

## CHAPTER 9 - BIOLOGY PART 3 - THE SEARCH FOR DESIGN IN NATURE

Visual #9-1 Up until now, this book has mainly focused on Operational or Empirical Science, which has to do with how things work in the present. However, our focus will now shift to the study of what might have happened in the past to bring things to the way they are in the present. This is part of what is often called “Historical Science.”

The two principal ideas as to how things got the way they are are either Creation by an intelligent designer, or Evolution by random chance or under the direction of some sort of God. The end result of evolution would have been the same whether it occurred by purely natural processes (materialistic evolution) or under the direction of some sort of God (theistic evolution).

Visual #9-2 There is a clear distinction between creation and any form of evolution. The basic premise of creation is INITIAL COMPLEXITY -- that the universe, earth, and life were called into existence in a complex, mature state by an influence outside the physical universe. The overall trend in nature should have been COMPLEX TO SIMPLE.

Visual #9-3 The basic premise of evolution is INITIAL DISORGANIZATION -- that the universe began in a disorganized state and has become more and more complex through eons of time, until the earth and life came into existence and developed to their present condition. The overall trend in nature should have been SIMPLE TO COMPLEX. Some believe this process happened by random chance; others believe that it was guided by an intelligent influence.

Visual #9-4 Neither basic concept, initial disorganization nor initial complexity, can be directly tested. Both require us to believe that something not explainable by natural law brought everything into existence. Since belief in either an unobservable and unexplainable *natural* or *non-natural* process is beyond the range of scientific testing, we must simply decide which is more reasonable. That is, we must decide whether things in nature are more likely to be the result of random chance or of design, which automatically implies intelligence,

### I. PRESUPPOSITIONS OF EVOLUTION AND CREATION

Visual #9-5 If we start with false premises, we will probably reach wrong conclusion.

Visual #9-6 Anyone who has ever studied geometry is familiar with its *postulates*, statements which are accepted as self-evident without proof. Once we accept Euclid’s twenty-three postulates the rest of his system of geometry follows logically. One of the 23 is not universally accepted, though. His “Parallel Line Postulate” stated that through a point not on a given line there could be only one line parallel to that first line. However, the mathematicians Riemann and Lobachevski concluded that this postulate was not self-evident to them. Both believed that space is curved in some way, which means there is no such thing as a straight line in the sense that we understand “straight.” Depending on which way space is curved, there would either be an infinite number of parallel lines through the point, or no parallel lines at all. As a result, they came up with two contradictory non-Euclidean versions of geometry. No one can absolutely prove if Euclidean, Lobachevskian, or Riemannian geometry is right, because all three are based on unprovable postulates.

Geometry is one of many areas of human thought based on statements accepted as self-evident. (As Thomas Jefferson wrote in the Declaration of Independence, “We hold these truths to be self-evident...”) In areas other than geometry we usually speak of *axioms* or *presuppositions* rather than postulates. Though evolutionists try to hide the fact, evolution is based on axioms just as much as creation is. Once we accept either set of axioms, the rest of each belief system follows logically as whatever evidence becomes available is interpreted within the framework provided by the axioms. Since the axioms are used as the starting point upon which all subsequent logic is based, if any one of them is unreliable then the whole logical

structure is also unreliable.

Following are some of the axioms of the two major evolution models and the three major creation models. Everything else in both the evolutionist and creationist belief systems depends upon them. Neither set of axioms can be proven, but must be taken simply by faith.

## A. ULTIMATE SOURCE OF THE UNIVERSE

### 1. EVOLUTION - natural processes only.

Everything must be explainable by purely natural processes.

**a. Atheistic evolution:** there is no God.

**b. Theistic evolution:** there is a God, but He does not intervene in nature.

Theistic evolutionists must leave God out of the picture because if they admit He did even one miracle to bring the universe and earth to their present condition, they have no grounds to say He could not have created the way the Bible says. Darwin himself admitted that if any organ existed which could not be explained by the gradual accumulation of small changes, that is, if God was required at any point, then evolution was useless as a scientific theory. To this day, the fundamental assumption of evolution is that everything must be explained by purely natural processes.

If something does not seem to be explainable by natural processes, we just make up a story. Since we are so clever, our story must be true and schools have to teach it as scientific fact. One example: three-toed dinosaur and five-toed human footprints are found together at Dinosaur State Park on the Paluxy River in Texas. Rather than admit that humans and dinosaurs lived at the same time (which would destroy the evolutionary time scale), one evolutionist has proposed that the obviously human prints were actually made by an unknown type of dinosaur with five toes. Of course, we might equally well make up a story that says the three-toed prints were actually made by humans with really big, deformed feet.

Richard Lewontin, an evolutionist, believes evolution and science are one and the same. However, he is honest in admitting that many evolutionary stories are on a par with Rudyard Kipling's famous book of "Just-So Stories." (You may have read some of his stories in high school literature class: how the Elephant's Child got its long nose, How the Whale got its Hump, and so on.)

