

# Eyes to See

*by: Ronald L. Dart*

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Do you think it is really safe for us to conclude that there is NO God? Or that at least to conclude that God isn't there?

Perhaps He just started everything and wandered off somewhere. Maybe He has a lot of worlds out there and He just has given up on the "earth project" or lost interest in it.

After all we don't seem to be doing very well with it on our end. Some of His prophets in the old days said that God got pretty well turned off with this project and considered forgetting the whole thing.

A man named Noah saved our bacon the first time and Moses on another occasion so it doesn't seem very smart just to dismiss the idea of God out of hand, He has after all quite a lot invested in the "earth project" and if you can believe the people He has sent to tell us what is going on, He is not only interested, He is mighty annoyed with us and has a view of setting some stuff right. That settling of accounts is going to be down right painful for some people.

Now pardon me for saying so, but it seems down right stupid to just assume that there is NO God or that He isn't interested. What if you are wrong? Aren't the stakes awfully high? What would it cost you to examine the evidence?

Consider the simple fact that science now tells us that some fourteen billion years ago, there was nothing, absolutely nothing, and then, in a heartbeat, there was everything. Hey, this isn't my idea, this comes from Science. One moment there was nothing and the next moment there was everything that ever has been or will be. Someone hung the label "Big Bang" on the event and it stuck.

Now the Bible presents the event a little differently, but it agrees on the most important point: One moment there was nothing and the next moment there was everything that ever would be. Its true you know.

The stuff of which your kidneys and your liver is made came into existence all at that one moment of time. True, the manner has gone through a few translations over time but the atoms are as old as time.

The Bible says that the first man was made out of "dirt." Science says that life might have originated out of "green slime." That's close enough to agree on for the moment. The point being that somewhere between "dirt" and "green slime" and the man we see standing before us, something had to be done. Not just something, a lot of stuff had to be done and when you really look at it the implications are awesome.

### **At the Eye Doctor's Office**

For example: I have to see my eye doctor three times a year and I am always left waiting in his examination room while he works his way through however many customers aligned up ahead of me. The walls of that room are covered with pictures and diagrams of the human eye.

I found myself one day staring at one of the pictures with something approaching religious awe. The eyes that I looked at all around that room were plainly designed. It seems impossible to me that any one could fail to see that. It was one particular diagram that started me thinking. It was a vertical cross section of the eye with everything named. It was there to help the doctor explain things to his patient. When he starts using fancy words as to what's going wrong in your eye, he can point to something on the eye chart and tell you this is what it is, it is this that is breaking down and this is what the problem is.

Now, the chart itself was designed to make things as simple as possible so it is easy to pick out the different parts of the eye and the thing was huge so it was easy to see.

### **Rods and Cones**

Now I already knew what rods and cones were. Rods and cones are the light sensors arranged around the back of the eye in the retina. A navy school explained that to me so I would understand night vision. They are like the film in a camera, except that they constantly renew themselves. There are millions of them in each eye. Light enters the eye through the cornea, passes through the lens and gets focused on the surface of the retina, just like the image does in your camera. When light strikes the rods and cones a chemical change takes place and a tiny electric current is generated, the current travels along fibers to the optic nerve and to the vision center in the brain and "presto" we can see.

Most people don't realize, by the way, that we actually see with the brain. All of these electrical currents have to be translated into something to be useful. Now it sounds simple enough, at least that's what I thought, till I noticed something that didn't make sense as I was staring at the "eye chart". Now imagine the sensors at the back of the eye, each one with an electrical connection that sends an "off" and "on" signal down the line to the optical nerve. What I noticed was, there are one hundred and fifty million rods and cones in the retina of the eye to receive and record light, but there are only one million fibers in the optic nerve to carry the data. Now that looks like to many items of data coming down for the wire needed to carry the information to the brain. When we look at an object, an image is projected on the

retina of the eye and it stimulates all one hundred and fifty million rods and cones. Each of them has to carry its own message to the brain, so we can see the entire image, projected there.

