
Creation Answers

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Who does this newsletter?

This newsletter is produced by Wayne Spencer on a Quarterly basis. Its purpose is to bring creation research within the reach of Christians and provide up-to-date reliable information on creation issues. Wayne Spencer is a creation author and former teacher who has presented papers at the International Conference on Creationism and has published in various creation publications, such as the Creation Research Society Quarterly, Creation magazine, the Journal of Creation (TJ), and Origins (from the Biblical Creation Society, UK).

This newsletter is meant to help people plug into creation resources and get informed about creation and evolution. It is provided free of charge on request. Using the free Adobe Acrobat Reader is necessary for viewing the newsletter. There are no restrictions in copying this newsletter or passing it on to others. To request to be placed on the e-mail list, send a request to wspencer@creationanswers.net.

More information on Wayne Spencer's education and publications can be found on the creationanswers.net web site. You'll also find many other resources. <http://creationanswers.net>

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A Personal Note from Wayne Spencer

Greetings,

I would like to thank everyone again for requesting my newsletter. I would welcome comments or questions. I would also welcome suggestions for future topics. I decided to address a topic that has been a sort of favorite evidence for intelligent design among creationists over the years. Even Charles Darwin commented about the complexity of the eye. Working on this topic has made me struck by God's greatness and goodness. I fully believed God designed the eye before I wrote this article on it. However, I found I did not know the half of it. I would encourage you to share this newsletter with others.

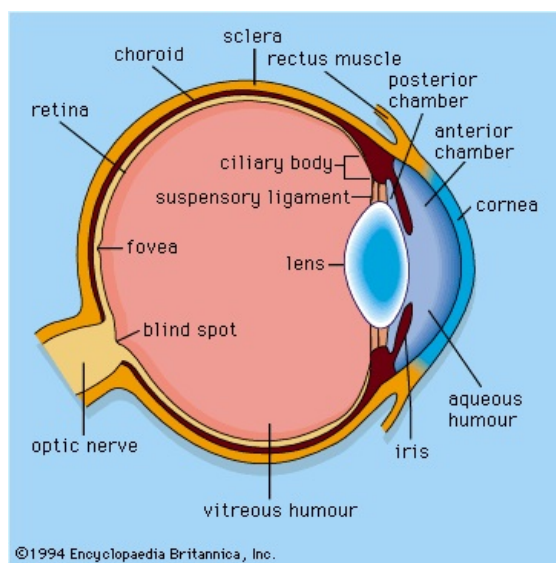
It seems opportunities for me to write about creation topics are increasing for me of late. So I have been and will continue writing for various ministries. On July 15 the Answers in Genesis website published an article I wrote called "From the Depths of Space." This was about an object detected by astronomers called a Gamma Ray Burster (GRB). This one may be the most distant object yet measured in the universe. You can go to <http://answersingenesis.org> and search for my name and find this and other articles.

Wayne Spencer, M.S., Physics

The Eye Really Has It!

It may be that one of the best examples of intelligent design in nature is the eye. For those of us who are not blind, we depend on our eyes a great deal. There have been many different applications of science for aiding people with various vision problems. If it were not for the great effort in medical research to find ways of addressing eye disorders, we might not have as much evidence for the intelligent design of the eye. Eyes, both in animals and in humans, have been studied in relation to their origins also. Charles Darwin and many other evolutionists have made comments about the eye and proposed theories about eye evolution. In Charles Darwin's Origin of Species book in 1859 he said the following,

"To suppose that the eye, with all its inimitable contrivance for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest possible degree."



Creationists have also frequently written about the eye and its complexity. This article will be a brief summary regarding problems with eye evolution, the inverted retina of the vertebrate eye (as in humans), eye movements, and the visual systems ability to adapt and correct for various effects. In researching this topic, I have felt overwhelmed because there is so much that could be said about the design of the eye.

Sight and Evolution

First, we will consider the problem of the evolution of eyes in the animal world. Living creatures exist with a wide variety of capabilities in terms of vision. Some creatures have no vision at all, though they can sense heat. Some have only "relatively simple" light sensing organs made to only detect light and darkness. About one-third of all animal phyla can be said to have eyes with a sense of vision. Approximately another third have just the ability to sense light and dark. Those who do not have vision do just fine because of the unique environment they live in or the way they make up for their lack of vision by use of other senses. A well known example of this would be bats, who have no sense of sight but have an extraordinary sonar capability.

