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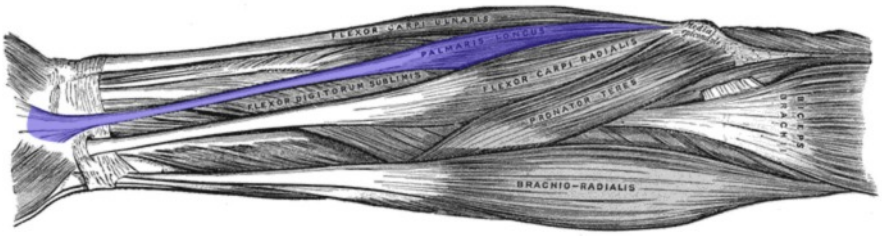
Palmaris Longus Muscle: Useless or Useful?

by Jerry Bergman, PhD

The *palmaris longus* is a small, cord-like muscle running beneath the skin from the front of the forearm to the palm of the hand. It is believed by many Darwinists to be vestigial (Kigera and Mukwaya, 2011). Vestigial organs are those that were useful in the past, but are useless or largely useless today. This slender, elongated, spindle-shaped muscle is located on the medial side of the flexor carpi radialis. The palmaris is widest in the middle, and narrowest at both the proximal and distal attachments (Drake, et al., 2005).



Palmaris longus muscle high-lighted in blue. (adapted from Gray's Anatomy, *public domain)*

It is regarded as vestigial because it is believed to have functioned in gripping tree branches and other objects in our purported common ancestry with the chimpanzees (Sebastin, et al., 2005b). The muscle is believed to have been particularly helpful for hanging from trees, as is common in many primates (Rogers, 2017). The palmaris longus is often assumed by evolutionists to be an "evolutionary leftover" from our primate ancestors. It is also assumed that features which have become irrelevant may persist if they exert neither positive nor negative evolutionary pressure. For this reason, it has long been termed vestigial in humans due to the claim that palmaris longus serves no apparent function in humans.

Common descent explanation

The evolutionary interpretation of the muscle's presence in humans assumes that the

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The Greatest Mathematician Ever

by Paul G. Humber

Before entering into the esoteric, let us start by saying that algebra and geometry are two major divisions of mathematics. Algebra deals with sets of numbers, including the variable "x." Some may object that "x" is not a number, but it is. The "x" is a definite but unspecified number. For example, there are two variables in this algebraic equation: $x^2 + y^2 = 1$. What is it saying? In "math-speak," it refers to the set of all ordered pairs such that the distance to (0,0) is the constant, "1." Does this relate to Jesus?

Math counts

The Lord Jesus (Creator Christ) is the originator of calculus, infinitesimals, infinity, and every geometric shape (see below), but He also expects us to know how to measure, count, add, subtract, divide, multiply, and reason. For units of measure, He used the cubit (Mt 6:27), the measure (Mt 13:33), and the mile (Mt 5:41). He also used counting numbers: 1, 2, 3, 4, 5, 7, 11,12, 18, 50, 70, 80, 100, 500, 4000, 5000, 10,000 and 20,000 (cf., Mt 10:29, Mt 12:40, Mt 13:33, Mt 16:9–10, Mt 19:28, Mt 20:6, Mk 14:30, Lk 7:41, Lk 10:1, Lk 13:4, Lk 14:31, Lk 16:7, Jn 4:35), and fractions. For example, He received a fraction from Zacchaeus (½; cf., Lk 19:8), and referred to another in the tithe.

He multiplied, as did Zacchaeus (cf., Mt 18:22, 70 X 7; Mt 13:8; and Lk 19:8) and also subtracted (100 - 1 = 99 in Mt 18:12; and 10 - 1 = 9 in Lk 17:17). His disciple, Luke, used the term "innumerable" (suggestive of infinity), and the Lord also distinguished order as in greater than/less than (few < many, cf., Lk 12:47–48).

Circles and spheres

Circles and spheres are very important in geometry. Isaiah 40:22 says that He "sits upon the circle of the earth." It may well be that the word used for "circle" could also be rendered "sphere." Prov 8:27 says, "He inscribed a circle on the face of the deep." In Acts 1:8, Jesus spoke of the "remotest part [singular]" of the earth. On a sphere, the remotest "part" is the other end of the diameter from where you stand, going through the earth's center, and intersecting the opposite side of the globe.

The Lord Jesus relates to infinity, for we read in John 3:34, "He whom God hath

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Math Matters
by
Don DeYoung, PhD

Electron Math

The three building blocks of all atoms are protons, neutrons, and electrons. The first two components are made up of smaller particles called quarks. Electrons, in contrast, have no smaller components in the Standard Model of physics. No size or internal structure has been measured for electrons, yet they have mass, electric charge, and angular momentum. One might suggest that current physics experiments and theory are simply unable to explore the inner parts of an electron.

Electrons show both particle and wave properties. In their wave nature, electrons are non-localized and are spread completely around the nucleus in their atomic orbits. In contrast, in the particle nature, using the Bohr atomic model, inner electrons orbit the nucleus in perpetual motion at 1/137 the speed of light (the fine structure constant), or 1400 miles/second (about 2200 km/sec).

The mass of a single electron is 9.11×10^{-31} kg. This is 1836 times less than that of a proton, which shows that electrons are a minor contributor to an atom's total mass. A single penny, whether made of copper or zinc, contains about 10^{24} electrons. This number exceeds the estimate of total sand grains on all the seashores of the world. Simply rubbing your finger across the surface of a penny scrapes off countless invisible electrons.

The electric charge of an electron is -1.6×10^{-19} coulombs. The coulomb unit of charge is the amount that flows past a point in a wire in one second when the current is one ampere; that is,

1 amp = 1 coulomb/second.

A flashlight produces about one amp of current. This means that 6.25×10^{18} electrons flow past a point in the flashlight circuit each second. The battery is not the source of electrons, but it causes the movement of electrons already present in the flashlight's metal circuit. The "drift velocity" of the countless electrons past a point in the circuit is actually small, only about 0.06 centimeters/second, a distance of one meter in 27 minutes. One can only imagine the immense crowd of electrons jostling though the flashlight's glowing bulb. Movement of the electrons between orbital energy levels leads to the visible light with a filament temperature of about 4600°F (2250°C). Creation details on the atomic scale of electrons are truly amazing.

