

Creation Matters

Volume 21 Number 2
March / April 2016

A publication of the Creation Research Society

Motion and Forces Speak to a Dynamic Creation

by Don B. DeYoung, PhD

Editor's note: This article comprises Chapter 2 of the new eBook by Don B. DeYoung, titled Physical Science and Creation: An Introduction (see page 7).

The Creator has filled the universe with vast amounts of energy, much of it in the form of motion, called kinetic energy. The earth rotates on its axis while it revolves about the sun. Rotating spiral galaxies and the countless stars within them typically move at speeds faster than a bullet. Atoms themselves are in constant motion as their electrons orbit the central nucleus billions of times each second. The overall vibrations of atoms are a measure of a material's heat content. Sound also

arises from vibrations, for example the oscillation of air molecules produced by plucking a guitar string. Light itself is a swiftly traveling electromagnetic signal. Motion is indeed a central part of physical science.

Galileo

Our knowledge of motion was advanced greatly by the studies of Galileo Galilei (1564–1642). He mathematically described the concepts of velocity and acceleration, and experimented with falling objects. Galileo also correctly described the orbital motion of the planets around the sun. Much has been written about the resistance which Galileo faced from the Church authorities

of his day who taught geocentricism and an unmoving earth. This episode is often used to show how religion is a detriment to scientific progress.

In truth, however, Galileo challenged the *science* of his day. Authorities in both the Church and the science establishment had formed an alliance which kept the status quo and stifled inquiry into nature. Galileo's efforts were to break loose from this approach and to freely explore God's creation. The Bible does not teach geocentricism, and our observations clearly show the earth's movements.

... continued on p.2

FACADES & FOUNDATIONS

Geology's Impact on Modern Thought

by John K. Reed, PhD

*Editor's note: We welcome Dr. Reed as a regular contributor to these pages. He has agreed to provide a series of articles, under the general title of **Facades and Foundations**, discussing the role of geology in the ongoing conflict between the worldviews of naturalism and Christianity.*

Like cluster bombs, fragments of bad ideas have cascaded from the Enlightenment across the intellectual landscape and then exploded in unexpected areas. The development of geology as a "historical" science, rather than a descriptive one, has proven to be one of those bombs (Reed and Klevberg, in press a, b). There is nothing inherently wrong with natural history—an empirical exploration of nature's past—or with using forensic methods in such studies (Reed and Klevberg, 2014a, b). The error, instead, has been in the presumption that scientific methods and certainty are univocally applicable and appropriate to history per se, and, by extension to the range of "social sciences."

The modern trend of making every discipline a "science" has distorted human knowledge in at least three ways:

1. It reinforces positivism — the epistemology of the worldview of naturalism — by implying that science, and only science, is the ultimate arbiter of truth.
2. It forces non-scientific disciplines into ill-fitting clothes.
3. It blurs the meaning of "science" and thus weakens the truth value of authentic scientific disciplines by lumping them with those which yield less certain results.

This trend, in turn, devalues truth. Linemann (2001, p. 84) noted the baleful effects in the historical-critical branch of theology that have come from its attempt to be a branch of science rather than a branch of theology. "The standard by which all is

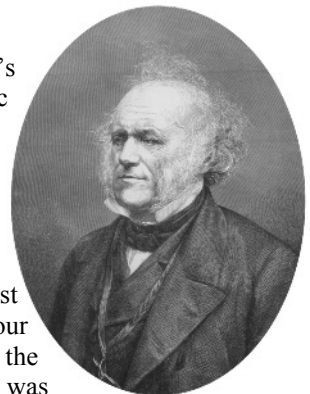
assessed is not God's Word but scientific principle." The outcome is predictable: "Research is conducted... as if there were no God."

Perhaps the most groundbreaking detour from Christianity to the modern mindset was made when naturalists in the late 1700s and early 1800s began merging their empirical study of rocks and fossils with their fanciful interpretations of secular history and calling it all "science."

Uniformitarianism

Lyell certainly cemented this growing fad into place, irretrievably linking the *science*

... continued on p. 3



Charles Lyell, 1875

Motion and Forces

...continued from page 1

Newton

Perhaps more than anyone else, Isaac Newton (1642–1727) deserves credit for our current understanding of physical science. The Creator uniquely gifted Newton with scientific insight, building on the work of earlier researchers including Galileo. Essay 2 describes the interesting life of Isaac Newton. When he was age 45 Newton's book titled *Principia* appeared, summarizing three fundamental laws of motion.

1. Objects remain at rest or in uniform (constant) motion unless an external force is applied. This is also called the law of inertia, a word taken from Latin and meaning sluggish or lazy. All objects have inertia and resist changes in motion, whether they are on earth or floating freely in space.
2. Force equals mass times acceleration. That is, if a net force F is applied to an object of mass m , it will cause an acceleration a of the object. Acceleration is the rate of change of velocity of an object, whether increasing, decreasing, or changing in direction of its motion. In symbolic form, $F = ma$. There are several choices of units for this formula:

Force = mass x acceleration

1 dyne = 1 gram x 1 centimeter/sec² Metric

1 newton = 1 kilogram x 1 meter/sec² Metric

1 pound = 1 slug x 1 foot/sec² English

3. When one object exerts a force on a second object, the second also exerts an equal and oppositely-directed force back on the first object. This means that forces always occur in pairs which are equal in magnitude and opposite in direction. As an example, the moon's gravity pulls on the earth, which results in the ocean tides. At the same time, the earth's own gravity also pulls inward on the moon, causing it to orbit the earth. The two forces are equal and opposite. Likewise, in a baseball game, when the bat strikes a ball, both the bat and ball experience equal and oppositely-directed forces at the moment of impact.

Entire books have been written on these three physical laws. They correctly describe the dynamics of atoms, people, comets, and planets. The universe is not accidental, mystical, or erratic in its motions. Instead, the creation is predictable with underlying laws which can be understood. Isaac Newton pictured nature as something like a clock with the complex internal gears representing the rules of operation.

When Newton's *Principia* was first published, some readers assumed that Newton had ruled out any need for a Creator.

After all, the mysteries of the universe could now be fully explained by interacting objects and forces. Others went even further and stated that all future events in the universe were pre-determined. That is, every motion that an object or a person could possibly have was the result of preceding motions and forces, far back into the past.

This deterministic view promoted an extreme form of predestination and ruled out any personal free will or responsibility for individual actions. Newton strongly disagreed with this muddled thinking. He wrote in a private letter in 1692,

I had an eye upon such Principles as might work with considering men for the belief of a Deity. Nothing can rejoice me more than to find it useful for that purpose.

In the second edition of *Principia* Newton also wrote about the solar system,

This most beautiful system of the sun, planets, and comets could only proceed from the counsel and dominion of an intelligent and powerful Being.

Physicist Sir James Jeans (1877–1946) also objected to the idea that nature was a mere machine, writing “The universe looks not like a great machine but rather a great thought.”