Ability to see colors also varies among animals. Some mammals, such as cats for example, can see in very low light levels such as at night but see very little color. The human eye has three pigment cells (the cones) in the back of the eye for sensing red, green, and blue colors. What we think of as colors represents our response to different frequencies (or wavelengths) of light. Some animals, such as birds, can see more "colors" or frequencies than humans. Birds have four different types of cone cells for sensing color; one of them is for ultraviolet light. Birds (and insects) are able to see some light in the ultraviolet part of the light spectrum. Some

birds can also see polarized light. Honey bees also have three types of cones but what they see is ultraviolet, blue, and green.

There are some extraordinary cases of special adaptations or design features tailored to that creature's lifestyle. One example would be the eye of the chameleon, which uses a negative curvature or diverging lens, instead of a converging lens like most creatures, to adjust to distances. This allows chameleons to focus on objects only one inch from their eye, something humans cannot do.

How is all this variety a problem for evolution? Evolution says that all living things descended from a common ancestor and that life evolved from simpler forms to more complex forms over time. But if this is how living things came about, it means sight would have evolved separately and differently perhaps 40 to 65 times! Different creatures have eyes tailored to what they need for their lifestyle. Sea creatures have visual abilities tailored to being underwater; birds have eyes tailored to being in the air and being able to see long distances to distinguish objects on the ground. The complexity of sight makes it unlikely it would evolve by natural processes once, let alone more than 40 times!

Evolution implies there would be some evolved changes in animals that would not work, and there should be some fossil evidence of this. Actually there doesn't seem to be evidence of this at all. Instead, all the different types of eyes are fine working eyes and most of them appear very early in the fossil record. Also, in the fossil record, we don't see transitional forms that have nonfunctional eyes working up to functional ones. We have fully functional types like what are known today for the most part.

There are, however, some fossils of creatures now extinct which had unusual eyes, such as the trilobite. Trilobites had amazing eyes, some would argue they had the most complex eyes of any organism that

ever lived. They had what is known as the schizochroal compound eye. Perhaps the most amazing fact about them is that they used birefringent crystals. This involves two crystals made of different materials joined together to make a sort of double lens. This complex lens corrects for the different refraction (light-bending) effects of the two materials. It's not that trilobite eyes didn't work, it's that they were an incredible complex design that was just unique (for more on trilobite eyes see <http://creation.com/trilobite-technology>).

By evolution, some characteristics of eyes could have come from prior ancestors IF there is an indication of such ancestral relationships in fossil evidence. But such evidence from fossils is lacking. The unique characteristics of the many different eye designs makes tracing evolutionary phylogenetic lineage relationships impossible. Another way of putting it is this. If the creatures with 40 to 65 different types of eyes all have a common ancestor, then how did their eyes become so different, often with complex unique abilities?

One pair of scientists (Land and Nilson) put together a classification system for classifying different eye types. Each type represents a different geometrical arrangement for collecting light and forming an image (or images). One trouble with this type of effort is there is no way to arrange the types in a linear series of simple to complex. Sometimes "simpler" creatures have some of the most complex eyes. Crustaceans alone have representative examples from both the simplest eye type and the most complex eye type in the Land and Nilson system. Other types of information on eyes has been studied to find a way to classify eyes in a simple to complex manner. If you look at the number of nerve fibers in the optic nerve, you might think it would show some sort of simple to complex relationship like evolution, but not really. A pigeon has almost as many nerve fibers in its optic nerve as a human. An eagle has half

as many nerve fibers as a domestic pig, though eagles have very excellent sight.

