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ARTICLE 4:

The Problem WITH Half an Eye

CAN INTRICATELY COMPLEX ORGANS LIKE THE EYE BE A RESULT OF TIME PLUS CHANCE?

The Problem With Half an Eye

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Larry Chapman

THE PROBLEM WITH HALF AN EYE

CAN INTRICATELY COMPLEX ORGANS LIKE THE EYE
BE THE RESULT OF TIME PLUS CHANCE?

THE EYE IS LIKE A TELEVISION CAMERA—BUT FAR MORE SOPHISTICATED

Looking down at Greenland from 32,000 feet on my trip from Rome to Seattle, I heard a strange noise in the aircraft that sent my blood pressure soaring into hyperspace. Suddenly I began to wonder what would happen if one tiny part on the enormous Boeing 747 failed. Engines, hydraulics, air pressurization—all were complex systems that worked only when several interdependent parts functioned properly.

In vain I sought comfort in my airline pretzels, but comfort can never be found in low-fat foods. I kept thinking of all those dedicated employees (excuse me: "members of the Boeing family") shown on the commercials who apparently love nothing more in life than a well-oiled 747 and who perpetually ponder my safety. But the nagging thought still popped into my head: "Just one faulty or missing part and I'd become part of the first bomb ever to be dropped on Greenland."

In one sense, biological systems are like my Boeing 747: one missing or defective part and they won't work. Here lies one of the major unanswered problems of biology. How did highly complex, interdependent biological systems like the eye develop slowly over eons of time? They would never have worked until fully developed.

Let's step back for a minute and think about all this.

Airplanes, automobiles, cell phones, computers, and other complex machines, can always be traced back to a designer. However, with biological systems, materialists (those who believe nothing exists outside of the material world) assume there is some natural process that created such systems.

The real issue here is whether or not a designer is behind such complexity. There are four possibilities:

1. A designer created biological complexity supernaturally
2. A designer created biological complexity through natural processes
3. A designer combined natural processes and supernatural means to create biological complexity
4. A designer doesn't exist. Complexity came about naturally.

Materialists believe the latter. Scientists who advocate intelligent design generally agree that some superintelligence is behind it all, even though they leave the nature of a designer to theologians.

Here we must look at the evidence to see which of the possibilities makes the most sense. To determine the best option, we need to look closer at complex biological systems to determine whether they can be explained by natural causes alone.

LOOKING AT THE EYE

DARWIN ONCE STATED, "IF IT COULD BE DEMONSTRATED THAT ANY COMPLEX ORGAN EXISTED WHICH COULD NOT POSSIBLY HAVE BEEN FORMED BY NUMEROUS, SUCCESSIVE, SLIGHT MODIFICATIONS, MY THEORY WOULD ABSOLUTELY BREAK DOWN."

The human eye is perhaps the best-known example of a complex system that couldn't just pop up overnight. ("Say, Bill, what's that thing growing on your face?" "I thought it was acne, but now that you mention it, I think I can see out of it.")

With the eye we are not merely dealing with complexity, but with hundreds of separate parts that must work together in unison with incredible precision. Those who study the inner workings of the eye say it operates much like a television camera, but is far more sophisticated. In fact it is more sophisticated than any machine imaginable.

DARWIN'S BIG IDEA

Since the dawn of history, the eye and other complex biological systems had baffled materialists. How could they exist without a designer? However, that changed in 1859 when biologist Charles Darwin published his revolutionary, *The Origin of Species.* The big idea in Darwin's book was that life in all its complexity came about by a process he called *natural selection.* In other words, according to Darwin, no designer is needed. Materialists were elated.

Darwin postulated that natural selection was totally responsible for the complexity of organs like the eye, addressing the issue in a special section entitled, "Organs of Extreme Perfection and Complication."

In his special section Darwin brilliantly argued that the eye might have developed in any number of ways. His reasoning was that even a partially developed eye would offer a creature some evolutionary advantage.

His explanation for the gradual development of such complex systems certainly had its critics, but by and large his ideas were embraced because they helped to explain a great deal of the observable phenomena of our world.

