2014, March 19). Goldilocks principle: Earth's continued habitability due to geologic cycles that act as climate control. *ScienceDaily*. Retrieved April 17, 2014, from http://www.sciencedaily.com/releases/2014/03/140319143904.htm

Stellar Dust Disks Crumble

Observations show stellar dust disks fragmenting into smaller dust, not growing into planets.

Celestial archaeology: A triumphant-sounding article on *PhysOrg* announces, "Scientists solve riddle of celestial archaeology."[1] Further down in the text, the reader finds out that the "building blocks" around certain white dwarf stars are crumbling, not growing: "the researchers have discovered that many of the stars show signs of **contamination by rocky material, the leftovers from a planetary system.**" If there ever were planets, in other words, only their leftovers remain.

Destruction in Beta Pictoris: A couple of decades ago, astronomers were all excited about Beta Pictoris, a star with one of the first dust disks ever seen. They were sure the dust was clumping into planets, especially when a tilt in the disk hinted at the presence of a perturbing planet. Now, a paper in *Science* magazine is all about destruction, not construction, as the title suggests: "Molecular Gas Clumps from the **Destruction of Icy Bodies** in the β Pictoris Debris Disk."[2]

Researchers had this to say about an asymmetric clump of carbon monoxide found in the disk: "This gas clump delineates **a region of enhanced collisions**, either from a mean motion resonance with an unseen giant planet or **from the remnants of a collision of Mars-mass planets.**"

The paper says nothing about accretion, but rather a "collisional cascade" of debris, perhaps something like that in the blockbuster movie *Gravity*. "The CO and compact clump in the β Pic disk indicate that this system is undergoing a period of intense activity driven by planets or planet collisions."

1. University of Leicester. (2014, March 26). Scientists solve riddle of celestial archaeology. *PhysOrg*. Retrieved April 18, 2014, from http://phys.org/news/2014-03-scientists-riddle-celestial-archaeology.html

2. Dent, W.R.F., M.C. Wyatt, A. Roberge, et al. 2014. Molecular gas clumps from the destruction of icy bodies in the β Pictoris debris disk. *Science* 343(6178):1490–1492.

Membership Matters

by Glen Wolfrom, Ph.D.

It's Renewal Time

Because the terms of all memberships and subscriptions correspond to the publishing year of the *Quarterly* (June through May), renewals are now due for those whose terms will expire in May 2014. Renewal notices have been mailed.

Please renew as early as possible. This saves the Society considerable time and money, because *Quarterlies* for late renewals in the US have to be mailed individually rather than as bulk mail.

Students and Seniors

It is now possible for students and seniors to receive their discounted rates online. They must first contact me (see below) to obtain a special coupon code, which is to be entered at checkout. Please be aware that the online discounted rates are available for one year only.

Correspondence

We would like to remind you that correspondence related to memberships, subscriptions, and associated address changes should be directed to the Membership Secretary using the contact information below. Otherwise, there could be a delay in processing renewals and related requests.

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

816-279-2312
glen@creationresearch.org

Why Teach an Evolution Course at a YEC University?

by David Boyd, PhD

In the fall of 2010, I began teaching a new course at Bob Jones University, Bio 300 Evolution and Origins. It is now part of the core curriculum of our biology, premed, and biochemistry/molecular biology majors. Why was a course about evolution added at a university whose science and Bible faculty all firmly believe in young-earth creation? Those who have gone on to pursue graduate degrees have communicated back to us that they did not feel adequately prepared for some of the evolutionary ideas they faced head-on in graduate school.

One of my primary goals is to teach our students the basic tenants of biological evolution. Many of our students come from homes, churches, and/or Christian schools that teach young earth creation, but really do not know or understand the basic ideas of evolution. When I was in graduate school, my major professor was very hard on me about my belief in young earth creation. However, another one of my committee members (an agnostic Jew) encouraged me with this statement: "David, the more you know about evolution the better creationist you will be." With that in mind, I want my students to know exactly what evolution is!

Evolution textbook

In my course we use the textbook *Evolution*, second edition, by Douglas Futuyma (2013), which is upper level, well written, and purely naturalistic in its worldview. By reading through much of this book, my students learn about evolution straight from a leading evolutionary scientist. In class we discuss evolutionary ideas from the biblical worldview. The evolution view is not taken out of context—the students have read the context from one of the leading evolutionists. Throughout the semester they develop, on their own, the ability to critically evaluate the evolutionary mindset. This ability to think critically about evolution is very important, as they will soon be in secular university for graduate school.

Here are the main topics we discuss in our class:

- history and definition of evolution
- mutation, natural selection, and genetic drift
- species and speciation
- macroevolution
- theistic evolution

My students learn how evolutionists use one definition of evolution (e.g., "change over time") as evidence for another definition (e.g., "all organisms have one common ancestor"). They learn about mutations—what they are and what they do. We look at examples given by Futuyma and in the current literature, for the students to see that mutations cannot increase genetic information. They learn the philosophical difficulties of defining a species, and then learn that speciation can occur very rapidly, again by using examples given by Futuyma. They learn the basic concepts behind macroevolution, especially the arguments among evolutionists about ideas like punctuated equilibrium.