Now simple math tells me that one hundred and fifty different signals have to travel down one optic nerve fiber, and I wondered to myself, standing looking at the eye chart on the wall. How does it do that?

Having a basic knowledge of electronics, I knew you could carry multiple messages down one wire. Most people understand that a lot of different phone conversations can travel down one wire and hopefully we don't hear one another talking.

All of those messages have to be coded in such a way as to be properly directed and understood at the other end. I wondered, how in the eye the coding of this was done? That was not on the eye chart, so I decided to ask my eye doctor. When he finally came in, I asked him, how is this done? He said: "Well, there is this tiny computer chip behind the eye." We had a good laugh, because I thought he was joking. He went on with the eye examination.

I wasn't satisfied. I knew that there wasn't a computer chip, and I wanted to know how it was done. When I got home, I took my Britannica to my favorite chair and I propped up my feet and started reading. Much to my surprise, the doctor wasn't joking at all, there really is a computer chip of sorts. It is not in the brain, where you might expect it to be, it is in the retina itself.

### **The Retina and the Vision Network**

Now, pay close attention here, the sensors of the eye, the rods and the cones are not hard wired into the brain. Behind the sensors is a network of interconnected nerve cells, all right behind the rods and cones that generate the electricity and tell us what the image is on the retina of the eye - a whole network. Now I learned that groups of rods and cones are connected together in networks and that the signals received by one influences the signals sent by the others. Some signals are strong and others are suppressed. All of this goes on in a little tiny circuit behind the retina of your eye.

The result is, think about this, the image you finally see, what you are looking at right now, if you are staring out of your car, or looking at the clothes on your ironing board, or whatever you're doing right now, that image you are looking at is in reality, computer enhanced. If you look at a fine black line on a white piece of paper, the image of the line that strikes the retina is relatively broad and composed of shades of gray. This is because the optics of the eye are not geometrically perfect. They are perfect for their purpose but they are not geometrically perfect.

In the nature of things, the diffraction of light spoils the perfect image. The spread of light from the white areas into the black has to be corrected, so the tiny computer chip in the retina enhances the contrast.

Now in the old days, we knew what contrast was, we had to actually turn a contrast knob on our television sets to get it worked out so we didn't have fuzzy images, it helped us to get a good clear image.

The rods that receive more light in the back of your eye inhibit the rods that receive less and the resulting transmission to the brain is a fine black line.

### **Playing with Lens**

Now if you have ever played with lens, you have noticed a phenomenon called: "chromatic aberration." It is in the nature of a lens that it focuses different colors of light at different lengths. In other words, you know from when you were a kid that you had to move a magnifying glass up and down to get the image sharp. If you wanted to light a fire on some kindling, with a lens, you have to move it back and forth to get your spot to focus, but the problem is that red focuses at a different length from the lens than blue.

Now the result of this is you get a little margin of color around the image created by the lens. It happens in your eye just like it happens on your twig.

As you look at a white object on a black background the lens in your eye created a halo color around the image just like that, but you do not see it. Why don't you see it? Because the little computer chip, behind your retina, suppresses it.

The "Designer" wanted you to have a nice clean image to consider. He wanted you to see the world like it is.

But that's not all the little computer does. Take the problem of panning, for instance. You probably have had some guy with his home movies or VCR camera make you dizzy by panning the camera, by sweeping across a scene and it will make your eyes cross.

Now, where you are, try to do the same thing with your eyes. Try to move them slowly from one part of the room, or wherever your vista is, to another sweeping like a camera would pan. Now why don't you get that dizzying blur with your eyes? Stand in front of a mirror and look at your eyes. Look at one of them, then shift your gaze to the other. If you are like most people you will not see your eyes move. What happens is, that the little computer chip in the back of your eye momentarily suppresses vision, you only see when the eye stops.

Now that is a nice little design touch, isn't it?