As the evolutionary movement grew, a great deal of evidence seemed to confirm Darwin's theory, evidence similar to what you were taught in your high school textbooks. Adaptability, survival of the fittest, and other Darwinian tenets are clearly demonstrable within a given species. Materialist Richard Dawkins remarks of Darwin's acceptance among most biologists, "Today the theory of evolution is about as much open to doubt as the theory that the earth goes round the sun…."[1]

As an atheist, Dawkins seems to applaud Darwin as the hero behind a purposeless world of chance. He writes, "Darwin's theory of evolution by natural selection is satisfying because it shows us a way in which simplicity could change into complexity, how unordered atoms could group themselves into ever more complex patterns until they ended up manufacturing people. Darwin provides a solution, the only feasible one so far suggested, to the deep problem of our existence."[2]

Since Darwin's theory was birthed in the mid-nineteenth century before the discovery of DNA and the intricacies of how life works at the molecular level, there was no scientific evidence to refute his claims. By the mid-twentieth century, Darwinism had gained widespread acceptance, but mounting evidence persuaded some scientists that his theory was incapable of accounting for life's intricate complexity.

This led to a series of meetings where scientists from various disciplines attempted to hammer out a coherent and unified theory of evolution. The result was called the "evolutionary synthesis," also known as Neo-Darwinism.

But as Dr. Michael Behe, associate professor of biochemistry at Lehigh University, notes in his book *Darwin's Black Box*, "One

branch of science was not invited to the meetings [that produced the evolutionary synthesis], and for good reason. It did not yet exist."[3] Behe is referring to his own field of study, biochemistry.

Behe's field did not begin until later in the century, after the advent of the electron microscope. Yet biochemistry is perhaps the most critical of all the disciplines for this study, because it analyzes life at the cellular level and observes the molecular foundations of living organisms.

If Darwin's general theory of evolution is a valid explanation of how life can develop wholly apart from outside intelligence, then it must be demonstrated to be operating at the molecular level. But does Darwin's theory hold up under such scrutiny?

A BETTER MOUSETRAP

Darwin once stated, "If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."[4] Behe's book, in essence, says, "OK, Charles, take a look at these!" And goes on to cite a handful of examples of what he calls irreducible complexity.

By irreducible complexity, Behe means a single system of interrelated parts, where the absence or failure of any part causes the entire system to non-perform or abort. In the airplane example, it could be a missing wing, rudder, or a defective integral part of the hydraulic system. In the eye, it could be a defective or missing cornea,

retina, pupil, optic nerve, etc. All must work in concert for the eye to see.

So how did each of these separate parts evolve together over eons of time? Could the eye have served any purpose without being complete? We are not merely talking about a half-developed eye, but the eye at all its various stages of development throughout hundreds of millions of years (according to Darwin). Darwin himself stated that his theory (that all life is a product of natural processes alone) stands or falls on its ability to explain how an incomplete organ like the eye can benefit a species.

Behe uses a mousetrap as a nonliving example of irreducible complexity. Five basic parts of the trap must work together in order for it to catch mice: (1) a flat wooden platform; (2) a spring; (3) a sensitive catch that releases when pressure is applied; (4) a metal bar that connects to the catch and holds the hammer back; and (5) the hammer that serves as the instrument of death and cruelty for our harmless mouse.

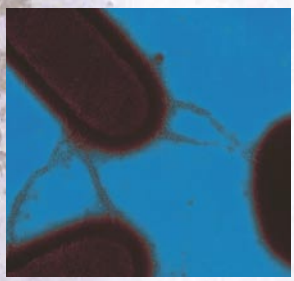
A mousetrap needs each of these parts to kill mice. Each part works interdependently, and so a partially constructed mousetrap serves no function and is worthless.