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sent [referring to Christ] speaks the words of God, for God gives not the Spirit by measure unto Him." In other words, Jesus has received the Spirit without measure (infinitely). There is also, in that verse, a reference to the "Greatest 3"—God the Father, God the Son, and God the Holy Spirit. Jesus taught that the "Greatest 3" is the same as the "Greatest 1," for He said to baptize "in the name [singular] of the Father and the Son and the Holy Spirit" (Mt 28:19b).

Geometry

Previously, we said that algebra is about sets of numbers. Now we affirm that geometry, a second major heading under mathematics, deals with sets of points. For example, there is a one-to-one correspondence between the set of points on a circle with center at the origin and having radius 1 unit, and the set of ordered pairs (algebra) satisfying the equation, $x^2 + y^2 = 1$.

This can be extended three dimensionally. For example, $x^2 + y^2 + z^2 = 1$, is an equation with three variables. The geometric shape would be a sphere, and if we were to add the symbol "<" to the equation, the set of all points would either be on the surface of the sphere or inside the sphere. We would have a solid globe (think earth) with diameter 2 (i.e., radius 1).

Are we going a little far afield here? How does this relate to Jesus? The outer surface of the earth approximates a sphere/globe, and the Bible says that Jesus "in the beginning laid the foundation of the earth" (cf., Heb 1:10, quoting Psalm 102:26). Hebrews 1:8 speaks explicitly about Jesus (calls Him the "Son"), applying this passage to Him.

Is not Psalm 102 about Yahweh God? Yes, and Jesus is Yahweh God in human flesh. When a math teacher uses a compass to draw a circle on the chalk or white-board, one can be impressed. Which is more challenging, to draw a circle on a white-board or to make a spherical earth and hang it upon nothing?

Nothing? Job 26:7 says, "He stretches out the north over empty space and hangs the earth on nothing." He did the same for the sun, moon, comets, and stars! But the words quoted in Hebrews only said that Jesus "laid the foundation of the earth" — saying nothing about the sun, moon, comets, and stars. The verse continues, "And the heavens are the works of Your hands." In summary, Hebrews 1:10 says that the entire universe was made by Jesus, and there are other verses in the Bible that affirm the same. Jesus is indeed the Greatest Mathematician ever.

FIGURE 1. Trilobite compound eye. © 2009 by Micha L. Rieser. Wikimedia Commons.

Newton

Many people would say that Sir Isaac Newton was the greatest mathematician, but what did Newton say? He affirmed,

> This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being....This Being governs all things, not as the soul of the world, but as Lord over all; and on account of his dominion he is wont to be called Lord God … or Universal Ruler. (Newton, 1846; p. 501)

What about tiny little atoms and even the sub-particles, like protons, electrons, and neutrons? What about quarks and leptons? The Bible, referring to Jesus, affirms that "in Him all things hold together" (Col 1:17). In other words, all atoms "hold together" in Jesus!

Colossians was written by an apostle, but what did Jesus Himself say? In Mt 10:30, Jesus said that "the very hairs of your head are all numbered." How many mathematicians know the number of hairs on everyone's head all over the earth? Hairs are small, and if Jesus had referred to "quarks and leptons," how many people 2,000 years ago would have understood?

The number "3"

I taught mathematics for 3 decades, and I am particularly attracted to the number "3." The Lord Himself may also have had a special place for that number. The Trinity may have been one reason, but also in John 2:19–20, we read, "Jesus answered them, 'Destroy this temple, and in **3** days I will raise it up.' The Jews then said, 'It took 46 years to build this temple, and will You raise it up in **3** days?'" Even those who spoke out against Jesus remembered that number. One witness testified against Jesus saying, "This man stated, 'I am able to destroy the temple of God and to rebuild it in **3** days'" (Mt 26:61). Later, when Jesus was on the cross, a mocker ordered, "You who are going to destroy the temple and rebuild it in **3** days, save Yourself" (Mt 27:40).

Is this getting off track? No, the main track is to encourage readers to fall in love with man's only hope for heaven. Not only is He the Greatest Mathematician ever, but He was/is also the Greatest Prophet. Many today deny the resurrection of Jesus, but during Jesus' trials, even His enemies remembered His prediction that He would raise His own body ("temple") **3** days after being put to death. The trials against Jesus really happened, and we have a historical record that even Jesus' enemies affirmed, viz., that He had predicted His own resurrection. False leaders do not predict their own resurrections.

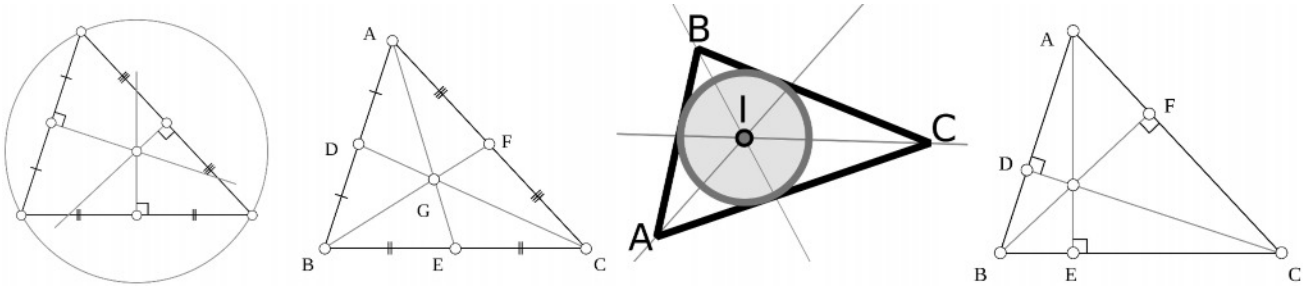
Trilobite eyes

At the beginning of this article, I referred to possibly "esoteric" subject matter. I shall resume. The trilobite eye was made by Creator Christ. Evolutionist Riccardo Levi-Setti's beautiful book, *Trilobites* (Levi-Setti, 1995), contains these words:

> Among the remains of early life on earth, the fossil record we find buried in ancient sedimentary rocks bears evidence of an extraordinary group of marine creatures, the trilobites. The position of these invertebrates in the [supposed] evolution of the animal kingdom is extraordinary because of their early ascent to a high level of functional complexity, described in fascinating detail by their persistent and ubiquitous fossil remains. (p. 1)

Let us continue, as this bears unwitting witness to the magnificent ability of our "Greatest Mathematician." This evolutionary author continued,

> Trilobites could see their immediate environment with amazingly sophisticated optical devices in the form of large composite eyes, the first use of optics coupled with sensory perception in nature. As a unique feat in the history of life, their eye lenses were shaped to correct for optical aberrations, with design identical to that proposed (quite independently of any knowledge of trilobites) by Descartes and Huygens. … (p. 1)
>
> When we humans construct optical elements, we sometimes cement together two lenses that have different refractive indices, as a means of



circumcenter **centroid** **incenter** **orthocenter**

FIGURE 2. The four common types of triangle centers (public domain, Wikimedia Commons).

> correcting particular lens defects. In fact, this optical doublet is a device so typically associated with human invention that its discovery in trilobites comes as something of a shock. The realization that trilobites developed and used such devices half a billion years ago (sic) makes the shock even greater. And a final discovery —that the refracting interface between the two lens elements in a trilobite's eye was **designed** in accordance with optical constructions worked out by Descartes and Huygens in the mid-seventeenth century — borders on sheer science fiction. (pp. 44, 54; emphasis added)

The author of the book was having difficulty believing that trilobites could do this on their own, but naturalism demands "No God!" He continued,

> By comparing the shape of the aspheric lens exit surfaces constructed by Huygens and Descartes with the two lens structures identified by Clarkson … little doubt remains that trilobites utilized the properties of Cartesian Ovals more than 400 million years (sic) before the seventeenth-century masters discovered the principle ... The design of the trilobite's eye lens could well qualify for a patent disclosure. (p. 57)

We could continue with the truth that mathematics is the basic language of creation, illustrating this with examples in nature of the Fibonacci sequence. There is much mathematics in music and symmetry, but let us conclude with the orderliness of triangles.

Triangles

We have referred to **3** in relation to the **Trinity** and the **3** days (prophecy of the Resurrection), but triangles are also marvelous in relation to **3**-ness. Triangles have **3** vertices and **3** sides. When three lines in a plane come together at a single point, we say that the lines are concurrent. It is typical that two lines in a plane will intersect, but that a third should go through the exact same point as the other two is very special.

Of interest are the four common types of triangle centers (Figure 2). Every triangle in the universe…

1) **…** has **3** perpendicular bisectors (1st triangle). Those three perpendicular bisectors always come together at a single point. That point-of-centricity is named the *circumcenter*, as it is equidistant from the **3** vertices. You can circumscribe a circle about that point that touches all **3** vertices.
2) **…** has **3** medians (segments from the vertices to midpoints of opposite sides). They, too, are always concurrent at a single point (2nd triangle). That point is called the *centroid*. It is the only point that is a third the distance from each side to the opposite vertex. This is true for all **3** medians of any triangle.
3) **…** has **3** angle bisectors, which are always concurrent at a single point, called the *incenter* (3rd triangle). Whereas the circumcenter is always equidistant to the **3** vertices, this incenter is always equidistant from the **3** sides. You can inscribe a circle tangent to the **3** sides using the incenter.
4) **…** has **3** altitudes, and they also are concurrent at a single point, which is called the *orthocenter* (4th triangle). The orthocenter is not always found inside the triangle. It will be outside for obtuse triangles, for which the altitude lines have to be extended so they will cross.

Conclusion

All of this points us to a remarkable orderliness in the universe. Triangles have a unity but also a threeness. Infinitely more special is God Triune — God the Father, God the Son (Messiah/Christ), and God the Holy Spirit. There never was nor ever will be a Greater Mathematician than the Lord Jesus Christ, who also died on the cross and who came alive again **3** days later.

What a mighty Christ we serve!
What a mighty Cre-A-Tor!
Let us bow before Him.
Heaven and earth adore Him.
What a mighty Christ we serve.*

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*Adapted from "What a Mighty God We Serve," Hezekiah Walker Lyrics.

...continued from page 1

muscle was inherited through common descent from our supposed, numerous, evolutionary ancestors, such as orangutans, which still actively employ the muscle (Thejodhar, et al., 2008). Ironically, our closest putative primate relatives, the chimpanzee and gorilla, do not actively use the muscle; hence the muscle also demonstrates much variability in these animals (Thejodhar, et al.,2008).

The common descent explanation concludes that, at some stage in the past, our ancestors actively employed the muscle. When the primate branch began to evolve the modern human-thumb apparatus, particularly the thenar muscles, the palmaris longus became vestigial. As there is no apparent positive or negative selective pressure for the muscle, it remains in most people. It is also hypothesized that its persistence may be due to the fact that mutations in the genes regulating the muscle may affect other body functions. Vestigiality in humans is disputed by creationists who believe that humans were created as perfect beings; thus, all organs originally existed for a purpose, however minor. Creationists therefore suggest that the organs that science regards as "vestigial" do in fact have a function if properly understood.

Its prevalence in humans

The palmaris longus muscle is one of five muscles that is part of a complex muscle system that assists with wrist flexion at the wrist joint. Its agonists include the flexor carpi radialis and the flexor carpi ulnaris; and its antagonists include the extensor carpi radialis rongus, extensor carpi radialis brevis, and extensor carpi ulnaris.

About 50 million Americans possess the palmaris muscle in only one arm, and only about 20 million people lack it in both arms (Thompson, et al., 2001). As noted, although it exists in about 86 percent of the American population, it is considered vestigial by Darwinists partly because of its small size in humans. Although absent in only 14 percent of the population, studies have documented that the *palmaris longus* prevalence or absence varies greatly in different ethnic groups.