The last topic we discuss is theistic evolution. A few of our students come from homes and churches that embrace some form of old-earth creation or theistic evolution. The influence of groups like BioLogos (www.biologos.org) has permeated Christendom much more quickly than I had expected. Thus, we look directly at what BioLogos teaches, allowing the students to see that its teaching is just materialistic evolution with God pushing the start button.

Last year I surveyed the students at the beginning of the semester, and then again on the last day of class. The survey asks which of the following best represents their view on origins: young-earth creation, old-earth creation, theistic evolution, and several others. At the beginning of the semester, almost 10% of the class held to theistic evolution. However, at the end of the semester 0% said they took this viewpoint!

Student projects

I also assign my students three major projects. The largest project is to read a popular book on origins and write a book review of it. Many students read Dawkins or Coyne, while others read books from an intelligent design perspective, or from a theistic evolution perspective. Some read books written by young-earth creation scientists. Initially, the students do not like this project, primarily because they have so much else to do during the semester. However, at the end of the semester they are glad they did the assignment. I encourage some of them to post their reviews on public sites like Amazon.com.

The other two major projects are short papers on natural selection and the historicity of Adam. These short papers make the students delve more deeply into these subjects. They must succinctly state what natural selection is, and what it can and cannot explain. The historicity-of-Adam papers cause the students to look at biblical, archeological, and genetic data from both secular and non-secular sources. They have to then defend their own position and refute the others. I'm guessing that this project has done more to influence students away from theistic evolution than any other part of the class.

As a final, small project the students are asked to post to a discussion board about developing a model of the diversity of life from the Flood to the present. This short assignment causes the students to reflect back on the entire semester and determine what portions of evolutionary theory can be used to help develop a testable model to explain why we have so many different species on earth today. They have to then discuss each other's ideas. I have been greatly encouraged by the depth of thinking of many of the students!

Complements other courses

I mention this one class, but it is only one of many that our students take. Part of the BJU-Core is a class on apologetics and worldview, which many students take concurrently with my evolution class. I have heard many testimonies of how the Lord has used both classes to complement each other. Many of the students are also taking senior-level genetics and biochemistry classes. These are taught from a biblical worldview, allowing the students to benefit even more by interweaving all that they are learning.

What about me? By interacting over the years with the energetic and intelligent students about evolution, my desire to teach students the truth of biblical creation science has been enhanced. Likewise, my desire continues to grow for my students to see those who hold to evolution as fellow image bearers of God. In this way my students will be equipped with the knowledge to interact with these evolutionists for redemptive purposes. I praise the Lord for this unique opportunity to serve Him.

Reference

Futuyma, D.J. 2013. *Evolution*, Third Edition. Sinauer Associates, Inc., Sunderland, MA.

Creation Research Society
P.O. Box 8263
St. Joseph, MO 64508-8263
USA
Address Service Requested

Creation Matters
May / June 2014
Vol. 19 No. 3

All by Design

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

Malaysian Orchid Mantis

Praying mantises are typically brown or green, carnivorous insects that capture other insects for food. Their forelegs are modified with needle-like barbs that are used to capture prey. The rain forests of Malaysia are home to numerous species of flowering plants, including orchids, whose flowers attract insects. The Malaysian Orchid Mantis lives in these rain forests, but only on orchid flowers, where it is virtually invisible. You see, this particular mantis, per the evolutionary tale, "learned" long ago that it could catch more insects with less work, if only it would "employ" (Francisco, 2013) a few changes to its body.

First of all, it would have to change colors to white and pink to exactly match the colors of the orchids in these particular forests. Second, it would have to change the shape of its back four legs to make them flat and lobed, just like the petals of these orchid flowers. Finally, it would have to grow markings on its back four legs that would look exactly like the veins in the flower petals of these orchids.

*Malaysian Orchid Mantis (*Hymenopus coronatus *Olivier, 1792). Wikimedia Commons. Photographer Didier Descouens.*

The only other thing the Orchid Mantis would have to do is to become aware that it looked in fact just like the petals of the orchid flowers, so that it would know to stay only on these flowers (NOT on any of the other thousands of types of flowers in these forests). After all, this is exactly what the Orchid Mantis looks like and where it catches insects.

The lesson of this mantis challenges us to call nonsense by its name and acknowledge the handiwork of an all-knowing Creator.

References:

Anonymous. n.d. Malaysian Orchid Mantis. *World Association of Zoos and Aquariums (WAZA)*. Retrieved April 13, 2014, from www.waza.org/en/zoo/choose-a-species/invertebrates/insects-and-millipedes/hymenopus-coronatus

Francisco, M.A. 2013. The Orchid Mantis: A pretty but deadly 'aggressive flower mimic'. *GMA News Online*. Retrieved April 13, 2014, from www.gmanetwork.com/news/story/337948/scitech/science/the-orchid-mantis-a-pretty-but-deadly-aggressive-flower-mimic

Starr, B. 2013. This is An Orchid Mantis: 5 praying mantis species that will blow your mind (or give you nightmares). *Visual News*. Retrieved April 13, 2014, www.visualnews.com/2013/09/26/orchid-mantis-5-praying-mantis-species-will-blow-mind-give-nightmares/