One will search in vain for these quotes, or anything similar, in today's science books. Modern texts typically tell only half the story of science, leaving out its theological foundations. Isaac Newton was clearly

Contents

Motion and Forces Speak to a Dynamic Creation.....	1
<i>Facades & Foundations: Geology's Impact on Modern Thought</i>	1
<i>Math Matters: The Shape of the Earth</i>	4
<i>Speaking of Science</i>	
Weird Animals You Never Heard Of.....	5
O Beautiful for Amber Waves of Fossils.....	8
Humans: More than Cosmic Dust.....	9
Real Creatures with Superpowers.....	10
<i>Matters of Fact: Variation after the Flood</i>	6
<i>Now Available: Physical Science and Creation: An Introduction</i>	7
<i>All by Design: Hear, Ye — Hear, Ye</i>	12

Creation Matters

ISSN 1094-6632

Volume 21, Number 2

March / April 2016

Copyright © 2016 Creation Research Society

All rights reserved.

Editor:

Glen W. Wolfrom

Assistant Editors:

Jean K. Lightner

Robert Hill

For advertising rates and information for authors:

Glen W. Wolfrom, Editor

Creation Research Society

6801 N. Highway 89

Chino Valley, AZ 86323-9186

Email: CMeditor@creationresearch.org

Phone: 928.636.1153

Creation Research Society Website:

www.creationresearch.org

Articles published in *Creation Matters* represent the opinions and beliefs of the authors, and do not necessarily reflect the official position of the CRS.

a godly man, true of many other science pioneers as well. Newton demonstrated that world-class science begins with a humble recognition of the Creator. In turn, the Creator rewarded Newton with deep scientific insights. Incidentally, any lingering ideas of a predetermined, clockwork universe were ruled out two centuries later by the Heisenberg Uncertainty Principle (see Chapter 6).

True science is defined simply as the search for truth. In our day, however, secular science limits itself to naturalism, which means that data interpretation includes no mention of the Creator. And who is responsible for this redefinition of science? It is those who deny the supernatural in the first place! I suggest that modern science has marginalized and impoverished itself as a result. Discoveries still continue, but how much greater would be our scientific prog-

ress if the Creator of the universe were acknowledged in the laboratory.

Momentum

One consequence of Newton's laws of motion is the conservation of momentum. Momentum measures the quantity of motion of an object, and equals the product of the object's mass and velocity. If there is no outside force applied, then momentum is perfectly constant or conserved in any interaction or collision between objects. That is, total momentum is the same before and after the encounter.

Momentum conservation is used daily by law enforcement in reconstructing traffic conditions and speeds just prior to an accident. On the small scale, momentum study also helps identify elementary particles formed in accelerator experiments. No ex-

ception to momentum conservation has ever been observed. And yet there is no theoretical necessity in physics for this rule. Momentum simply displays a profound dependability or predictability of nature. Each day, momentum illustrates just one of many rules of operation which were established during the week of creation.

Conclusion

Motion is essential to every aspect of life including our blood circulation, brain activity, breathing, and muscle activity. Only the Creator knows the extent of the energy of motion existing throughout the universe on both the small scale and the large. The dynamic creation truly displays God's glory, and his care for our well being.

GM

Geology's Impact ...continued from page 1

of geology to his historical vision of a uniformitarian deep past, and, perhaps even worse, claiming that the basis of that historical vision — *uniformitarianism* — was equivalent to the *uniformity principle* that took Newton's observations beyond 17th century England and into a larger world as a set of universal principles.

What was appropriate for physics proved less so when applied to the unique, unobservable events of the past. Lyell and his disciples may have created a tangle of theories of geological history, but they succeeded in their primary, yet hidden, task of hijacking history and undermining Genesis with a purely naturalistic mythology (Mortenson, 2004; Reed, 1998).

Other 19th century thinkers were emboldened by the possibilities of "scientific" history with Marxism having proved itself as resilient as it is harmful. Although the psychology of these thinkers is well-described in Romans 1, the Church has not been anxious to fully engage the distortions, and arguably has not come to understand them in the context of this world's ongoing spiritual conflict.

Conflicting world views

The mystery remains that many sincere Christians, especially those who practice science, continue to adopt positivism as their default assumption of thought, when, like "methodological naturalism" (Reed and

Williams, 2011), there is a clear conflict between the secular worldview and their own. It is becoming less and less understandable why we continue to do so, since the advent of modern creationism and the reaction to it have pulled that conflict into such stark focus.

Creationism must force a re-evaluation of the meaning of both science and history, because those who ignore that reality have lost sight of the meaning of both. Systems of knowledge are built on presuppositions and axioms that cannot be demonstrated in any empirical manner. The Bible offers one set of axioms, resting on the revelation of an omniscient God who cannot lie. Man embraces another set, a mixed bag of misapplied—often stolen from the Christian worldview—truths, such as uniformity and linear progressive time, combined with outright falsehoods, such as deep time and evolution.

Conclusion

Linnemann (2001, p. 71, emphasis hers) had the insight to see that:

The altering of *structures of thought* can come about only by rejecting and departing from sites where harmful structures of thought reign. These structures are not innate to me; I am, rather, included in them, and I must therefore expressly free myself from them. We are admonished, then, to "come out from them" (2 Cor. 6:17).

It is past time for creationists to realize that the process of "coming out from them"

must include a revolutionary reappraisal of the influence of naturalism at all levels and its conscious rejection in favor of the Christian worldview. "Them" includes not simply the mythological world of evolutionary deep time, but the errors and distortions that enabled it to appear and flourish in the first place.

References

- CRSQ* = *Creation Research Society Quarterly*
- Linnemann, E. 2001. *Historical Criticism of the Bible: Methodology or Ideology?* Kregel Publications, Grand Rapids, MI.
- Mortenson, T. 2004. *The Great Turning Point*. Master Books, Green Forest, AR.
- Reed, J.K. 1998. Demythologizing uniformitarian history. *CRSQ* 35(3):157–165.
- Reed, J.K. and P. Klevberg. *In press (a)*. Carol Cleland's defense of historical science, part I: deflating experimental science. *CRSQ*.
- Reed, J.K. and P. Klevberg. *In press (b)*. Carol Cleland's defense of historical science, part II: rebuilding historical science. *CRSQ*.
- Reed, J.K. and P. Klevberg. 2014a. Beyond "origin" and "operation" science, part I: critique of OS². *CRSQ* 50(4):237–251.
- Reed, J.K. and P. Klevberg. 2014b. Beyond "origin" and "operation" science, part II: an alternative. *CRSQ* 51(1):31–39.
- Reed, J.K. and E.L. Williams. 2011. Battlegrounds of natural history, part I: naturalism. *CRSQ* 48(2):147–167.

Image, Charles Lyell 1875, public domain.
From Wikimedia Commons
(https://commons.wikimedia.org/wiki/File:Charles_Lyell_1875.jpg)

GM



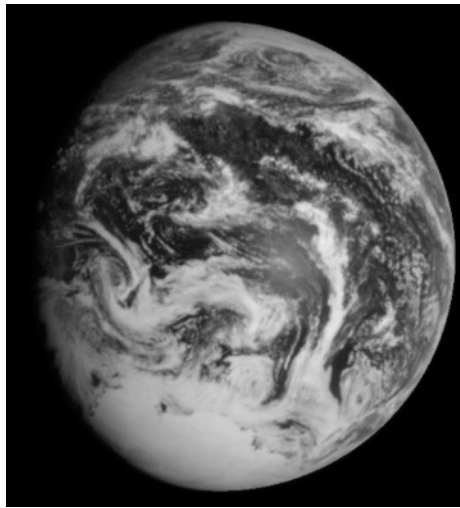
Math Matters

by

Don DeYoung, PhD

The Shape of the Earth

We have all seen remarkable photos of planet earth, a unique blue oasis in space. However, our home planet is not quite the perfect sphere as pictured. Because of earth's rotation, the equator region bulges outward slightly, similar to clothes spun to the outside surface of a washing machine on the spin cycle. Meanwhile, the earth's polar regions are somewhat flattened. Newton first predicted this distortion of shape in his 1687 *Principia*. The slight flexibility or plasticity of earth's structure allows for this stretching from a perfect sphere to what is called an oblate spheroid. Although greatly exaggerated, one might picture a doorknob shape for earth.