The Inverted Retina

Next we will examine an issue raised by evolutionists to challenge the intelligent design of the eye. The light sensing cells are referred to as “rods” and “cones.” The rods sense black and white, especially for low light levels. In humans the cones are of three types to sense colors. The rod and cone photoreceptors are what an engineer might call optoelectric transducers. They convert the light reaching the back of the eye to electrical signals. In humans and most other vertebrate animals the light sensing cells are oriented pointing away from the light under several layers of other cells in the retina. The rods and cones are not on the top of the rear surface of the eye directly exposed to the light. Rather, they are underneath it and pointed back toward the brain. The nerves do not go out the back of the eye from where the rods and cones are either, but travel into the eye and across the inner surface of the eye to where the optic nerve is before they go to brain. Well known evolutionist Richard Dawkins wrote about this in his famous book, *The Blind Watchmaker*:

"Any engineer would naturally assume that the photoreceptors would point towards the light, with their wires leading backwards towards the brain. He would laugh at any suggestion that the photoreceptors might point away, from the light, with their wires departing on the side nearest the light. Yet this is exactly what happens in all vertebrate retinas. Each photoreceptor is, in effect, wired in backwards, with its wire sticking out on the side nearest the light. The wire has to travel over the surface of the retina to a point where it dives through a hole in the retina (the so-called 'blind spot') to join the optic nerve. This means that the light, instead of being granted an unrestricted passage to the

photoreceptors, has to pass through a forest of connecting wires, presumably suffering at least some attenuation and distortion"

This design of the eye in vertebrates may be non-intuitive but we really should look a little deeper before we "fire" God as an engineer. Following is a very simplified diagram of the layers of cells in the retina. Light comes in the eye from the top and the rods and cone photoreceptors are at the bottom, just above a special layer at the very bottom called the retinal pigment epithelium (RPE). The photoreceptors carry out some sophisticated chemistry in which certain chemicals change form in response to light. Proteins from the photoreceptors change shape (cis to trans isomers) and this causes them to change from being pigmented to transparent. This

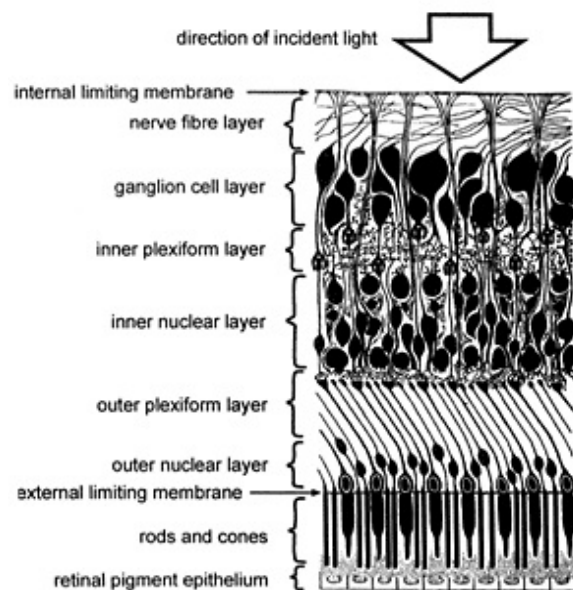


Diagram showing the layers of the retina. From J. Sarfati article. [Click for detailed reference.](#)

means that the chemicals have to be recycled and it must be done quickly, otherwise we would not be able to detect rapid light changes and our eyes would get

tired quickly. The retina and optic nerve are essentially extensions of the brain and the retina itself does very sophisticated processing that would be equivalent to a very powerful computer. In 1985 in Byte magazine there was an interesting statement from a professor of physiology and biomedical engineering considered the processing done by the nerves in the retina compared to what a Cray supercomputer of the time was able to do:

“To simulate 10 milliseconds of the complete processing of even a single nerve cell from the retina would require the solution of about 500 simultaneous non-linear differential equations one hundred times and would take at least several minutes of processing time on a Cray supercomputer. Keeping in mind there are 10 million or more such cells interacting with each other in complex ways, it would take a minimum of a hundred years of Cray time to simulate what takes place in your eye many times every second.”

But why the inverted design of the retina? First, the cells in the back of the eye are transparent to a high degree. In addition, certain cells in front of the photoreceptors act like organic optical fibers, transmitting light through the several layers to the photoreceptors. To see an interesting photo of this, go to this web article by creationist Dr. Jonathan Sarfati [click here](#). This is pretty recent research published in 2007 by researchers from Leipzig University in Germany. There are cells called Muller cells that are shaped like a funnel near the inner surface of the eye but like an optical fiber as they transmit light through the retina layers. The Muller cells also have the correct index of refraction to transmit the light with minimum loss and distortion. Even without the amazing Muller cells, there would be little attenuation of the light because of the transparent nature of these layers. For the same reason it does not

make that much difference which direction the photocells point. This fiber optic type design makes the eye very efficient in its use of the light.