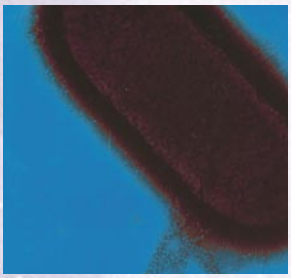
Behe's book focuses on a handful of examples, though he states that any biology book contains dozens of them. One of the examples he cites is the microscopic bacterial flagellum, which the bacterium uses as a miniature whiplike rotary motor to propel itself. The flagellum is a swimming device that works similar to a rotary propeller. It is described by Behe like this:

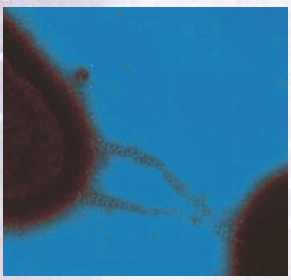
> Just picture an outboard motor on a boat and you get a pretty good picture of how the flagellum functions, only the flagellum is far more incredible. The flagellum's propeller is long and whiplike, made out of a protein called flagellum. This is attached to a drive shaft by hook protein, which acts as a universal joint, allowing the propeller and drive shaft to rotate freely. Several types of protein act as bushing material (like washer/donut) to allow the drive shaft to penetrate the bacterial wall (like the side of a boat) and attach to a rotary motor. … Not only that but the propeller can stop spinning within a quarter turn and instantly start spinning the other direction at 10,000 rpms.[5]

"NOW THAT THE BLACK BOX OF VISION HAS BEEN OPENED, IT IS NO LONGER ENOUGH FOR AN EVOLUTIONARY EXPLANATION…EACH OF THE ANATOMICAL STEPS AND STRUCTURES THAT DARWIN THOUGHT WERE SO SIMPLE ACTUALLY INVOLVED STAGGERINGLY COMPLICATED BIOCHEMICAL PROCESSES THAT CANNOT BE PAPERED OVER WITH RHETORIC."[6]

-Michael Behe
Professor of Biochemistry







The flagellum's molecular motor requires 20 proteins, all working in synchrony, to function. Like the partially constructed mousetrap, the flagellum would be worthless and perish unless all 20 proteins were fully developed.

Dr. Robert Macnab of Yale University detailed the tiny molecular motor of the E. coli flagellum in a 50 page review, concluding that its development cannot be explained by Darwinian evolution. Labeling Darwin's explanation an "oversimplification," Macnab questions how a non-functional "preflagellum" could have evolved part by part with each being indispensable to its completed function.[7]

Another example Behe cites is what he calls "the intracellular transport system" found within cells. The magnified cell in Darwin's day looked something like an opaque pancake jellyfish with a fuzzy-looking dark spot in the center called the nucleus. It all looked so simple. Only recently, under powerful magnification, have the mysteries of the cell begun to be unveiled.

Molecular biologist Michael Denton uses a similar metaphor to describe the cell's complexity:

> To grasp the reality of life as it has been revealed by molecular biology, we must magnify a cell a thousand million times until it is twenty kilometers in diameter and resembles a giant airship large enough to cover a great city like London or New York. What we would then see would be an object of unparalleled complexity and adaptive design.
>
> On the surface of the cell we would see millions of openings, like the port holes of a vast space ship, opening and closing to allow a continual stream of materials to flow in and out. If we were to enter one of these openings we would find ourselves in a world of supreme technology and bewildering complexity.[8]

But, again, it is not simply complexity; it is irreducible complexity. Going back to Behe's illustration of the mousetrap, everything must be in place for the system to work. Missing just one component, the whole system is worthless. Behe remarks,

> The point of irreducible complexity is…that the trap we're considering right now needs all of its parts to function. The challenge to Darwinian evolution is to get to my trap by means of numerous, successive slight modifications. You can't do it. Besides, you're using your intelligence as you try. Remember, the audacious claim of Darwinian evolution is that it can put together complex systems with no intelligence at all.[9]

FINGERPRINTS OF A DESIGNER?

Several materialists have taken issue with Behe's case for irreducible complexity, but none have adequately explained a process by which such complex organs and systems have evolved by mere chance.

Surprised at the sudden maelstrom caused by his book, Behe defends his position in *The Boston Review*. "The rotary nature of the flagellum has been recognized for about

25 years. During that time not a single paper has been published in the biochemical literature even attempting to show how such a machine might have developed by natural selection."[10]

In *The Flagellum Unspun*, Ken Miller argues against irreducible complexity, labeling Behe and other intelligent design advocates, "unimaginative."