The distance from earth's center outward to the equator is 3960 miles (6372 km), about 13 miles (21 km) further than the center-to-pole distance. Consider a person standing at either the equator or at one of the poles. The person's weight results from the gravitational attraction between him/her and the earth, and depends on the center-to-center separation distance. Since the equator position is slightly further from the earth's center, the person will weigh about 0.3 percent less at the equator than at the poles. For an adult this may be nearly

a pound, so a trip to the equator results in instant weight reduction.

Geodesy is the term describing the exact shape and size of the earth. Orbiting satellites, including global positioning systems (GPS), are affected by the earth's equatorial bulge. It has also been suggested that Ecuador's Mount Chimborazo, at 20,564 feet above sea level, is actually the earth's tallest mountain, extending further outward from earth's center than does Nepal's Mount Everest (29,029 feet).

All the large outer planets, Jupiter through Neptune, rotate faster than the earth, leading to a similar flattening of their polar regions. Saturn, for example, with a rotation period of just 10.7 hours, has a difference in its polar and equator radii of about 10 percent.

The observed distortion of the shape of the rotating planets illustrates the exactness and constancy of the law of gravitation. While the nature of this fundamental attractive force still is not well understood, gravity gives stability to the entire universe. One is reminded of Colossians 1:17, that by the Word of Christ "all things hold together."

GM

MAKE PLANS NOW TO ATTEND Creation Research Society Conference 2016

July 29-30

Concordia University

Ann Arbor, MI

see the CRS website for more information

www.creationresearch.org



Speaking of Science

from the Creation-Evolution Headlines

by David F. Coppedge

Editor's note: These S.O.S. (Speaking of Science) items have been selected from "Creation-Evolution Headlines" by David F. Coppedge at <http://crev.info> and are used by permission. Unless otherwise noted, emphasis is added in all quotes. Neither the author nor the CRS endorses the long ages quoted in the references.

Weird Animals You Never Heard Of

Welcome to a menagerie of believe-it-or-not creatures that once inhabited our planet (or still do).

Saber-tooth swimming otter-bear (*Live Science*,¹ *PhysOrg*²): "A mysterious, carnivorous marine mammal that lived 23 million years ago clamped down on its mussel dinner similar to the way a saber-toothed tiger grasped its larger prey, scientists have found." The big sea-otter-like mammal had the bite of *Smilodon* without the saber teeth, but is only known from a few fossils. Lack of post-cranial fossils didn't stop artists from drawing pictures of humpbacked, clawed hunters resembling grizzly bears.

Humvee armadillo (*Current Biology*,³ *Science Daily*⁴).

The mysterious glyptodonts of the Ice Age have been reclassified as a subgroup of armadillos, but these armed mammals would dwarf any alive today. With spiked tails and armor reminiscent of ankylosaurs, they were as big as a car and roamed the world alongside saber-tooth cats and giant ground sloths in South America. See the BBC News⁵ for a short video about them.

Barrel-chested giant globetrotting turtle (*Live Science*⁶): This article describes pareiasaurs, large "turtle relatives" with round abdomens, stubby legs, and ugly faces (if inferred correctly from bones). Despite their rotund appearance on short legs, they apparently found their way to China, Russia, South Africa, South America, and Europe. Found in Permian strata, pareiasaurs enjoyed a global success in what is claimed an evolutionary short period of 10 million years. The article doesn't mention ancestors, and doesn't elaborate on the alleged relationship to turtles.

Baby dragons (*Live Science*⁷): That's what *Live Science* calls them: baby dragons, ready to hatch in a Slovenian cave. But are they "human fish" instead? No, neither: they are cave salamanders with a fleshy pink appearance and frills that look downright dragonian. People in the 1600s thought they were baby dragons when some washed out of a cave. Strangely, they are born with functioning eyes, but the eyes degenerate in the cave environment. Called olms, they hatch from eggs, taking 14 years to reach maturity. Some can live 70 years.

Frozen Survivor (*PhysOrg*⁸): A water bear (tardigrade) has survived 30 years frozen in ice, this article says. Despite their small size, they are remarkably complex and durable (see *Evolution News & Views*⁹ for discussion of the challenge tardigrades present to arthropod phylogeny).

The approximately 0.2 mm [0.008 inches] long tardigrades were retrieved from a **frozen moss sample collected in Antarctica in November 1983**. In May 2014, the moss was

defrosted (at 3 °C for 24 h) and soaked in water (for an additional 24 h). Two individuals and one egg were collected from the sample and reared on agar plates with algae provided as food. One of the revived tardigrades and the juvenile that **hatched from the revived egg went on to continuous reproduction successfully**.

Underwater butterflies (*Live Science*,¹⁰ *New Scientist*¹¹): They are mollusks of the snail variety, but they "fly" underwater in a manner similar to butterflies. Endowed with "wing-like appendages that allow them to swim," these shy, fragile "sea butterflies" use the same mechanical principles as their aerial analogues to propel themselves, scientists have found using 3-D cameras. How could such different animals use the same flight mechanisms? You guessed it: "convergent evolution."

Even though gastropods and insects **diverged from a common ancestor 550 million years ago**, sea snails use the same clap-and-throw mechanism flies use, which involves bringing their wings together then quickly pushing them apart.

This shows evolutionary convergence on a similar locomotion technique to move through a similar environment. Due to their tiny size, the balance of inertial and viscous forces sea snails come across in water is similar to that experienced by flies in air.

Empty sock without a tree house (*Science Daily*¹²): *Nature*¹³ reported that weird flatworm-like creatures without brains, eyes or guts have finally been assigned an evolutionary place in the tree of life. Called *Xenoturbella*, these "acoel" ("no cavity") marine flatworms, just an inch or more long, have confused scientists for years. "Sometimes it is the most unassuming animals that cause the most consternation," the article begins. A new classification announced in *Nature* places them at the base of bilateria (animals with bilateral symmetry), but scientists will undoubtedly puzzle more about them. *Live Science*¹⁴ says, "They have no digestive system, no excretory system, no reproductive organs, but they probably don't worry about that too much because they don't have brains, either — just a neural network." Leave it to a Darwinian to smirk,

"These features means [sic] that **we humans also crawled the ocean floor next to mud and grains of sand 560 million years ago**," Hejnol explains with a smile on his face.

Hejnol should reflect upon the fact that a smile on his face requires the coordinated action of many muscles, nerves, and thousands of irreducibly complex molecular machines. You can't get there from an empty sock. Each of these creatures, even the flatworm, is (or was) matched to its environment with similar complexities at the cellular level. You can learn about them without having to tell stories about how they morphed into each other over millions of years, diverging and converging in mysterious ways.