Between 5.5 and 24% of European and North American Caucasian populations, and from 4.6 to 26.6% of Asian populations (Chinese, Japanese, Indian, Turkish, Malaysian) lack the muscle (Kose, et al., 2009; Sebastin, et al., 2005a). One African study found its unilateral absence was only 3.3%, and its bilateral absence only 1.1% of the population. The researchers concluded that the high level of the muscle's presence in this study was due to the higher levels of manual labor in the population that was studied (Kigera and Mukwaya, 2011). Clearly, it is one of the most variable muscles of the entire musculoskeletal system (Kose, et al., 2009).

Functions of palmaris longus

The palmaris longus muscle is, in fact, simply another of many variable traits in humans that are evidence of overdesign. In pronograde monkeys, which use their hands for locomotion as well as for grasping, this muscle is almost always present, and is fairly well developed. We might expect that in certain groups of people, lifestyle, such as participation in athletics, would likewise affect the development of a larger and stronger palmaris longus. And that is exactly what researchers have found. Use strengthens all muscles, large and small, and the palmaris longus is no exception.

In humans, this small muscle, as we've noted, can be developed if exercised. It is generally more common in males compared to females. This result would be expected in view of the fact that males exhibit much more "gross" muscle use and ability, and women demonstrate much greater "fine" muscle use and control. Individuals, male or female, who possess it have an advantage in accomplishing certain physical tasks. It may help them, for example, to become better athletes, from trapeze artists to tennis players, or musicians such as pianists (Koo and Roberts, 1997). Empirical research by Fowlie et al. (2012) found that for the sports that require a dominant-handed, or two-handed cylindrical grip, the presence of the palmaris longus was significantly higher in elite athletes than non-elite athletes.

It likely also serves an important proprioceptive role. Proprioception detects body motion or position by sensory receptors found chiefly in muscles, tendons, and joints to allow the person to fine-tune body movement awareness and coordination. It also has a role in stabilizing the palm or fascia, and aids in ante position and pronation of the thumb (Kose, 2009, p. 611). More studies of this muscle are needed to help determine the specific advantages that it confers upon its possessor.

Conclusion

The *palmaris longus* in the human forearm is not vestigial, but may be small and often undeveloped in Western society. Because it persists in the majority of the population, it is logical that it *must* have a function, even if we do not yet fully understand its use. Research, though, has made much progress in recognizing its important function in many people with certain lifestyles, such as some athletes and pianists.

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Matters of Fact

by

Jean K. Lightner, DVM, MS

Adaptation

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 **What is Adaptation?**

A The word *adaptation* can be used several different ways in biology.

Normal physiology

Physiologic adaptation operates constantly throughout the life of an organism. As in other creatures, our bodies constantly monitor conditions, both internal and external (temperature, humidity, oxygen levels, etc.), and respond appropriately. One of the most extensively studied areas where this occurs is in the body's response to physical exercise (USDHHS, 1996). This response not only includes immediate changes (increased heart and respiration rate to supply adequate oxygen), but also longer term changes to help meet a similar challenge in the future. This awe-inspiring response, of which we still only have partial knowledge, effects physiologic changes throughout multiple body systems, including the endocrine and immune systems. It clearly testifies to the wisdom of the magnificent Creator (Isaiah 45:18; Romans 1:20).

Next generation changes

Genetic adaptation is more difficult to study because it involves DNA differences which can be passed on to offspring. Rather than looking at the individual, it is more commonly viewed in terms of a whole population. For example, there are specific alleles (versions of a gene) that enable certain populations to thrive at high altitudes (reviewed in Lightner, 2014). It was challenging to design studies to identify putatively adaptive alleles, and it took more study to confirm them. Further, since no one observed the adaptive alleles' coming into existence, their origin must be inferred. Unsurprisingly, a person's worldview can heavily influence his or her conclusions.

Evolutionists believe that all alleles originated from mutation, tracing back to a single common ancestor. Creationists recognize two possible origins for adaptive alleles: either they were created, or they arose as a result of genetic change (mutation). Many appear to have been derived from the latter (Lightner, 2016a), and creationists have suggested that designed mechanisms play as critical a role here as they do in physiologic adaptation (e.g., Lightner, 2014). This means that a solid understanding of physiologic adaptation should provide a useful basis for understanding genetic adaptation.

Evolution and adaptation

When evolutionary biologists refer to adaptation, they are thinking of *genetic* adaptation. Based on their worldview, it was believed that genetic adaptation is a very slow and gradual process. Natural selection is assumed to be the cause of an adaptive allele's becoming more common in a population. New adaptive alleles supposedly originate from random, chance mutation (usually attributed to copying errors). However, the evolutionary prediction that genetic adaptation must occur slowly, turned out to be wrong (Akst, 2017). For decades now, they have recognized that adaptation often occurs very rapidly, which gives us good reason to suspect the naturalistic mechanisms of change which they propose.

Examples of rapid adaptation in fish, for example, include changes in life-cycle traits (growth, onset of maturity, level of reproduction) in response to predators and/or reduced oxygen levels (Diaz Pauli et al., 2017), and adapting to high levels of pollution (Reid et al., 2016). One challenge is distinguishing between physiologic and genetic adaptation. Biologists use the term "phenotypic plasticity" to refer to physiologic changes in response to the environment. In so doing, they insulate themselves from the obvious, astounding, multi-faceted design that is involved in well-studied examples of physiologic adaptation.

While phenotypic plasticity was traditionally ignored by evolutionists because it is not heritable, newer evolutionary models recognize that it is an important concept to consider. Evolutionists label phenotypic plasticity as either adaptive or non-adaptive. A recent paper on rapid adaptation in guppies made the astounding claim that non-adaptive plasticity potentiates adaptive (genetic) evolution in gene expression (Ghalambor et al., 2015). A closer look reveals some problems with this conclusion.

In the Ghalambor et al. (2015) paper, non-adaptive plasticity was defined as a change in gene expression in the opposite direction from that observed in adaptive (genetic) evolution. Yet, in the well-studied example of adaptation to high altitudes, physiologic adaptation is in the opposite direction as the genetic adaptation. There are solid physiologic reasons for this design, as some of the known genetic changes are important at higher altitudes where the physiologic changes are less effective (reviewed in Lightner, 2014). Thus, it is naive to claim that the plasticity observed was non-adaptive, and it is at odds with what is generally seen in physiologic responses.