Dr. William Dembski rebuts Miller's objection by stating, "The problem is not that we in the intelligent design community…just can't imagine how those systems arose.… Darwin's theory, without which nothing in biology is supposed to make sense, in fact offers no insight into how the flagellum arose."[11]

EACH HUMAN EYE...

- HAS OVER 100 MILLION RODS
- HANDLES 1.5 MILLION SIMULTANEOUS MESSAGES
- MOVES 100,000 TIMES EACH DAY
- HAS AUTOMATIC FOCUSING
- HAS SIX MILLION CONES
- CAN DISTINGISH AMONG SEVEN MILLION COLORS[13]

James Shapiro, a biochemist at the University of Chicago, concurs, "There are no detailed Darwinian accounts for the evolution of any fundamental biochemical or cellular system, only a variety of wishful speculations."[12]

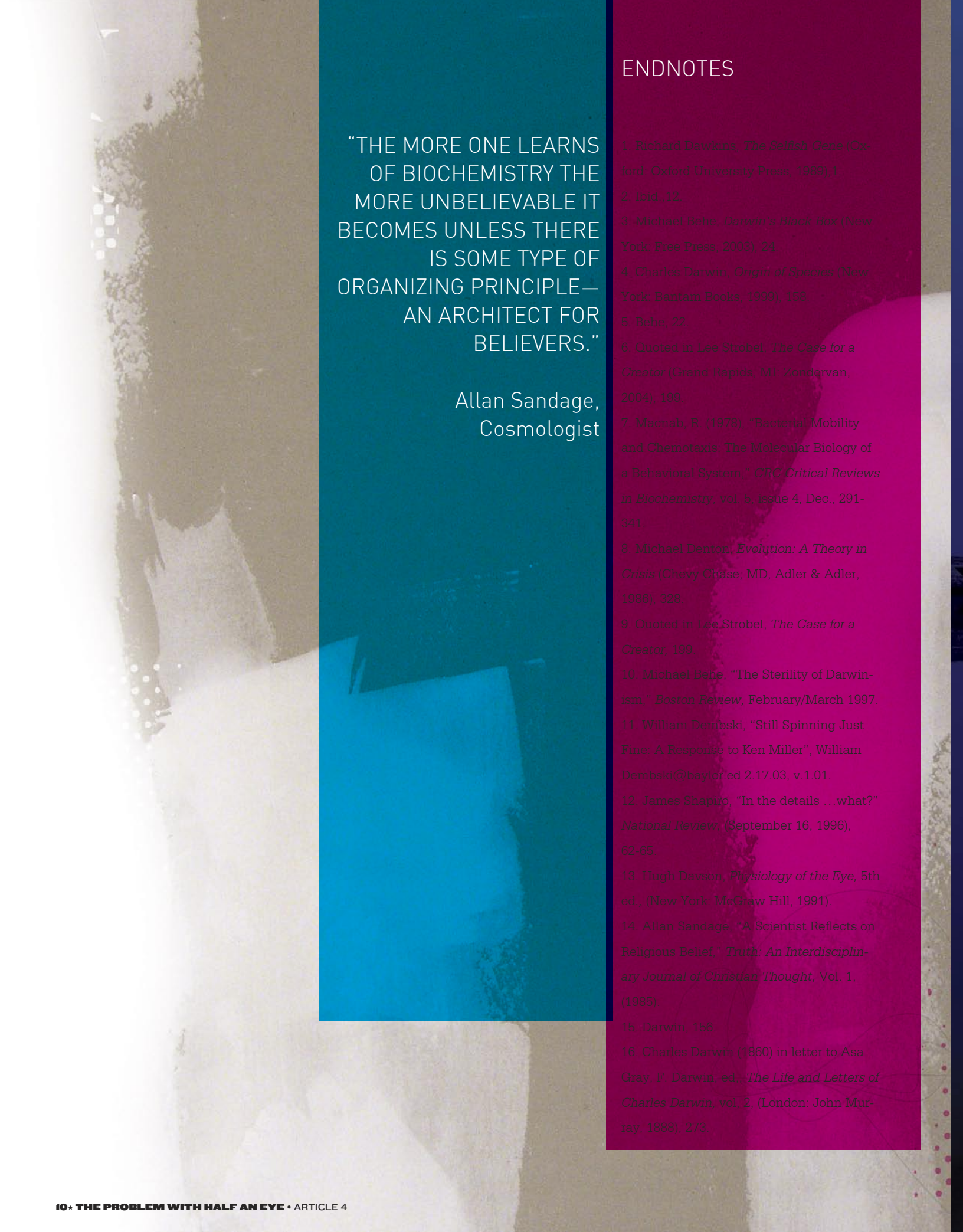
Darwin's Black Box is a scientific book, not a theological one, but Behe has been joined by a growing number of scientists who claim they see the fingerprints of intelligent design within irreducibly complex biological systems. One of them,cosmologist Allan Sandage has remarked: "The world is too complicated in all its parts and interconnections to be due to chance alone. … The more one learns of biochemistry the more unbelievable it becomes unless there is some type of organizing principle—an architect for believers."[14]