1 Weisberger, M. (March 02, 2016). Jaw-dropping: extinct sea bear chomped down like a saber-toothed cat. *LiveScience.com*. Retrieved March 7, 2016, from www.livescience.com/53903-marine-bear-had-unusual-bite.html

2 Anonymous. (March 2, 2016). Extinct otter-like 'marine bear' might have had a bite like a saber-toothed cat. *Phys.Org*. Retrieved March 7, 2016, from <http://phys.org/news/2016-03-extinct-otter-like-marine-saber-toothed-cat.html>

3 Delsuc, F., C.G. Gillian, M.Kuch, et al. 2016. The phylogenetic affinities of the extinct glyptodonts. *Current Biology* 26(4):R155–R156. DOI:

... continued on p. 8



Matters of Fact

by

Jean K. Lightner, DVM, MS

Variation after the Flood

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 If there was only a single pair for each kind on the Ark (in most cases), why are there so many species within some of these animal kinds today?

A Based on what we know from genomic studies and observing populations, there appear to be three sources for the variation associated with rapid radiations (Hedrick, 2013; Pease et al., 2016). A rapid radiation, sometimes called an adaptive radiation, is the rapid diversification of organisms to fill new environments (or niches). This is exactly what happened after the Flood, and probably has occurred on a smaller scale many times since then.

The three important sources of variation are: 1) hybridization, 2) mutation, and 3) environmentally-based sorting of ancestral alleles (i.e., versions of the gene).

Hybridization

Many people are aware of the work of Peter and Rosemary Grant, who studied the finches on Daphne Island in the Galapagos. However, they often fail to realize that the Grants' research identified a critical role for hybridization in the changes in beak morphology (Grant and Grant, 2014). It is true that natural selection caused a shift in the average beak size of the medium ground finches (*Geospiza fortis*) several times when droughts struck, but hybridization was also an important factor that had more gradual effects on average beak size.

In fact, when a drought occurred, it eliminated useful variety. If the small seeds were depleted first, the birds with smaller beaks died off more quickly. Yet when the rains returned, so did that food source. As it turns out, hybridization helped stabilize the population by allowing the reintroduction of useful variety that had been lost during the drought. We have dealt with the

fundamentals of this subject in the Matters of Fact series previously (Lightner, 2014, 2015a).

In recent years there has been a tremendous amount of discussion on the role hybridization can play in speciation of plants and animals (Abbott et al., 2013; Palmer and Kronforst, 2015; Litsios and Salamin, 2014; Stankowski and Streisfeld, 2015). Hybridization can have a variety of outcomes. The Grants (2014) observed an example where hybrid offspring were found to have mated among themselves, effectively forming a new species. Introgression of a few loci may promote adaptive divergence, facilitating speciation (Abbott et al., 2013; Greaves, 2015; Liu et al., 2015; Senerchia et al., 2015).



Medium ground finch (*Geospiza fortis*)

New phenotypes in hybrids can result from altered gene expression due to an altered epigenetic landscape, which in some cases may be associated with an increase in transposable element movement. These may have positive (hybrid vigor) or negative (outbreeding depression) effects. This research is incredibly valuable for creationists attempting to understand speciation from a biblical perspective (Lightner, 2016).

Mutation

Mutations, which have been discussed a number of times in this column [see also *Creation Matters* 14(3):6, 2009; 17(6):9–10, 2012; 18(1):6–7, 2013; and 19(3):3–4, 2014], can refer to any changes in the DNA sequence compared to the ancestral state. They are often assumed to be the result of

uncorrected copying errors or harmful mutagens (e.g., UV light).

Certainly, DNA copying errors are sometimes not corrected, and mutations can result from exposure to harmful mutagens. Yet it is clear that not all mutations arise by these mechanisms. In fact, within the immune system adaptive mutations are regularly introduced into B cells as a part of a normal immune response. There is no scientific reason to believe that something similar cannot happen within reproductive cells to produce adaptive mutations.

Environmentally-based sorting of ancestral alleles

There are several mechanisms that can result in an environmentally-based sorting of ancestral alleles. The one most heavily promoted on the lay level by evolutionists is natural selection. It can remove alleles from a population, but never adds them. Genetic drift, where chance affects what is passed on to the offspring, can also result in the loss of alleles in smaller populations. In theory, natural selection should leave the most adaptive alleles behind, but observational evidence shows this isn't necessarily the case.

In the finches studied by the Grants (2014), natural selection affected the average beak size only during years with extreme weather conditions (droughts), and it varied in direction. This oscillating pattern in environments limits the degree to which natural selection can really offer an explanation of genetic adaptation, since the "favored allele(s)" varies, sometimes even within a single decade.

Migration can play a large role in sorting alleles. While the Grants were conducting research on the island of Daphne Major, they observed large ground finches (*G. magnirostris*) visiting the island. Eventually, some stayed to breed, and the Grants noted that those who stayed were phenotypically different from those that left before the breeding season.

Thus, a great deal of the environmentally-based sorting in vertebrates may be from their choice of a favorable environ-

ment. This can result in a founder effect, where the new population only has a limited amount of the variety from the parental population. Interestingly, though, the large ground finches that stayed on Daphne came from several different islands.

Migration can carry alleles in or out of a population, depending on the direction of movement. Another mechanism that may be able to shift allele frequency is meiotic drive, a form of non-Mendelian inheritance that was identified over fifty years ago (Sandler and Novitski, 1957). Essentially, gametes are not formed with the predicted ratio of alleles. Instead, one allele is preferentially transmitted over another. This can be the result of biased gene conversion or several other mechanisms. While evolutionists assume meiotic drive is unrelated to adaptation, a more plausible hypothesis is that it is an important mechanism to increase allele frequency where natural selection cannot do so (Lightner, 2015b).

References:

Abbott, R., D. Albach, S. Ansell, J.W. Arntzen, S.J. Baird, N. Bierne, et al. 2013. Hybridization and speciation. *Journal of Evolutionary Biology* 26:229–246.

Grant, P.R. and B.R. Grant. 2014. 40 Years of Evolution: Darwin's Finches on Daphne Major Island. Princeton University Press, Princeton, NJ.

Greaves, I.K., R. Gonzalez-Bayon, L. Wang, A. Zhu, P.C. Liu, M. Groszmann, W.J. Peacock, and E.S. Dennis. 2015. Epigenetic changes in hybrids. *Plant Physiology* 168:1197–1205.

Hedrick, P.W. 2013. Adaptive introgression in animals: examples and comparison to new mutation and standing variation as sources of adaptive variation. *Molecular Ecology* 22:4606–4618.

Litsios, G. and N. Salamin. 2014. Hybridisation and diversification in the adaptive radiation of clownfishes. *BMC Evolutionary Biology* 14:245.

Liu, S., F. Li, L. Kong, Y. Sun, L. Qin, S. Chen, H. Cui, Y. Huang, and G. Xia. 2015. Genetic and epigenetic changes in somatic hybrid introgression lines between wheat and tall wheatgrass. *Genetics* 199:1035–1045.

Lightner, J.K. 2014. Adaptation by Galapagos finches. *Creation Matters* 19(5):6–7.