There are other conundrums that evolutionists face when considering phenotypic plasticity. If it is adaptive, it should slow down natural selection. This is because the organisms are adapting without any genetic changes, and natural selection should not be as effective. Yet, the ability to adapt physiologically might be necessary for organisms to be able to survive in a new habitat, and have time for genetic changes to show up (Ghalambor et al., 2015). While there is exciting research being done to better understand genetic adaptation, the underlying mechanisms are still generally assumed to be random mutation and natural selection.

Creation and adaptation

A biblical worldview provides a different perspective. The Bible mentions that life was created "according to their kinds," and it was intended that they reproduce and fill the earth (Genesis 1:21–22, 24–25, 8:15–17). Thus, it makes sense that both physiologic and genetic adaptation take place in a timely fashion to allow creatures the ability to do so. It makes no sense for God to use "random mutation from copying errors" as the source for genetic adaptation, since they would not show up at an appropriate time. This is why creationists propose that there are *designed* mechanisms that induce appropriate heritable genetic changes, and finding these mechanisms is an important area of creation research (Lightner, 2014; Lightner, 2016b).

The Bible also provides a reason why these systems sometimes fail. The original creation was marred by mankind's sin, which caused disease, suffering, and death

to enter the world (Genesis 3). So, sometimes physiologic responses are not adequate to prevent disease (e.g., altitude sickness), and some genetic changes have adverse effects on health. These cases are more noticeable because disease is involved. Yet it is predicted that they are the exception rather than the rule, and continued scientific research is supporting this.

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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. Content may be edited for style and length.*

Instinct: 'Somehow' Is Not an Evolutionary Explanation

Why does America's most prestigious scientific journal put up with a story like, 'somehow it evolved in an ancestor'?

The word 'somehow' appears twice in this summary on *Phys.org*[1] of a Perspective piece in *Science*[2] about the evolution of instincts:

> A pair of biology professors, one with the University of Illinois, the other with Macquarie University in Australia has **proposed** in a Perspective piece in the journal *Science* that the traits we see as instinctual in animals were **likely** learned by ancestors. In their paper, Gene Robinson and Andrew Barron **suggest** that those behaviors learned by ancestors wound up in their DNA **somehow**, making them instinctual behaviors in later generations….
>
> But where did these innate abilities come from? That is the question posed by Robinson and Barron—they **suggest** many, if not all innate abilities **arise** due to an **ancestor** learning how to do **something** and then **somehow** passing that information along in their DNA.

To fill in the details of the 'somehow,' the evolutionists wave the word 'epigenetics' around. Their use of the word, however, is devoid of empirical evidence, rendering it equivalent to the 'somehow' hypothesis.

> The pair **suggest** such a form of **natural selection could** lead to behaviors being adopted at increasingly early stages, until they **appear** as if hard-wired into the brain, which **suggests** they **might** display it even before a given stimuli had been encountered. **They readily acknowledge that no such mechanism has been found** for converting epigenetic changes into DNA changes, but note that epigenetics is still a young science and that such a mechanism **could** yet be found.

Does the statement in *Science* improve on this vacuous episode of imaginary hand-waving? It's only one paragraph long.

> An animal mind is not born as an empty canvas: Bottlenose dolphins **know** how to swim and honey bees know **how** to dance without ever having learned these skills. **Little is known** about **how animals acquire** the instincts that **enable** such innate behavior. Instincts are **widely held to be ancestral** to learned behavior. Some have been elegantly analyzed at the cellular and molecular levels, but **general principles do not exist.** Based on recent research, **we argue instead that instincts evolve from learning** and are therefore served by the same general principles that explain learning.

From this kind of explanation, we learn several things:

- We know what we can observe.
- Evolutionists 'know little' about how animals 'acquired' instincts.
- Evolutionists 'hold' that instincts are ancestral.
- There are no general principles for the evolution of instincts.
- Explanations for learning and instincts evolve by convergent evolution.
- You can get away with empty speculation in *Science* Magazine, as long as you are an evolutionist.

Their explanation suggests a conundrum: did the ancestor learn by instinct? That conundrum has a corollary: do evolutionists learn by instinct to devise evolutionary explanations?

1. Yirka, B. (2017 April 7). Biology professors suggest instincts evolved from

learning. *PhysOrg*. Retrieved May 3, 2017 from https://phys.org/news/2017-04-biology-professors-instincts-evolved.html

2. Robinson, G.E. and A.B. Barron. 2017. Epigenetics and the evolution of instincts. *Science* 356(6333):26–27. doi:10.1126/science.aam6142

Saving Evolution with a New Narrative about Dinosaur Soft Tissue

The ability of evolutionary 'scientists' to distract attention from big questions and avoid the obvious has never been more evident.

The evolutionist's response to their most radical challenge in the last two decades seems to be, "When fossils give you blood, make lemonade." Look how a site called 'Experimental Biology 2017' is responding to the challenge of dinosaur soft tissue, according to *Science Daily*[1]:

> Researchers recently confirmed it is possible to extract proteins from 80-million-year-old dinosaur bones. The discovery sparks hopes for **new insights about evolution and environmental change and could even offer useful clues for drug discovery or the search for extraterrestrial life.**

Let's be clear. Dinosaur soft tissue is a challenge to millions of years. It has nothing to do with:

- Insights about evolution (other than falsification)
- Environmental change (other than a worldwide Flood, possibly)
- Drug discovery (scientists can use ostriches for that)
- SETI (no dinosaurs have been found in space)

According to the article, Mary Schweitzer, the discoverer of numerous cases of dinosaur soft tissue including stretchy blood vessels, is in on the revised narrative. She was to be presenting her findings on dinosaur soft tissue to the annual meeting of the American Association of Anatomists at an event for the Experimental Biology 2017 in Chicago this week. But instead of the society's expressing shame and dismay at an onslaught of falsification charges coming from creationists about long-age beliefs, they are passing out rotten blood lemonade:

> "We have transparent, flexible, hollow polymers that **have lasted for 80 million years**," Schweitzer pointed out. "**Someone surely can find a use for that!**"

One good use would be to ditch millions of years, and admit these specimens are not as old as claimed.

