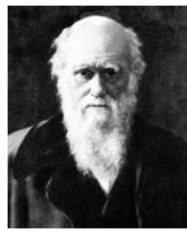


# What Darwin Didn't Know



Charles Darwin admitted that it was absurd to see how the eye could have come about by evolution. He said:

'To suppose that the eye with all its inimitable contrivances 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 degree.'<sup>1</sup>



If Darwin had known all that we have discovered about the eye, since his day, he may well have given up completely on his theory of the origin of life.

## Ophthalmics (Eye Science)

One fascinating discovery in ophthalmics is that, apart from what Darwin was able to observe,

scientist have discovered that there are some imperceptible eye movements caused by minute contractions in the six muscles attached to your eyes.

## Tremors

These are the tiniest and probably the most intriguing of these movements. They rapidly wobble your eyeball about its centre in a circular fashion. They cause the eye to continually move in tiny circles with incredibly minute diameters of approximately 1/1000 of a millimetre. This size is about 1/70 of the thickness of a piece of paper.

The eyes wobble continually in this way about 30 to 70 times each second. The number of tremors taking place in a lifetime is astronomical!

Even though tremors are not large enough to be visible without great magnification, you could not see properly without them. Consider what would

happen if these eye movements stopped while you were staring at someone's face. The light-sensing cells in your retina would quickly 'stabilize', and cease to send updated information to your brain, causing the image you perceive to fade into a uniform gray within seconds

This, continued change in the light projected on each retinal cell is crucial for constant vision.

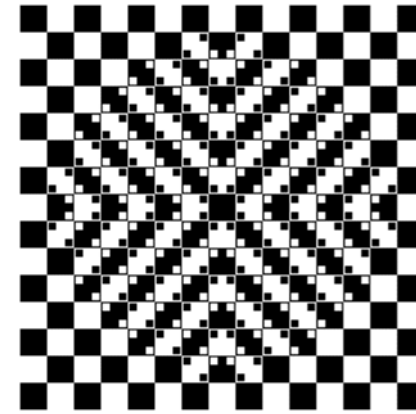
## Drifts

Another recent discovery concerning the eye is that of drift movements. During a drift the eye moves relatively slowly and smoothly off the target where you are looking until it reaches an angle equal to about 12 times the size of a tremor. At this time the eye automatically jerks back to its original position. These jerks, which are called 'saccades,' happen up to several times a second.

## Eyes on the Move

An interesting way to observe the effect that drifts, along with

their associated saccades, have on your visual system is to carefully study the type of graphic shown here.



Hold the paper still and look at the chequered board. It should appear as if the squares are moving. This effect is

caused by these small movements which the eye is producing continually, without us ever being aware of them.

Large saccades are employed in scanning motions like reading. As you read this article, you may think your vision is smoothly scanning, letter by letter, or word by word, but this is not so. Instead, the precise alignment of your two eyes is synchronously hopping along, via those 'jerk-back' saccades, following each line.

During the moment a saccade is occurring, your vision is blurred, so between the hops are momentary stops. These give the brain time to decipher the printed letters into meaningful phrases.

Modern day robot designers cannot produce 'robot eyes' which have anywhere near the complexity of the human eye, with its fine-tuned nervous system which makes precise, coordinated muscular movements (like tremors, drifts and saccades) possible.

The eye is so ultra-complex and its systems so finely tuned, it cannot have come about by chance. Unless the systems the eye uses, including the brain's ability to decipher and make sense of the images it receives, had been complete from the beginning, the eye would have been useless. The more scientists discover about the human body the more they are faced with abundant evidence of design. This all testifies to what the Bible tells us—that God is continually showing us "His eternal power and Godhead" (Romans 1:20) in the things He has made.

When Darwin made his assumptions about the origin of organs, he had nothing like the knowledge we have today. Had he been aware of the need for the tiny precise circles and the hopping eyeball motions that are

going on all the time while we are awake, he may have abandoned his theory of evolution as a foolish and impossible theory as to how all these wonderful things could have come into being.

There is abundant evidence of the Creator's handiwork in all we see around us, and in what we use to see what is around us!

Taken from "Darwin vs the eye"  
*Creation ex nihilo* **16**(4): 10–13  
September 1994 by Tom Wagner

1. Darwin, Charles. *The Origin of Species*, J.M. Dent & Sons Ltd, London, 1971, p. 167.