We are not troubled with blurs as we move our gaze from one object to another. Try it! Scan around, what looks like a camera pan is to the eye a series of steps, each one accomplished

neatly and without thought. Actually it is more than a nice touch, it is an integrated part of a design system and it is brilliant!

Perhaps you can begin to see where I am going with this. So, where am I going? The eye of man did not progress from "green slime" to the engineering master piece of vision that you and I possess without some intelligent consideration of how the job ought to be done.

I got another surprise when I learned that individual sensors in the eye do not always send a steady message to the brain when you are steadily looking at something. In fact, if the retina is steadily and evenly illuminated, there is very little going on in the optic nerve. Some of the sensors in the retina act like little "on" switches and others act like "off" switches. The result is that the brain is not bombarded with unnecessary information. When light strikes a set of rods, the message tells the brain that the light is on, the rods don't tell the brain anything till something changes. The brain keeps telling you that the light is on even though nothing is coming up the optic nerve. This is how one hundred and fifty million sensors can work with only one million wires to carry the message. They don't use the wires all of the time.

Also, each rod and each cone has its own identity code and ends up directed to its correct place in the vision center of the brain, even if it is part of a mass of messages coming from many rods and cones.

### **The Eye is in Constant Movement**

While we rarely think about it, the eye is in constant movement. Some of that movement is so small that it is hard to detect, but here is the key, the eye must move in order to see. You may think, you are staring fixedly at some object but your eye is always making tiny little movements.

If you were able to fix your unmoved gaze on a black spot, it would disappear in a few seconds. The rods and cones would adapt to the stimulus and switch it off, so it is necessary to move the eye enough for the image to fall on a new set of rods and cones every few seconds, and yet it still has to keep the object in the center of your gaze without giving any impression of movement. This is all microscopic, it is all computer controlled, you could not stop the movement of your eye if you tried. It has to be there or you couldn't see, but it has to hold it steady or you would go nuts.

Do you think there might be some design here?

### **A Pulley in your Eye**

Did you know, by the way, that you have a pulley in your eye?

You know of course, that you have muscles that move your eyes. You are conscience of them as you move your eyes from the extreme limits both vertically and horizontally. You can feel them. There are four of these on each eye. They are positioned above, below and on

each side of the eye. If you or I were designing this eye, we would probably think that that was plenty. After all, you can look up and you can look down and you can look sideways or in any combination of those.

Why do we need more than that? Well as it happens, there is something else you need. You have two other little muscles that runs through pulleys and enables the eye to actually roll in the socket a little bit. If you tilt your head toward your shoulder those muscles act to keep the eye vertical. One more little touch of design. Just sit there, and tilt your head to one shoulder then tilt it to the other, and the image you are looking at stays upright the whole time. It is a nice little design but the Designer of the eye had more problems to solve.

### **How the Retina Senses Light**

Of special importance is the fact that the amount of light striking a rod or cone is very small, too small to provide the energy to create an electrical charge. How does the retina sense light? It does it through a chemical process, when it is exposed to light, the chemical substance of the retina breaks down into two other substances and generates the energy to turn the switch "on."

It takes about a half an hour in the dark for the chemicals to re-combine, this period is what we call "dark adaptation." So we've got not just a mere electrical condition, we've got a chemical/electrical combination that is going on here and it is incredibly complex. We see through a complicated set of optics, now a chemical reaction, computer enhancement, brain interpretation and more.

The eye turned out to be a much bigger deal than I had ever imagined standing there in my doctor's office. It became clear that the eye is useless by itself. It is part of a system of vision.

Television is also a system of managing images. A video camera is useless by itself. You could drag one all over the place on your vacation, but if that's all you got, you would never see anything. It needs a system of cables, modulation, amplification, broadcast, reception and display to be of any use at all.

The same is true for the eye. The images that fall on the retina of your eye must be processed and transmitted to the vision center of the brain to mean anything.

Now in a video camera, the image is projected by a lens onto sensors in the back of the camera. This image is picked off by a series of sweeps of beams of electrons that go by that is coded and sent along to a video screen. Here a beam of electrons sweeps across the screen at four hundred or six hundred lines per screen depending on the system and it causes microscopic dots to glow in color. This produces an image on the television screen for us to see.