"We take the side of science in spite of the patent absurdity of some of its constructs, in spite of the failure to fulfill many of its extravagant promises of health and life, in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counterintuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is an absolute, for we cannot allow a Divine Foot in the door." (Lewontin, 2022 – from *New York Review*, January 1997)

Not all evolutionists are atheists, of course. Many claim to believe in both God and evolution. However, their idea of God is that he started the universe billions of years ago, then go out of the way and let everything run by evolution.

This is not the God of the Bible. Evolution says that animals were killing each other for billions of years before man evolved. The death of the less fit cleared the way for the fittest to survive. Thus, death was the driving force that led to the appearance of man. The Bible, on the other hand, says that man was the direct cause of physical death throughout the earth. It is not possible for both of these contradictory ideas to be true.

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## 2. CREATION - possibility of supernatural intervention.

While most things should ultimately be explainable by the natural processes God set up at the beginning, it is possible that some things may not. We must allow for the possibility that a supernatural God may have intervened in nature.

## B. POSSIBLE MECHANISMS FOR THE ORIGIN OF THE UNIVERSE.

### 1. EVOLUTION - only one possible explanation.

Evolution is the only possible explanation for the origin of everything.

This doctrine, called *materialism* or *naturalism*, is at the root of attempts throughout the United States to prevent students from learning that many scientists reject random chance evolution in favor of intelligent design. Their reasoning in opposing intelligent design is that since it is outside the realm of scientific proof, it cannot possibly be true. Therefore we should teach its opposite -- naturalistic evolution.

This reasoning is not at all logical. Suppose someone challenges you to scientifically prove that you love your mother. You can't do it. No matter what you do or say, someone might accuse you of faking it. Therefore, since you cannot scientifically prove that you love your mother, schools will teach the opposite: that you hate her. Likewise, since we can't scientifically prove the presence of intelligent design, we will teach the absence of intelligent design to unsuspecting students.

Naturalism presupposes that scientific truth is the only kind of truth and deliberately rejects the possibility of divine revelation. In a way, this is like a scientist who decides to learn what's in the ocean by chartering a ship, making a net 100 feet in diameter with two inch holes, then repeatedly lowering the net into the deep on a one mile long rope. He catalogs everything he brings up, then concludes that everything in the ocean is between two inches and a hundred feet across and has fins and scales. In other words, if his net can't catch it, it doesn't exist. Preposterous as the idea sounds, it is precisely the naturalistic position: since our scientific techniques cannot detect God or the supernatural, they do not exist.

### 2. CREATION - several possible explanations.

Since we allow the possibility that God created everything, we recognize that He is powerful enough to use any method He chooses. He could have used evolution if He wanted, he could have created in six microseconds if He wanted, or He could also have created in six days the way the Bible says He did.

## C. AGE OF THE UNIVERSE.

### 1. EVOLUTION - Extreme Age.

Since we have already decided that evolution must be true, we should see it going on in the world around us. However, evolution from one major type of creature to another has never been observed in recorded human history. It must therefore be an extremely slow process. Since it would require billions of years, we cannot allow any possibility except that the universe and earth must be billions of years old.

### 2. CREATION - No Specific Age Required.

The creationist idea of initial complexity does not automatically require any specific age for the universe. Since God is free to use any process He wants, at any rate He wants, there are different beliefs about how long ago the universe came into existence.

#### a. Recent Creation:

Because the Bible says that man was created on the sixth day of the creation week and that animals did not die until after Adam sinned, the universe and earth cannot be much older than the human race - perhaps less than 10,000 years old.

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**b. Gap Theory & “Progressive Creation”:**

The universe and earth must be billions of years old because the majority of scientists say so.

**D. SOURCE OF THE GEOLOGIC RECORD.**

**1. EVOLUTION - Uniformitarianism.**

Since evolution is supposed to have taken at least 3.5 billion years and since a worldwide flood would cut billions of years off the time available to form the geologic record, both theistic and atheistic evolutionists must insist that there has never been a worldwide Flood as recorded in Genesis. Evolutionary geology instead introduces an axiom known as *uniformitarianism*, which says that the earth’s geological features developed by slow, gradual, uniform processes operating over billions of years, summarized as “the present is the key to the past.”

The apostle Peter warned us of this belief when he wrote (2 Peter 3:3-7) that in the last days men would deny that a worldwide flood ever happened. His prophecy has been fulfilled. It is heresy in evolutionary circles to even admit the possibility that there could have been a worldwide flood.

**2. CREATION - Catastrophism.**

The Genesis Flood could account for a great deal of the geologic record in a very short time. However, not everyone who calls himself a creationist accepts the Biblical account as a straightforward historical narrative.

**a. Recent Creation:**

There was one worldwide flood.

**b. Gap Theory:**

This is an attempt to make the Bible fit with the word of scientists who say that the earth is billions of years old. The compromise is achieved by saying that there was a gap of millions or billions of years between Gen. 1:1 and 1:2, during which a pre-Adamic civilization flourished for eons until Lucifer completely destroyed the earth in a flood. Afterward, God started over in Genesis 1:2. After about sixteen centuries God brought His own flood and destroyed the earth (though not as thoroughly as Lucifer had) in Noah’s day.