Lightner, J.K. 2015a. A creationist view of natural selection. *Creation Matters* 20(5):6–7.

Lightner, J.K. 2015b. Natural selection: Assessing the role it plays in the world. *Answers Research Journal* 8:111–119.

Lightner, J.K. 2016. Towards a creationary view of why speciation occurs. *Journal of Creation* [In press.](#)

Palmer, D.H. and M.R. Kronforst. 2015. Divergence and gene flow among Darwin's finches: A genome-wide view of adaptive radiation driven by interspecies allele sharing. *Bioessays* 37:968–974.

Pease, J.B., D.C. Haak, M.W. Hahn, and L.C. Moyle. 2016. Phylogenomics reveals three sources of adaptive variation. *PLoS Biology* 14:e1002379. <http://www.ncbi.nlm.nih.gov/pubmed/26871574>

Sandler, L., and E. Novitski. 1957. Meiotic drive as an evolutionary force. *American Naturalist* 91(857):105–110.

Senerchia, N.F. Felber, and C. Parisod. 2015. Genome reorganization in F1 hybrids uncovers the role of retrotransposons in reproductive isolation. *Proceedings of the Royal Society. Biological Sciences* 282:20142872.

Stankowski, S. and M.A. Streisfeld. 2015. Introgressive hybridization facilitates adaptive divergence in a recent radiation of monkeyflowers. *Proceedings of the Royal Society: Biological sciences* 282(1814). [doi: 10.1098/rspb.2015.1666](https://doi.org/10.1098/rspb.2015.1666)

Wikimedia Commons

https://commons.wikimedia.org/wiki/File:Geospiza_fortis.jpg

GM

NOW AVAILABLE IN THE CRS BOOKSTORE

Physical Science and Creation: An Introduction

by

Don B. DeYoung

2016, CRS Books

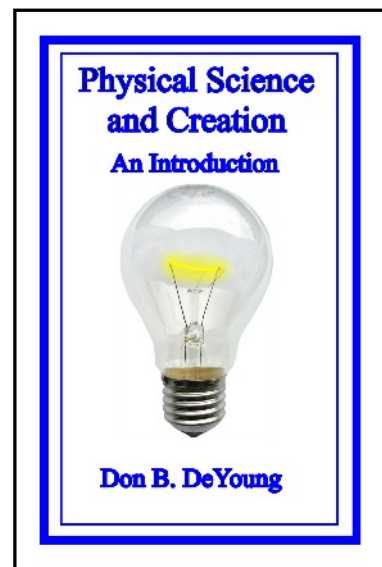
(e-book, 70 pages estimated)

Regular price \$1.99

This Reader is the second in a series of short texts produced by the Creation Research Society. *Physical Science and Creation* explores energy, gravity, light, and more, all written on a popular level. Science progress is shown to be firmly based on biblical creation including the most basic laws of nature. Along the way, such pioneers as Isaac Newton and Michael Faraday are noted.

Author Don DeYoung earned a Ph.D. in physics from Iowa State University. Currently, he is Chair, Science and Mathematics Department, Grace College, Winona Lake, IN. He is also President of the Board of Directors of the Creation Research Society. DeYoung writes and speaks on many creation topics. He believes that the details of nature are a powerful testimony to the Creator's care for mankind.

www.crsbooks.org



Speaking of Science ...continued from page 5

- <http://dx.doi.org/10.1016/j.cub.2016.01.039>
- 4 Anonymous. (February 22, 2016). Extinct glyptodonts really were gigantic armadillos, ancient DNA shows. *ScienceDaily.com*. Retrieved March 7, 2016, from www.sciencedaily.com/releases/2016/02/160222134051.htm
 - 5 Anonymous. (February 22, 2016). Monstrous fossils 'were armadillos,' says DNA evidence. *BBC News (bbc.com)*. Retrieved March 7, 2016, from www.bbc.com/news/35630712
 - 6 Weisberger, M. (February 23, 2016). Ancient stubby-legged reptiles with tiny heads were world travelers. *LiveScience.com*. Retrieved March 7, 2016, from www.livescience.com/53795-ugliest-fossil-reptiles-roamed-widely.html
 - 7 Pappas, S. (March 03, 2016). There be 'baby dragons'...ready to hatch in Slovenian cave. *LiveScience.com*. Retrieved March 7, 2016, from www.livescience.com/53923-baby-dragons-to-hatch-slovenia-cave.html
 - 8 Anonymous. (February 16, 2016). Animals revived after being in a frozen state for over 30 years. *Phys.Org*. Retrieved March 7, 2016, from <http://phys.org/news/2016-02-animals-revived-frozen-state-years.html>
 - 9 Coppedge, D. (January 24, 2016). Are tardigrades "a head" of arthropods? *Evolution News & Views*. Retrieved March 7, 2016, from www.evolutionnews.org/2016/01/are_tardigrades102542.html
 - 10 Weisberger, M. (February 18, 2016). Swim like a butterfly? Sea snail 'flies' through water. *LiveScience.com*. Retrieved March 7, 2016, from www.livescience.com/53759-snail-swims-like-flying-insect.html
 - 11 Ceurstemont, S. (February 17, 2016). Sea butterflies fly underwater just like insects do in the air. *NewScientist.com*. Retrieved March 7, 2016, from <https://www.newscientist.com/article/2078092-sea-butterflies-fly-underwater-just-like-insects-do-in-the-air/>
 - 12 University of Bergen. (February 4, 2016). The return of the flatworm. *ScienceDaily.com*. Retrieved March 7, 2016, from www.sciencedaily.com/releases/2016/02/160204085059.htm
 - 13 Gee, H. 2016. Phylogeny: A home for Xenoturbella. *Nature* 530:43. doi:10.1038/530043a
 - 14 Weisberger, M. (February 04, 2016). 4 New 'Flatworm' species: No brains, no eyes, no problem. *LiveScience.com*. Retrieved March 7, 2016, from www.livescience.com/53601-deep-sea-worm-looks-like-pastry.html

O Beautiful for Amber Waves of Fossils

Striking examples of life encased in fossil tree sap open eyes on creation vs evolution.

Lizards, geckos, and chameleons entombed in amber were reported in *Science Advances*¹ recently. Images and information about the "dinosaur-era" creatures were reported by the *BBC News*,² *New Scientist*,³ and *PhysOrg*.⁴ The world's oldest chameleon had a catapulting tongue already in place. The geckos also had their adhesive toe pads in the mid-Cretaceous, "suggesting the gecko's climbing lifestyle **evolved much earlier than thought**." The BBC calls the chameleon a missing link, but at 80 million years older than the next oldest fossil chameleon, it "**significantly pushes back the origins of the group and challenges long-held views that chameleons got their start in Africa**," *PhysOrg* says. The amber pieces are from Myanmar in Asia.

The specimens were collected decades ago and put into museum drawers. They are just now being analyzed. With modern CT scan techniques, the scientists can generate 3-D models of the animals to examine their anatomy in detail. Another *PhysOrg*⁵ article talks about a new micro-CT scanner that is allowing scientists to view the insides of fossils, even tiny ones, with exceptional detail without destroying the rock. Details of a frog's nervous system can be imaged with this newly-adapted technology.