On the positive side, Schweitzer is working on better methods to discover soft tissue in the fossils:

> Now that she and her colleagues **have demonstrated repeatedly that proteins can be extracted from dino bones**, Schweitzer is focusing on new research directions. First, she is turning her attention toward **refining methods for studying these ancient proteins** so that paleontologists can **get more information with less damage** to specimens. Mass spectrometry, central to her team's current methods, is time-intensive and necessarily destroys the sample, so Schweitzer's team is working to build a database of methods and criteria that other researchers might employ to **get as much information as they can** from other fossils and optimize the use of mass spectrometry when it is truly worthwhile. She also is working on ways to **broaden the search for proteins to different dinosaur tissues, specimens and environments.**

Everyone can benefit from more data. Creationists might use the information to make inferences about antediluvian environments. Evolutionists who believe in millions of years, however, need to remember that nobody in secular science expected proteins to last for a few hundred thousand years, let alone tens of millions.

1. Experimental Biology. (2017, April 24). What can we learn from dinosaur proteins? The ability to extract proteins from ancient bones raises striking new questions. *ScienceDaily*. Retrieved May 3, 2017 from https://www.sciencedaily.com/releases/2017/04/170424141356.htm

Dinosaur Evolutionary Tree Is All Wrong

(provided by Jerry Bergman)

Oops… The dinosaur evolutionary tree is all wrong! A new study has revolutionized the dinosaur evolutionary tree, producing "the biggest change to dinosaur tree in 130 years" (*New Scientist*).[1] The old theory classified dinosaurs into two significantly distinct dinosaur families, those with bird-like hips that point downwards and towards the tail, called the *ornithischians*, and those with lizard-like hips that point downwards and to the front, called the *saurischians*. The new theory was based both on newer dinosaur findings that were not available earlier and a newer analysis of dinosaur traits by Baron and associates.[2] Instead of focusing on the pelvic bone, as in the old system, they analyzed 457 characteristics in 74 species.[3]

The researchers found that the 21 anatomical features they selected can be used to divide the dinosaurs very differently than the older system. As there is no correct way of selecting traits used to classify, selection of other traits could be used to divide dinosaurs into an even different evolutionary tree. Based on these features, the new tree puts *T. rex* and other theropods on the side of the "bird-hipped" creatures, and the sauropods with those related to *Herrerasaurus*, a South American bipedal carnivore. These findings forced development of a new dinosaur family tree. This revolution is not unusual in evolutionary biology, and illustrates the tenuousness of classifying life, a field termed taxonomy. Using one set of traits one can produce one taxonomy, and using another different set can produce a very different taxonomy. Thus, taxonomy classifications are somewhat tenuous.

The taxon *Dinosauria* was named in 1842 by paleontologist Sir Richard Owen (1804 -1892), a creationist. Richard Owen was one of the strongest scientific opponents of Darwinism during the age of Darwin. The term dinosaur means *terrible lizard*, due to

their size and assumed ferociousness. Paleontologists admit they know almost nothing "about the early evolution of these creatures, and in particular, the evolution of the dinosaurs before the [putative] saurishian-ornithischian split (Forster, 2000).[4] Thus, new discoveries can revolutionize their conclusions, as occurred in this case. Taxonomy is not only used to determine evolutionary trees, but also to differentiate one species from another. The problem is that the species concept is an imperfect and problematic method to classify life. As Cornell trained taxonomist Carol Yoon[5] wrote, species classification was the "gray area of the field" and, more problematically "it was a moving target," as this new dinosaur study shows.

1. Whyte, C. (2017, March 22). First dinosaurs may have been omnivores in the north hemisphere. *New Scientist*. Retrieved May 3, 2017 from https://www.newscientist.com/article/mg23331184-400-first-dinosaurs-may-have-been-omnivores-in-the-north-hemisphere/

2. Baron, M.G., D.B. Norman, and P.M. Barrett. 2017. A new hypothesis of dinosaur relationships and early dinosaur evolution. *Nature* 453(7646):501–506. doi:10.1038/nature21700

3. Padian, K. 2017. Dividing the dinosaurs. *Nature* 543(7646):494–495. doi: 10.1038/543494a

4. Forster, C. 2000. "The First Dinosaurs," chapter 2, pp. 41–52 in R. Silverberg, editor, *The Ultimate Dinosaur*, New York, Simon and Schuster

5. Yoon, C. 2009. *Naming Nature: The Clash Between Instinct and Science*. New York: Norton. pp. 104–105)

Image of various kinds of dinosaur skeletons, courtesy Wikimedia Commons and used under CCA license 2.5. https://commons.wikimedia.org/wiki/File:Various_dinosaurs.png#/media/File:Various_dinosaurs-2.png

Letters

CRS: More than Just Model Building

In a recent *Creation Matters* article, Dr. Robert Hill (2017) expressed the opinion that the original mission of the Creation Research Society (CRS), as defined by Dr. Walter Lammerts, was to re-evaluate science from a biblical worldview. Indeed, that is an important goal, but from the very beginning of the Society, as determined from an examination of early *Creation Research Society Quarterly (CRSQ)* publications, that was not by any means the only focus.

I would have never considered investigating a creationist worldview if it had not been for articles that exposed the fallacies of evolution. In particular, I remember a 1973 *CRSQ* article and subsequent book by James F. Coppedge, *Evolution: Possible or Impossible*, which shows the impossibility of evolution using the problem of left-handed amino acids. (Coppedge, 1973) Since I had attempted to assemble proteins in the laboratory, I was very familiar with the problem. I was able to quantify it to the extent to show that chance, mutations, and natural selection cannot explain the complex design of proteins.

This was enough for me to begin searching for new answers. I had been taught in college that the only reasonable explanation for the origin of life is evolution. When I discovered that the logical foundation for evolution had very little basis in fact, it was enough for me to consider pursuing a biblical worldview. That article was one of several that made a tremendous impact on me, and put me in the young-earth creationist camp.