EXTREME PERFECTION AND COMPLICATION, INDEED

We began this article by mentioning the objection of the human eye as it was raised and addressed by Darwin. For most people coming to grips with the implications of materialistic evolution, complex structures like the human eye are not simply a hard pill to swallow but rather a chicken bone stuck in the throat. Intuitively, we struggle to imagine how such a structure could slowly develop over time and what use a half-developed eye would serve.

A careful reading of Darwin's explanation in "Organs of Extreme Perfection and Complication" reveals that he never answers the problem. In fact, regarding how the eye got started, Darwin stated, "How a nerve comes to be sensitive to light hardly concerns us more than how life itself originated."[15]

Did Darwin really believe the eye evolved bit by bit over time? Although his theory attempts to explain how it could have happened, many believe Darwin himself was unconvinced. Years after he had written his world-changing theory Darwin admitted to a friend, "The eye to this day gives me a cold shudder."[16] Hmm…



"THE MORE ONE LEARNS OF BIOCHEMISTRY THE MORE UNBELIEVABLE IT BECOMES UNLESS THERE IS SOME TYPE OF ORGANIZING PRINCIPLE—AN ARCHITECT FOR BELIEVERS."

Allan Sandage,
Cosmologist

ENDNOTES

1. Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1989), 1.
2. Ibid., 12.
3. Michael Behe, *Darwin's Black Box* (New York: Free Press, 2003), 24.
4. Charles Darwin, *Origin of Species* (New York: Bantam Books, 1999), 158.
5. Behe, 22.
6. Quoted in Lee Strobel, *The Case for a Creator* (Grand Rapids, MI: Zondervan, 2004), 199.
7. Macnab, R. (1978), "Bacterial Mobility and Chemotaxis: The Molecular Biology of a Behavioral System," *CRC Critical Reviews in Biochemistry*, vol. 5, issue 4, Dec., 291-341.
8. Michael Denton, *Evolution: A Theory in Crisis* (Chevy Chase, MD, Adler & Adler, 1986), 328.
9. Quoted in Lee Strobel, *The Case for a Creator*, 199.
10. Michael Behe, "The Sterility of Darwinism," *Boston Review*, February/March 1997.
11. William Dembski, "Still Spinning Just Fine: A Response to Ken Miller", William Dembski@baylor.ed 2.17.03, v.1.01.
12. James Shapiro, "In the details …what?" *National Review*, (September 16, 1996), 62-65.
13. Hugh Davson, *Physiology of the Eye*, 5th ed., (New York: McGraw Hill, 1991).
14. Allan Sandage, "A Scientist Reflects on Religious Belief," *Truth: An Interdisciplinary Journal of Christian Thought*, Vol. 1, (1985).
15. Darwin, 156.
16. Charles Darwin (1860) in letter to Asa Gray, F. Darwin, ed., *The Life and Letters of Charles Darwin*, vol. 2, (London: John Murray, 1888), 273.

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