Other Burmese amber samples from Myanmar reveal new details about ants. "Ants were socializing — and sparring — nearly 100 million years ago," *Science Daily*⁶ reports about the Creta-

ceous fossils. Though dead and immobilized in the amber, scientists infer that ants were social way back then, as they are now. This particular species, outfitted with large fighting jaws, is no longer extant. Termites have also been found in the amber. A press release from the American Museum of Natural History also discusses the fossils, playing up the "evolution of eusociality" angle (which, if it already existed in the Cretaceous, says nothing about how it evolved). Even though the ants and termites look different from living species, "Eusociality was going strong in both groups during the Cretaceous," the scientists surmise.

The findings were published in *Current Biology*^{7,8}. The record for oldest termite previously was 17 million years; the amber fossils push them back 83 million years into the Cretaceous (100 Ma.), yet they already had a well-developed caste system. "These discoveries demonstrate the **Mesozoic antiquity of specialized termite caste systems** and corroborate that among all social species, **termites probably had the original societies**," the abstract says. Both the ants and termites are labeled "basal" by the paleontologists, but what were their ancestors? If they already looked like termites and ants, and already had their characteristic caste systems, whatever is "basal" had to be further back and remains undiscovered.

One other critter was reported in Burmese amber. *Science Daily*⁹ says that a microwhip scorpion was found, the first from the Mesozoic (also about 100 million years old). Though 97 million years older than the next oldest fossil of this order, it looks pretty much the same. "Because it looks **so similar** to other microwhip scorpions **still found today**, it most probably shared the **same habitat and preferences as its modern-day kin**." No evolution here for 100 million years.

Extinction is not evolution. Where is the ancestry? There was a lot more diversity in the past in many groups. O, the word games these evolutionists play! Calling something "basal" does not make it primitive. It does not demonstrate ancestry. These were full-fledged ants, termites, chameleons, lizards and geckos that had all the representative equipment of their species, even if they looked slightly different. The ants and termites had division of labor and eusociality already. Why talk of the "evolution of eusociality"?

These samples are not 100 million years old. They are only assigned that age to keep Charlie from getting embarrassed, because he needs the time. But they can't even keep their own story straight. Over and over, we see them surprised that things "evolved much earlier than thought." The only ones who thought that are evolutionists.

- 1 Daza, J.D., E.L. Stanley, P. Wagner, A.M. Bauer, and D.A. Grimaldi. (March 4, 2016). Mid-Cretaceous amber fossils illuminate the past diversity of tropical lizards. *Science Advances* 2(3), e1501080, DOI: [10.1126/sciadv.1501080](https://doi.org/10.1126/sciadv.1501080)
- 2 Briggs, H. (March 4, 2016). Amber-trapped lizard fossils reveal 'lost world.' *BBC News*. Retrieved March 13, 2016, from www.bbc.com/news/science-environment-35718404
- 3 Sokol, J. (March 4, 2016). Dinosaur-era geckos and chameleons perfectly preserved in amber. *NewScientist.com*. Retrieved March 13, 2016, from www.newscientist.com/article/2079606-dinosaur-era-geckos-and-chameleons-perfectly-preserved-in-amber/
- 4 Univ. of Florida. (March 7, 2016). World's oldest chameleon found in amber fossil. *PhysOrg*. Retrieved March 13, 2016, from <http://phys.org/news/2016-03-world-oldest-chameleon-amber-fossil.html>
- 5 Mavrikis, E. (March 7, 2016). New micro-CT scanner allows inside view of even the tiniest fossils. *PhysOrg*. Retrieved March 13, 2016, from

<http://phys.org/news/2016-03-micro-ct-scanner-view-tiniest-fossils.html>

- 6 Rutgers Univ. (February 12, 2016). Ants were socializing — and sparring — nearly 100 million years ago, study finds. *ScienceDaily*. Retrieved March 13, 2016, from www.sciencedaily.com/releases/2016/02/160212130519.htm
- 7 Barden, P. and D.A. Grimaldi. 2016. Adaptive radiation in socially advanced stem-group ants from the Cretaceous. *Current Biology* 26(4):515–521. DOI: <http://dx.doi.org/10.1016/j.cub.2015.12.060>
- 8 Engel, M.S., P. Barden, M.L. Riccio, D.A. Grimaldi. 2016. Morphologically specialized termite castes and advanced sociality in the Early Cretaceous. *Current Biology* 26(4):522–530. DOI: <http://dx.doi.org/10.1016/j.cub.2015.12.061>
- 9 Springer. (March 9, 2016). First microwhip scorpion from Mesozoic period found in Burmese amber: New minute fossilized microwhip scorpion named after South Asian nature spirits. *ScienceDaily*. Retrieved March 13, 2016, from www.sciencedaily.com/releases/2016/03/160309135715.htm

Humans: More than Cosmic Dust

Superb design in the human body counters the claim we are mere star-stuff.

“All we are is dust in the interstellar wind,” Sara Dwyer writes as the headline of a *PhysOrg* piece.¹ Her article is actually quite informative for what astronomers are learning about interstellar dust grains. At one point, though, she does reinforce her title with the old Sagan quote, “The nitrogen in our DNA, the calcium in our teeth, the iron in our blood, the carbon in our apple pies were made in the interiors of collapsing stars. We are made of star-stuff.”

Is that a fair assessment of human exceptionalism? It’s not the atoms; it’s the way they are organized. Biological information and intelligently designed structure has a lot more to say than the chemical elements that ferry them along. Here are some recent news findings to increase human esteem:

Metacognition by infants (*Medical Xpress*²): A study suggests that human infants develop metacognition earlier than previously thought. Don’t underestimate what happens in the brain of a developing child.

Humans have been found to have a **variety of different mental abilities compared to the rest of the animal kingdom**, one of which is **metacognition**—where an individual not only experiences uncertainty, but possesses an **ability to convey that uncertainty to others**. It is very common in adults, but scientists have not been able to pinpoint **when it first develops**—some have suggested it does not appear until babies develop into children. In this new effort, the researchers suggest the results of their study show that it occurs **by the time a baby is just 20 months old**.

The gut performing into old age (*Science Daily*³): We go now from infancy to old age. In the first large-scale study on the secretion of the human intestine, the findings of Dr. Dagmar Kruger at TU Munich “are startling: contrary to common beliefs, the secretory capacity of the human gut doesn’t decline with age. Nor does gender play a role.” She found this by studying 2200 samples from 450 human patients, instead of relying on older studies that used guinea pigs.

Eye cells may use math to detect motion (*Science Daily*⁴): This study reinforces theory for how neurons process information. This article reinforces the view that life is about information, not just atoms.



Our eyes constantly send **bits of information about the world** around us to our brains where the **information is assembled** into objects we recognize. Along the way, a series of neurons in the eye uses electrical and chemical **signals to relay the information**. In a study of mice, National Institutes of Health (NIH) scientists showed how one type of neuron may do this to distinguish moving objects. The study suggests that the NMDA receptor, a protein normally associated with learning and memory, may help neurons in the eye and the brain **relay that information**.

“The eye is a window onto the outside world and the inner workings of the brain,” said Jeffrey S. Diamond, Ph.D., senior scientist at the NIH’s National Institute of Neurological Disorders and Stroke (NINDS), and the senior author of the study published in *Neuron*. “Our results show how neurons in the eye and the brain may use NMDA receptors to help them detect motion in a complex visual world.”