At that time, in the 1960s and 1970s, we had the *Genesis Flood* book by Whitcomb and Morris (1961) and very little else to defend a biblical model. The fact that model-building was in its infancy did not deter me in my search because at last I could see that a biblical model was possible, far more possible than what I learned about evolution. Robert Hill stated that "It will not be possible to displace evolution in the minds of people unless we have a viable model to replace it." I disagree. I believe it is much more important to expose the illogical arguments of evolution to the point where people have no choice but to search for an alternative as I did. In addition, we must not leave evolutionary misinformation and the evil it causes unnoticed and unchallenged. To be most effective, let us use all of the weapons of warfare that we have in this battle, and not fight with our right hand tied behind our back.

Dr. Lammerts himself published a series of eight well-documented *CRSQ* articles listing places in the world where strata were in the wrong order according to the evolutionary sequence (e.g., Lammerts, 1987). These articles did not support a particular creation model. We still debate how strata are formed and how the order is laid down. The evidence that Dr. Lammerts presented was very effective against the geologic column espoused by evolutionists. This is only one example of many where it demonstrates that his intention for the Society was not just for model building. He used the principles of indirect proof by exposing the fallacious nature of the geologic column.

Dr. Lammerts wrote about the origin of the CRS in *The Journal of Christian Reconstruction* in 1974. In his effort to lay a firm foundation for the Society, he wrote "Our aim is an audacious one, namely the complete re-evaluation of science from the theistic viewpoint." (Lammerts, 1974) That process is two phased: first the deconstruction of the old model must take place, and only then is it possible to construct a new model based on a new foundation. The model based upon evolution is like a 150-year-old building. It is a crumbling, rat-infested fire trap full of garbage, with no historical value. It deserves to be bulldozed. If left standing alongside the creation model, it remains a threat because it is dangerous to all who enter therein.

Creation models are vulnerable. We cannot go back in time and experimentally verify our models, and in that way, we suffer from the same limitations that the evolution model has. We have at least five or six flood models, as well as that many cosmology models. We still cannot all agree even on what a biblical "kind" is. But the power we have lies in the indirect proof. We take the assumptions of the evolution model to a logical impasse and eliminate it as a possibility. Many such examples have been published in the *CRSQ* in years past, and it was these articles which I thought to be the most powerful and useful to encourage my faith.

— D. Sharp

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Discrediting Evolution Is Necessary

I would like to respond to Dr. Robert Hill's recent article (2017) in *Creation Matters.* As is well documented, coming out of atheism was difficult for me. The first step was to evaluate evolution by researching the evidence that was covered in the evolution chapters of standard college biology textbooks, starting with the biology textbook I used in college. I assumed the author had included the most well-supported evidence for evolution. I checked other books and found that most of the same arguments were used.

This evidence included vestigial organs, homology, beneficial mutations, evidence of poor design, the argument from imperfection, natural selection, and abiogenesis, among other topics. I also looked at the fossil record of plants, insects, amphibians, snakes, turtles, marsupials, whales, and humans, among others. I eventually concluded that no valid fossil evidence exists for macroevolution.

In my search, it soon became apparent that some questions were more difficult to answer than others. Of the sets of proofs that I encountered, I concluded that the easiest one to answer was "do vestigial (meaning once useful in our evolutionary past but now useless or degenerative) organs exist?" Many organs in the human body were touted by evolutionists as useless, and these were used as a major proof of Darwinism in most of the texts. They reasoned that God would not create functionless or inferior organs which often became diseased, such as the human appendix.

Only when I was convinced that evolution is false did I have any interest in creation models, most of which focus on the age of the earth/universe and flood problems. While much insight has resulted from creation model research, it soon became clear that they tend to be dominated by much speculation. Some common competing creation models include the residual catastrophism model, the Bretz Columbia River flood model, the catastrophic plate tectonics model, the Vardiman hypercane model, the biogeographic rafting model, plus the canopy model, the neo-canopy model, and the Smith Upheaval flood theory. The Trollingers (2016, p. 81) effectively show none of these models are empirical science, but are historical science, which Ken Ham and others document is problematic. In my half-century in the creation movement, I have seen creation models come and go, and must conclude that I doubt if any creation model would have convinced me to abandon Darwinism. Only clear evidence against evolution could do that.

I know many creationists who went down the same path that I did. Consequently, I edited two books, and two others are in preparation, that compiled scores of cases like my own. I also have worked with others to publish two empirical studies that found that the major evidence that would cause respondents to abandon Darwinism and accept creation is the case against human evolution. The so-called creation models ended up close to the bottom of the list of topics which respondents were asked to rank (Biddle and Bergman, 2017; Biddle, 2017).

— J. Bergman

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Response: The Mission of the CRS Is Still Model Building

I appreciate the chance to respond to the letters by Doug Sharp and Jerry Bergman regarding my article "The CRS Mission Is Model Building" (Hill, 2017). Both letters are similar in their line of reasoning. They essentially claim that model building is not the only objective of the Creation Research Society (CRS).

Both Sharp and Bergman place great emphasis on the anti-evolution articles published in the *Creation Research Society Quarterly (CRSQ*) and other creationist journals. They imply that the primary focus of the Society should be anti-evolution. They also disparage some of the creation models developed so far.

The two letters indicate that the authors do not understand model building. Model building will naturally have negative and positive aspects. The negative aspect involves tearing down other models. The positive aspect involves building new models. The negative aspect is much easier to do than the positive aspect. Tearing down other models means the *CRSQ* will publish anti-evolution articles. Publishing anti-evolution articles is part of model building and is consistent with the mission of the CRS.

The CRS is a scientific society. Science proceeds by model building. Therefore, the stated mission of the CRS is model building. The CRS website makes this clear when it lists the primary functions of the Society (Creation Research Society, n.d.):

- Publication of a quarterly peer-reviewed journal.
- Conducting research to develop and test creation models.
- The provision of research grants and facilities to creation scientists for approved research projects.
- Providing qualified scientists to speak to groups or churches.

— R. Hill

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Quarterly Research Matters

Summaries of Cutting-edge Research from the Creation Research Society Quarterly

*Summaries compiled by J. Lightner.