But, something that does matter very critically is that the photocells must have a very abundant blood supply that will allow toxins to be carried away and used chemicals to be recycled quickly. Thus, for the RPE to be at the bottom of the retina immediately behind the photocells makes sense in order to provide a good blood supply and to carry away heat. Also the RPE is far from being transparent since it contains much blood. The RPE has complex functions that the eye depends on.

The retina of some organisms is not inverted, such as the squid for example. However, squid eyes are significantly inferior to human eyes, but are fine for what squids need under water. The inverted retina of vertebrates is not a poor design or an accident. It has the characteristics of an intelligently engineered system.

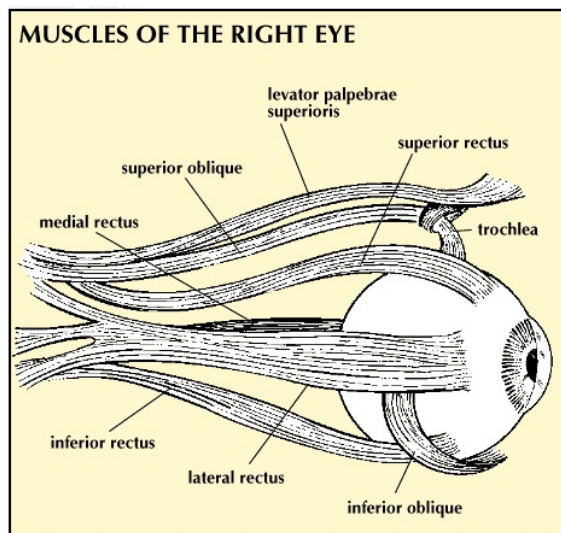
Eye Movements

There is much more intelligent engineering in the eye in the muscles that control eye movements. This implies intelligent design because of the way that multiple systems have to be coordinated to work together. Evolutionists often talk about things coming about “by chance and necessity.” But this ignores the real issue. Chance cannot generate complex information; neither can it coordinate multiple systems to operate together. This coordination requires intelligent planning and design.

There are many things about our sight that just works effortlessly for most of us, unless we have a problem with it. Humans are not like chameleons, whose eyes are able to move independently of each other, allowing them to look at two different objects at once. Our eyes are designed to focus and move together. Our eyes always work to focus on the same object. Each of our eyes

send a set of signals to the brain but in the brain the signals from the left and right eyes are mapped to one image. There are small differences between the information coming from the two eyes, and this information is used in depth perception. Recent research at Berkeley has shown that the retina separates what we see into 10 or 12 separated video streams that are processed in the brain as layers. How the brain creates our perception of what we see from this is a mystery. [Click to read about this.](#)

Our eyes are able to adjust their angle to direct our focus, such as when we are watching a moving object. The fovea is an area in the back of the eye the light focuses onto where there are the most photocells and where we have the clearest vision. So if we see something in the corner of our eye using our peripheral vision, we tend to turn our eyes and then turn our head to bring that object in clearest view. There



Muscles of the Right Eye, from Britannica 2008 Ultimate Reference Suite software.

are six muscles outside the eyeball that are responsible for moving the eye in all the various three dimensional angles our eyes can turn. These muscles work in combination to provide precise control of the

rotations of the eyeball. When one muscle on one side of the eye contracts, the opposing muscle or muscles relax. The eye muscles never totally relax however, they are always exerting at least some tension and movement.

In fact, there are very minute rapid movements (rotations) of the eyes that are imperceptible to us. Even when you are fixing your gaze at something in a steady fashion, your eyes are carrying out many minute rapid movements back and forth. These are sometimes called fixational eye movements. There is debate over the reason for these movements. These movements apparently relate to the fact that the retina temporarily stops processing light sometimes, such as while the eye is rapidly turning or when a bright light shines in the eye. If the eyes did not undergo small movements when you look steady at a stationary object, the retina might stop processing and quickly become unable to detect changes in what you see.