Math-wise, the cells use “multiplicative scaling” to amplify information about motion in the visual field. “Cells in the eye can multiply,” the researcher says. This ability helps us distinguish between a fast-approaching tiger and one that is just sauntering by.

The brain and information (*Medical Xpress*⁵): How the brain processes the torrent of information coming in through its windows (the senses) is a marvelous mystery. A concert violinist who suffered a concussion resulting in speech and memory loss, Jennifer Koh, became very interested in the workings of the brain.

“I have a general curiosity about the relationship between human beings and music,” said Koh, a touring professional who has played the violin since she was 3 years old. “**No matter what the culture, no matter what the country ... music is a fundamental part of human beings.**”

A video clip in the article shows her playing highly complex violin music and tells how Koh went to a Tobias Overath, a neurologist at Duke, who examined her brain using functional MRI (fMRI) as she mentally interacted with the music she loves. Together, they learned about activation patterns related to listening, reading, and imagining playing music. Some activation patterns were shared by the three activities, while others were unique. It’s clear that the brain was not playing the music; it was responding to Koh’s mind as she thought about it.

“The **musician’s brain is exquisitely sensitive** to all aspects of music, be it listening, reading or imagining playing music,” Overath said. “Therefore, you engage a whole range of areas of your brain — it’s quite literally a **whole body experience**. From a cognitive point of view, but also physically, it’s **incredibly strenuous.**”

Does this sound like star-stuff? You can watch star-stuff till the cows come home and you won't find speech, music, experience, curiosity, imagination, or sensation. Those all had to emerge subsequent to the alleged origin of life from atoms and molecules. The human experience is so much richer than we can imagine. Calling it star-stuff blowing in the interstellar wind reduces humanness to something much less than its fundamental essence, unworthy of its complex design.

Greet your family and friends with “Hi, star-stuff” and see how they respond. Star-stuff becoming human is a subset of the Stuff Happens Law. It explains nothing. We are not atoms; the atoms are mere carriers of the information that ferries our souls and/or spirits along. As Dembski argues in *Being as Communion*..., the real essence of the universe is not star-stuff but information. Physical particles become secondary in this view.

When you think about metacognition and the ability to imagine music in the mind, the physical systems (like the gut) are mere servants to the mind. To be human, to act like a human being, to be rational and moral — these cannot be reduced to nitrogen, iron, calcium and carbon. Those things, too, are manifestations of information. Information only makes sense to a mind. The mind of God, therefore, used atoms to create the real world as a habitat for thinking beings.

- 1 Dwyer, S. (March 9, 2016). All we are is dust in the interstellar wind. *PhysOrg*. Retrieved March 13, 2016, from <http://phys.org/news/2016-03-interstellar.html>
- 2 Yirka, B. (March 8, 2016). Study suggests human infants develop metacognition earlier than previously thought. *Medical Xpress*. Retrieved March 13, 2016, from <http://medicalxpress.com/news/2016-03-human-infants-metacognition-earlier-previously.html>
- 3 Technical University of Munich (TUM). (March 9, 2016). The gut: Performing into old age. *ScienceDaily*. Retrieved March 13, 2016, from www.sciencedaily.com/releases/2016/03/160309125235.htm
- 4 NIH/National Institute of Neurological Disorders and Stroke. (March 7, 2016). Eye cells may use math to detect motion. *ScienceDaily*. Retrieved March 13, 2016, from www.sciencedaily.com/releases/2016/03/160307152838.htm
- 5 Ferreri, E. (March 8, 2016). Studying a virtuoso violinist's brain with fMRI. *MedicalXpress*. Retrieved March 13, 2016, from <http://medicalxpress.com/news/2016-03-virtuoso-violinist-brain-fmri.html>

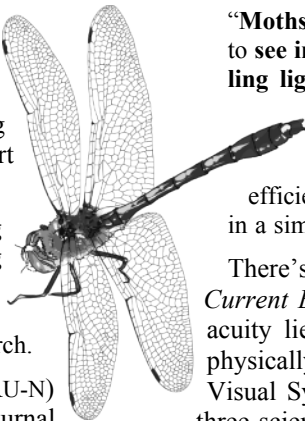
Real Creatures with Superpowers

Check out the capabilities of these amazing little critters.

The longest-distance flyer: This title belongs to a small dragonfly. A chicken may cross the road, but *Pantala* crosses oceans and continents. That's what scientists at Rutgers deduce from comparing genes of these relatively small dragonflies.¹ Robert Forman reports:

A dragonfly **barely an inch and a half long** appears to be **animal world's most prolific long distance traveler** — flying **thousands of miles over oceans** as it migrates from continent to continent — according to newly published research.

Biologists at Rutgers University-Newark (RU-N) who led the study — which appears in the journal *PLOS ONE* — say the **evidence is in the genes**. They found that populations of this dragonfly, called *Pantala flavescens*, in locations as far apart as **Texas, eastern Canada, Japan, Korea, India, and South America**, have **genetic profiles so similar** that there is only one



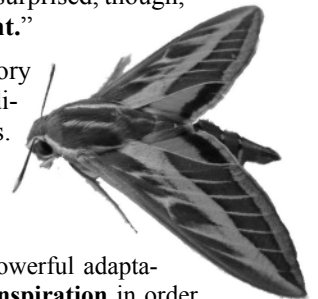
likely explanation. Apparently — somehow — these insects are traveling **distances that are extraordinarily long for their small size**, breeding with each other, and creating a **common worldwide gene pool that would be impossible if they did not intermingle**.

Evolutionists are baffled by this, because the dragonfly doesn't need to do it.

Pantala leaves many of its fellow dragonflies even farther behind. **The mysteries of evolution are such** that while *Pantala* and its cousin the Green Darner (*Anax junius*) have developed into world travelers, Ware says that by contrast, **other members of the family “don't ever leave the pond on which they're born — traveling barely 36 feet away their entire lives.”**

Vanishing act: There's a beetle that water skis (pause to think about that). Here's the clincher: it skis so fast, it appears to vanish. Watch the video clip on *New Scientist*² showing the water lily beetle in slow-motion. It flaps its wings for propulsion, and sets its tiny water-repelling legs down on the water to skitter across the surface super fast. A human skiing at a comparable pace would go 310 mph (500 kph), the article says. This is one of the fastest speeds ever measured for any insect on the water. Their anatomy is **“well adapted”** for this behavior. Hydrophobic legs and wings with a lot of lift give them an “elegant solution” that is giving engineers ideas for low-flying aircraft or water-surface robots. How did this come about? It is, therefore it evolved, one biologist thinks; the unique anatomical adaptation “suggests that **skimming is evolutionarily important**,” remarked Jake Socha from Virginia Tech, who had studied flying snakes. He was surprised, though, “that they have **something this elegant**.”

Super night vision goggles: This story from *ScienceDaily*³ makes a nice addition to yesterday's entry on biomimetics. Superman would be envious of the night vision of moths. Look what a scientist says about their amazing eyes:



“Nature has evolved simple yet powerful adaptations, from which we have **taken inspiration** in order to answer challenges of future technologies,” explained Professor Ravi Silva, Head of the Advanced Technology Institute.