Creation research that engages the current scientific literature and builds the creation model is crucial; CRS exists to support and publish such research. Only through high quality research can we equip others with strong, sound apologetics arguments that show the robustness of the creation model over that of evolution.

CRSQ = Creation Research Society Quarterly

Lycopods and floating forests:

How did the massive Carboniferous coal beds form? Creationists and evolutionists have differing answers. Evolutionists, based on uniformitarian assumptions, propose that they were manufactured through a soil-forming environment (anthigenic) from plants growing in place (autochthonous) and deposited within coastal swamps and similar environments. Creationists prefer the catastrophic explanation, actually suggested hundreds of years ago, which proposes that these coal beds were formed from plant debris (detrital) transported and deposited to a different place than where they grew (allochthonous) (reviewed in Austin and Sanders, 2017).

One of the objections to the catastrophic model was that certain plants, including tree lycopods, were found in an upright (growth) position. Yet when Mount St. Helens erupted in 1980, it allowed for first hand observations of what a catastrophe could do. Observations of trees being ripped out of the soil and eventually deposited elsewhere, in an upright position, are illustrated and discussed in the popular, lay-level book "Footprints in the Ash" (Morris and Austin, 2003). Another uniformitarian objection is that tree lycopods, which are now extinct, were supposedly adapted to a terrestrial swamp environment. For a number of years creationists have promoted a floating-forest model which helps to counter this objection (Austin and Sanders, 2017).

However, other creationists have argued that details of the floating-forest hypothesis are inconsistent with geologic data (Clarey, 2015). In the Fall 2016 issue of the *CRSQ*, Clarey and Tomkins present further evidence suggesting that the floating forest hypothesis should be discarded. First, they discuss a well-preserved lycopod biome, which is the first identified location that provides strong evidence of tree lycopods in their true growing environment. Second, they discuss evidence that contradicts the proposal that major portions of the trees were naturally hollow. Instead, it appears there was rapid decay of softer tissue layers prior to deposition during the Flood.

Despite the disagreement on the original biome to which lycopods belonged, both creation views agree that the lycopods in coal deposits were from plant remains carried by waters of the Flood to where they were deposited (detrital and allochthonous). This type of disagreement in the creation community is important when it spurs on research to find more satisfying answers. Just as "iron sharpens iron" (Proverbs 27:17), being able to critically evaluate our ideas helps us hone our understanding and apologetic arguments in support of the creation model.

Austin, S.A. and R.W. Sanders. 2016. Floating mat model for the origin of coal is supported by new evidence from plant paleoecology. *Journal of Creation Theology and Science Series C: Earth Sciences* 6:1. Retrieved May 6, 2017 from http://www.coresci.org/jcts/index.php/jctsc/article/view/54/74

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Immunity or Interface

The study of the human body is often divided into systems, such as the cardiovascular system, the respiratory system, etc. One of these, the immune system, is commonly portrayed as being primarily involved in defending our bodies against many harmful pathogens. This view was shaped by the fact that pathogens, such as certain bacteria, have dramatic adverse effects on the body. Therefore, they were the microbes that gained attention and were studied in-depth early-on, as our knowledge of the microbial world began to develop. Yet, for decades now, it has been known that most microbes are not pathogens. Indeed, a wide variety of bacteria and other microbes are essential for proper development of the digestive tract and other body systems, as has been reported on previously in this publication (Lightner, 2010).

In the Fall 2016 issue of the *CRSQ*, Guliuzza and Sherwin argue that it is time that this body system is described in a way that more accurately reflects its function—viz., as a microbial interface (MI) system. Not only does this provide a more accurate understanding of the role it plays in the human body, but it has clear implications about its origin as a remarkable system, created by our omniscient Creator, that provides for harmonious symbiotic relationships, thus, enabling us to live healthy, productive lives to the glory of God.

Guliuzza and Sherwin look at the MI system from a design analysis perspective. Human-designed interface systems have three essential elements: authentication, protocols, and medium. The authors flesh out the details of how these elements function within our MI system. They also demonstrate how design analysis, in general, provides a more robust framework for scientific study, removing many of the non-explanations that are commonly proffered by evolutionists (e.g., co-evolution).

This article makes an important contribution to the creation literature by illustrating how starting from a biblical worldview, and using what has been learned from human experience as designers, we can better understand the works of the Master Designer and avoid the common evolutionary misunderstandings of the world around us.

Guliuzza, R.J. and F. Sherwin. 2016. Design analysis suggests that our "immune" system is better understood as a microbe interface system. *CRSQ* 53:123–139.

Lightner, J.K. 2010. Matters of Fact … Immune system. *Creation Matters* 15(6):11.

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

Reflecting on the Creator

Looking like silver drops of mercury on the sand, Saharan silver ants (SSAs) thrive in deserts where daytime temperatures can hit up to 158°F. Their dorsal surfaces are covered with thick, parallel hairs, triangular in cross section, each with one flat surface facing the body and with the other two corrugated, grooved surfaces angled up at about 40 degrees.

The angle and the pattern of the grooves on each hair create something called total internal reflection. Sunlight passes into one grooved side of each hair, is internally reflected off the flat bottom surface, and exits the other grooved side of the hair, reducing heat absorption from the sunlight. The grooves allow more light to enter the hair, thus reflecting more light away from the ant's body.

These hairs reflect light in the visible and near-infrared range and also emit light in the mid-infrared range to further offload excess accumulation of heat. SSAs exit their nest for a few minutes each day to forage for food, choosing the hottest time of day, when predators such as lizards are taking refuge from the sun's rays.

As if this wasn't amazing enough, SSAs have extra-long legs to further elevate their bodies from the sand. SSAs also produce what are called heat shock proteins, which help their bodies function in high heat. Most animals that produce these proteins do so DURING heat exposure. SSAs produce them BEFORE going out into the heat.

These supposedly "simple" creatures testify loudly to a planned and highly ordered creation.

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Image credit: A group of Saharan silver ants devouring a camel tick. © 2011 by Bjørn Christian Tørrissen. Wikimedia Commons. SA 3.0. https://commons.wikimedia.org/wiki/File:Saharan_Silver_Ants_Erg_Chebbi_2011.jpg