The eye muscles are composed of two types of muscle fibers. One set are for the larger voluntary movements such as when you are tracking an object with your eyes. The other muscle fibers are for the involuntary small fixation movements when you fix your gaze on an object. For the two eyes to keep focus on the same object, the brain must control the six muscles around each eye so the eyes move correctly together. Controlling the eye movements is a complex process involving feedback between the eyes, nerves, brain, and muscles. Some types of movements are compensated for by the brain, such as when you tilt your head while looking at an upright object. While tilting your head, the brain's image of what you're seeing stays upright so you don't get dizzy or disoriented too easily.

There are other designs in the way the eyes adjust and compensate for various effects. While eye movements are tracking a moving object, the eye may have to adjust for distance to keep focused on the object as

its distance to the eye changes. The inner ear is also tied into the visual system to aid in sensing direction and visual focus while the head is turning or the body is moving. All this is interpreted and managed by calculations in the brain. Adjusting for distance in focusing on objects is done by the eye adjusting the shape of the lens. Special fibers around the lens pull on it to make the lens thinner for focus at longer distances and the pull is relaxed to make the lens thicker for focusing at smaller distances. There has been some research on how the eye can do some self-correction of optical imperfections in the cornea and the lens. The cornea is the clear bulging area in the front of the eyeball which has the iris within it for admitting various amounts of light. Imperfections in the shape of the cornea or the lens cause various vision issues if they are significant. Even someone with very good vision has some imperfections in their eyes.

I will use my own eyes and glasses as an example of how the eye can adapt. I think it is an argument for design that I am able to adapt to my eye condition. I have a condition known as Amblyopia, also known as lazy eye. My left eye never totally focuses properly and does not work with the right eye properly. As a result my brain tends to emphasize my right eye in interpreting what I see. I don't see blur unless I close my right eye. But even with my left eye as it is and without my glasses on, I can pass a drivers eye test. I can pass the eye test in spite of seeing blur, because I have learned to interpret what I see.

For children with lazy eye, some ophthalmologists have them do a series of eye exercizes that are designed to force the use of the weak eye so the brain does not ignore it as much. I tried this for a while as a young person. It may have helped me interpret what I see better but I don't think it really changed my eyes.

Today, I wear glasses that are progressive trifocals. This means that the

two sides of my glasses are different from each other, and each side of my glasses have regions with three different focal lengths. So my eyes must adjust the left eye differently than the right eye so that the two eyes focus on an object. Also, when I change between the different focal areas of my glasses, the two eyes must each adjust to a new focal length.

Some people have difficulty getting used to bifocals or trifocals. Other than up close reading I generally like my trifocal glasses. However I have another pair made just for up close work like reading. It is amazing that I can get along as well as I do, considering that my left eye sees things in a blurry way all the time. All this is a testimony to how God has designed the eye as an adaptable instrument, so that it can adapt to a potential problem that could arise. This is designing for contingency, just like engineers sometimes do. If an engineer knows that a certain problem could happen, he can sometimes design into the system a means of working around the problem.

We are in a fallen world and mutations have degraded the way our bodies work. My lazy eye is not a reason to fire God as an engineer any more than the inverted retina, because human sin has affected all humans as well as the world we live in. Sin may have degraded God's design in ways, but it has not undone it completely. As Christians we can look forward in hope to the future, when we are promised we will have glorified bodies free of our current imperfections and health issues.

Intelligent design is displayed in the way things are made, and this is abundantly evident considering vision. As Romans 1:20 indicates, God's attributes are evident from what he created and it should motivate us to want to know and worship Him. God has designed many different types of eyes and vision in living organisms. He has designed spiders with eight eyes, the chameleon, eagles, and humans. God designed them all to have vision systems tailored to what they

need. The complexity built into the various visual systems of all these creatures does not give evidence that all life evolved from a common ancestor. Rather it gives evidence of a Creator who is an Absolute Genius as an engineer.

Tiny T and Big T-Rex

Recently on September 17th a news report was released by various scientific organizations about a dinosaur that has been found very much like *Tyrannosaurus rex*. It's official name is now *Raptorex kriegsteini*. It was discovered in China by an unknown person who sold it to a collector. Now the fossil is being given back to science for study and it will eventually go back to China. Many dinosaur fossils have been found in China. This is interesting because *Raptorex* has all the characteristics of the bigger *T-rex* but it is much smaller. To see why evolutionists consider this a big deal, let's review a bit on evolution and transitional fossils.