“Moths' eyes have microscopic patterning that allows them to **see in the dimmest conditions**. These work by **channeling light** towards the middle of the eye, with the added benefit of **eliminating reflections**, which would otherwise alert predators of their location. We have used the same technique to make an amazingly thin, efficient, light-absorbent material by patterning graphene in a similar fashion.”

There's more to it than just the anatomy of the eye facets. *Current Biology*⁴ reports that an important part of their visual acuity lies in the software. It lets them achieve what seems physically impossible. In “Neural Summation in the Hawkmoth Visual System **Extends the Limits of Vision** in Dim Light,” three scientists found that the moth brain can filter out “noise” and sum up spatial and temporal signals to increase the signal-to-noise ratio, giving them 100 times better visual acuity than achievable by the optics alone. As a result, they can easily observe motion under starlight conditions. Once again, this gives optical engineers ideas:

We show that spatial and temporal summation **combine supralinearly** to substantially **increase contrast sensitivity and visual information rate over four decades of light intensity** [i.e., over four orders of magnitude], enabling hawkmoths **to see at light levels 100 times dimmer than without summation**. Our results reveal how visual motion is **calculated neurally** in dim light and how spatial and temporal summation **improve sensitivity while simultaneously maximizing spatial and temporal resolution**, thus extending models of insect motion vision derived predominantly from diurnal flies. Moreover, the summation strategies we have revealed **may benefit manmade vision systems** optimized for variable light levels.

They applied the principles on a very-low-light image of the words “Current Biology” and brought it out of fuzzy noise into clear text.

What can you do with a million neurons? A bumblebee brain has been imaged in 3-D by scientists at the University of Guelph.⁵ They’re interested in learning how this brain, made up of about 1 million neurons (just “0.00001 per cent of the number found in the human brain”) allows these insects to not only fly accurately, but navigate. Their foraging methods are attracting computer scientists. “We’ve also been looking at how **tiny-brained bumblebees find practical solutions to challenging routing problems**,” the press release says. “Understanding **how comparatively simple brains can find functional solutions to complex problems** may be very important in allowing us to develop smarter and simpler ways to do the same.” Their non-destructive 3-D imaging technique should prove useful analyzing other insects’ brains as well.



Speaking of superpowers: Let’s stray for a moment from the insect world and talk about a jellyfish with “**amazing superpowers**” according to *National Geographic*.⁶ This animal’s capability for regeneration makes it almost immortal. Juli Berwald writes, “The moon jellyfish can **age backward, form hordes of clones, and regenerate lost body parts**, a new study says.” It’s like those characters in the movies.



Emblazoned with a four-leaf clover on its back and lined with a fringe of thin tentacles, the **moon jellyfish, Aurelia**, is a **veritable pantheon of power**.

It not only **regenerates** like Deadpool, it **ages backward** like Benjamin Button and **forms hordes of clones** like Jamie Madrox the Multiple Man.

Because of the stages in its lifecycle from polyp to medusa, it has been compared to the butterfly that undergoes a similar metamorphosis. What’s amazing is that moon jellies can morph back into the polyp stage. Some scientists think that understanding their extreme regenerative powers may provide insight into what causes cancer. There’s clearly a lot to learn from one of the “primitive” species that emerged in the Cambrian Explosion. “Look out, Spider-Man,” Berwald ends.

Evolution would predict simple to complex. Creation would predict complexity all the way down, each creature well matched

to its habitat and its needs. If the pinnacle of evolution, the human brain, cannot grasp the complexity of the smallest and simplest organisms, then creation is the winner hands down.

- 1 Forman, R. (March 2, 2016). A small dragonfly is found to be the world’s longest-distance flyer. *Rutgers Univ.–Newark News*. Retrieved March 15, 2016, from www.newark.rutgers.edu/news/small-dragonfly-found-be-worlds-longest-distance-flyer
- 2 Ceurstemont, S. (March 2, 2016). The secret of beetles that waterski so fast they vanish. *New Scientist*. Retrieved March 15, 2016, from www.newscientist.com/article/2079427-the-secret-of-beetles-that-waterski-so-fast-they-vanish/
- 3 Univ. of Surrey. (February 26, 2016). New research unveils graphene ‘moth eyes’ to power future smart technologies. *ScienceDaily*. Retrieved March 15, 2016, from www.sciencedaily.com/releases/2016/02/160226143935.htm
- 4 Stöck, A.L., D.C. O’Carroll, E.J. Warrant. 2016. Neural summation in the Hawkmoth visual system extends the limits of vision in dim light. *Current Biology In press*. DOI: <http://dx.doi.org/10.1016/j.cub.2016.01.030>
- 5 Univ. of Guelph. (March 3, 2016). Bee brains as never seen before. *UofG News Service*. Retrieved March 15, 2016, from <http://news.uoguelph.ca/2016/03/bee-brains-as-never-seen-before/>
- 6 Berwald, J. (March 2, 2016). Like ‘deadpool,’ this jellyfish has amazing superpowers. *National Geographic*. Retrieved March 15, 2016, from <http://news.nationalgeographic.com/2016/02/160302-jellyfish-immortal-science-animals-oceans-deadpool/>

GM

**See the newest
books and videos**

**Visit the CRS
Bookstore**

www.CRSbooks.org

877-CRS-BOOK





March / April 2016
Vol. 21 No. 2

All by Design

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

Hear, Ye - Hear, Ye

The owl, a nocturnal hunter, has one of the most extraordinary capacities for hearing in the animal kingdom. Even in absolute darkness, the owl can locate the exact location of a mouse or other small rodent by relying solely on its hearing, utilizing a process called **binaural fusion**. The owl's brain compares information from each ear, translating differences in the timing and intensity of signals reaching the two ears into a perception of a single sound emanating from a specific location.

Located in the owl's midbrain auditory area are **space-specific neurons** which react only to acoustic stimuli originating from discrete regions of space relative to the owl's ears, called **receptive fields**, giving the owl a "map" of auditory space. Because sound waves frequently do not reach both ears simultaneously, the Creator has given the owl two special gifts to enable it to process sound more efficiently.



If sound waves reach one ear before the other, specialized neurons serving as delay lines actually slow the rate of conduction of those signals along the processing pathway until the signals from the opposite ear "catch up" with them. Then, other neurons, called **coincidence detectors**, transmit the synchronous auditory signals to other areas of the brain for further processing.

The delay time between the original signals serves as one way of pinpointing the

source of the sound, making the owl one of the night's most skillful predators. The efficiency of this biological system did not arise by blind chance, but rather by an infinitely wise Creator who wants to point us to the truth of His existence and His desire to become the focal point of our lives.

Reference:

- 1 Konishi, M. (September 1, 2006). Listening with two ears. *Scientific American*. Retrieved March 15, 2016, from <http://www.scientificamerican.com/article/listening-with-two-ears-2006-09/>
- 2 Konishi, M. (April 1, 1993). Listening with two ears. *Scientific American*, pp. 66-73.

Barn owl image © 1997-2005 by the Washington Department of Fish and Wildlife (WDFW), all rights reserved. This is a reproduction of a WDFW document and is not the official document or regulations of the WDFW. The accuracy of the reproduction cannot be guaranteed by WDFW.