Now you sit there and wonder, well do I have a screen in my brain somewhere, where all of this goes on? Now it is significant to know that the video system sees nothing. It simply transmits an image to be seen. The image is not real, it is just glowing dots on glass.

Your dog, for example, sitting in your lap does not see what you see when it watches television with you. Animals sense movement and sound but unlike you they see no depth in the screen. In fact neither do you, but your system, your vision system, is designed and trained to interpret what you see on a flat screen in terms of depth and texture. The dog's system, the dog's brain is not designed that way.

In the eye, an image is focused on the retina, where it is sensed by one hundred and fifty million rods and cones, it is computer enhanced and adjusted, sent to the brain and merged with the image from the other eye but this combined image is not projected on to a screen to be seen.

What it does is absolutely incredible!

### **You Can Move Into It**

Now let's see if we can understand the difference in what happens with television and what happens with your own vision. The images are processed by the brain, these images that come from the eye from the rods and cones, down the optic nerve, and they create in your mind not a picture of the world around you. They create in your mind the world itself. Look around. What you see is not a picture, it is real. You can move into it.

I have sometimes stood in front of a gorgeous landscape painting and thought, "Oh wouldn't it be wonderful to be able to just walk into that picture."

Well, the picture you are seeing right now, you can move right into it. It has texture, it has depth, it has color. Objects are related to one another in space. You can walk over to a table and touch it. It is precisely where you saw it to be. It is real. You'll even be able to predict how it will feel by the way it looks.

It is really staggering when you think about it, that we are designed, our eyes, our optic nerve and the brain to produce for us the world inside our minds.

### **Systems of Vision**

Now, there are those who will tell you that all of this evolved, without conscious direction from a Designer. They point to a wide variety of eyes from the simple to the complex and they argue that development up the scale is possible, and yet there is no evidence that an evolutionary process ever took place and more important there is no reason why it should have. Furthermore, each of the eyes in nature, is part of a system of vision. Never let yourself forget this, we are not just talking about the eye, we are talking about an entire system.

The eyes of birds, bats, fish, dogs and cats, each are a part of an intricate combination of complex sub-systems. No part of these systems is of any value without the other parts, in whole, no part of one system, is of any value with another system. A bird would not profit with the eyes of a fish. That's an extreme example, but it is true none the less.

Having the eyes of a man would not profit a dog. A man, arguably has the most developed eye, and we are certainly satisfied with the one we've got, but it is useless for a dog. A hound would lack the mental capacity to make use of what he could see.

The human system of vision might actually make it hard for a wolf to survive. He needs his particular combination of senses to hunt, to eat and to live. Animals like this are able to fix their eyes in such a way that they are attracted by movement, anything that moves in the field, catches their attention, their eye and their system of vision is designed for that.

Philip Johnson in his book: "Darwin on Trial" summarizes nicely: "Some single cell animals have a light sensitive spot with a little pigment screen behind it, and in some many celled animals a similar arrangement is set in a cup which gives improved direction finding capability. The ancient nautilus has a pin hole eye with no lens. The squid's eye adds the lens and so on it goes. None of these different types of eyes are thought to have evolved from any of the others, however, because they involve different types of structures, rather than a series of similar structures growing in complexity."

Evolutionists admit being baffled by the nautilus. Continuing now to quote: "which in its hundreds of millions of years of existence has never evolved a lens for its eye despite having a retina which is practically crying out for this simple change."

### **God Designed the Eyes**

The eye did not evolve blindly, it was designed. It was designed by someone who could Himself see. Psalms 94:9 says: "He that formed the eye shall He not see."

When I took my encyclopedia back to the shelf, I placed it there with a sense of awe because that short article made it impossible for me to believe that such a system for seeing could have evolved on its own.

It was designed by an intelligence who knew that there was something to see, and He gave it to man because He wanted man to see it.

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