Picture from National Geographic. For more [click here](#).

Tyrannosaurus rex first appears in rocks that are dated at about 85 million years by evolutionists. Though the exact site where the *Raptorex* fossil came from is not known, it was in a block of rock that

contained other fossils such as fish and clams. The *Raptorex* fossil was almost complete. Scientists believe these fish and clam fossils make it clear that it came from Northern China's Yixian fossil formation where other dinosaur fossils have been found. From the evidence in this block, scientists believe *Raptorex* is about 125 million years old, putting it well before the time of big *T-rex*. Evolutionists believe the big form of *T-rex* we are familiar with evolved from smaller dinosaurs that are similar, such as one called *Albertosaurus* for instance. There were a number of dinosaurs similar to *T-rex*, though they are all somewhat smaller. *T-rex* could weigh up to 6 or 7 tons and was about 46 feet long. Some of its smaller cousins were more like 25 or 30 feet long. However the new *Raptorex* is only about 8 or 9 feet long. It is estimated *Raptorex* would weigh approximately 150 to 180 pounds.

One of the interesting findings on *Raptorex* is its forearms. The forearms of *T-rex* have always been a mystery to scientists because it has always been unclear how they were used. We can't figure out everything about how a dinosaur lived from fossils. The forearms of *Raptorex* are also proportionally small, much like its bigger cousin. Evolutionists believe that *T-rex* evolved from an earlier class of dinosaurs called the Carnosaurs. The Carnosaurs all had forearms that were larger and they had 3 to 5 claws on them. But *T-rex* and now *Raptorex* have small forearms that have only two claws on them. These forearms cannot come close to reaching the mouth or nose and they have a very limited range of motion. There has been much speculation about the usage of the small forearms. I think the best possibilities may be 1) they may have helped the animal get up from the ground if it went down prone on its stomach. Or 2) they may have helped hold onto prey while attacking or eating. It was a little surprising to evolutionists that a specimen seeming to be an earlier *T-rex* relative had forearms that were not significantly larger.

Evolutionists assume that Raptorex is a transitional form between the Carnosaurs and the large T-rex. However, it does not look transitional at all in its skeletal characteristics. It is believed to be older than T-rex from the date of the fossil. (Evolutionary dates of fossils are wrong from a creation point of view also.) I would say the argument for it being a transitional form is very weak. In a creation view, all the dinosaur types may have lived at the same time. However, they were not necessarily buried together or buried simultaneously during Noah's Flood. A small form like Raptorex may or may not be a juvenile. The news reports do not indicate if that was determined. Usually if it is a specimen not fully grown, this can be determined from studying a cross-section of the bone. In any case Raptorex could well be of the same Biblical "Kind" as T-rex and perhaps other similar dinosaurs.

To read a news report on the Raptorex click one of the following:

[National Geographic](#)
[Guardian news from UK, with video](#)

DFW Area Creation Events

Readers in the Dallas-Fort Worth area may be interested in knowing about these creation related events coming up.

First, a once a month evening lecture at Preston Road Church of Christ, in Dallas, TX. See the pdf link below for details. There are four dates where men from the Institute from Creation Research are speaking at this church. The dates for this are

Sept 13--John Morris (already past)
Oct 11--Frank Sherwin speaking;
Nov 8 -- Randy Guliuzza speaking;
Dec 6--Henry Morris III speaking.
6:00 - 7:30 PM

for details download this:

http://prestonroad.org/pdf/fall09_creation_series.pdf

Second, another unrelated event on October 23-24 at Southwestern Baptist Seminary in Fort Worth, TX. This is a conference called "**Science & Faith, Friends or Foes?**" This is sponsored by the Discovery Institute, which is part of the Intelligent Design movement. Well known people from that movement will be speaking, including William Dempski, Jay Richards, and Ray Bolin from Probe ministries. It will cover Friday morning, afternoon, and evening as well as Saturday morning and afternoon. They have one talk on theistic evolution and some topics related to the Bible. You can pay \$75 for the whole 2 days or \$40 for Friday evening and Saturday (with meals). It's also free for college students.

To get details go to

<http://scienceandgod.org>

or <http://www.discovery.org/e/901>