This effort to compromise between the Bible and the claims of evolutionists is unsatisfactory to either side. Evolutionists say that there have been zero worldwide floods, but the Bible only speaks of one. Rather than being somewhere in the middle, the Gap Theory requires that there have been two worldwide floods. This is not a very good compromise.

**c. Progressive Creation:**

Because evolutionists must be right about the age of the earth, there can never have been a worldwide flood. This is just a different name for theistic evolution. It would be surprising if it didn’t follow the evolutionary time scale.

**E. SOURCE OF SIMILARITIES BETWEEN LIVING THINGS.**

**1. EVOLUTION - Common Ancestry.**

Since everything must be explainable by natural processes (Axiom One above), design is never allowed. Similarities between different types of living things have to be due either to common ancestry or random chance.

**2. CREATION - Common Design.**

God designed a number of systems that are used with variations in many different types of living things. Similarities between types that belong to different kinds are due to common design, not common ancestry.

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## F. SOURCE OF ULTIMATE AUTHORITY ABOUT NATURE.

### 1. EVOLUTION - Scientists.

While some theistic evolutionists think that the Bible contains inspiring stories and perhaps even some revelation from God, they think that it is mainly the work of fallible humans. Rather than the Bible, the word of scientists is the final authority in everything. Which scientists? The ones that agree with you -- until they change their minds.

### 2. CREATION - God or scientists?

#### a. Recent Creation:

Since God is all-powerful, He is able to accurately tell us the things He wants us to know. The Bible is right in every detail and the evidence of science must be interpreted accordingly. The Bible is not a science textbook, but it is correct in the scientific statements it does contain. (It is much better than a textbook, because it doesn't need to be revised every few years.)

The accuracy of the Bible has been verified over and over for centuries. Every scientifically testable statement in the Bible has been found to be correct. Some of these statements dealt with subjects of which scientists were unaware for thousands of years. How could the Biblical authors have known the truth without divine inspiration?

We should be careful not to add our own ideas to what the Bible says. For instance, some say that it never rained on the earth until the Genesis Flood. The Bible only says that it never rained until after Adam sinned. If there was rain between those times it means the commentators are wrong, not the Bible.

#### b. The Gap Theory (Rapid creation in the distant past).

Followers of the Gap Theory believe that the Bible is the final authority on everything except how old the earth is and when death entered the world. In these areas, the majority view of scientists is the final authority.

Atheists scoff at the Gap Theory as much as they do at recent creation. Evolutionists deny that there has ever been a worldwide flood, let alone two of them.

#### c. "Progressive Creation" or the Day-Age Theory.

This is an attempt to make the Bible fit with the word of scientists by defining the "days" of Genesis as creative periods lasting perhaps millions or billions of years. Though followers of this model call themselves creationists, this is nothing but a Punctuated Equilibria version of theistic evolution. Rather than using a process of gradual evolution, God is supposed to have created new kinds of animals and plants by modifying existing ones millions of times throughout earth's history.

Progressive Creationists believe that the Bible is the final authority only in that it says that God is responsible for bringing all the various kinds of living creatures into existence, but they believe scientists are the final authority on how it happened, how old everything is, and when death entered the world.

Most of those behind evolutionary ideas were atheists, who had to rule out creation as a possibility. Others simply jumped on the proverbial bandwagon. Theistic evolution was originally set forth by theologians, not scientists, as a compromise between the Bible and the writings of atheists who claimed to have proof of evolution. It was unnecessary because the atheists were lying. Their belief is based on axioms, not proof.

Many who profess to be Christians have the attitude that evolution is true, and that creationists are somehow obligated to prove the Bible. They are unaware that both creation and evolution are systems based on unprovable axioms. All either side can do is appeal to circumstantial evidence to persuade listeners that our axioms, rather than those of the other

side, are really the self-evident ones. But even if everybody in the world believed in evolution, truth has never been determined by majority vote.

## II. SCIENCE AND THE SEARCH FOR DESIGN

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Those who claim that creation's need for a designer removes it from the realm of science deliberately ignore the fact that the search for design is a normal part of science.

- SETI spends a great deal of money searching for extraterrestrial intelligence. What are they looking for? Evidence of design in radio signals from space.
- Every time a plane crashes, federal investigators search the wreckage for clues as to whether the incident was accidental or deliberate.
- Arson investigators search burned buildings to see if fires were accidental or happened by design.
- Medical examiners perform autopsies in case of suspicious deaths to see whether they were due to natural causes or design.
- Archaeologists look for design almost every time they dig something out of the ground. Is this an eroded rock or an arrowhead? A natural formation or a stone hut?

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The reason many object to admitting that there might be evidence for design in nature is the most fundamental axiom of evolution: Everything must be explainable by purely natural processes. This axiom would be falsified if even one thing were beyond explanation by natural processes. Since a designer would fit the bill as something not explainable by natural causes, design can never be allowed as an option. A professor of evolutionary biology who dared to admit that maybe God was responsible for the origin of life would soon be out of a job.

Recommended Resource: *Darwin's Black Box* by Michael Behe, available online or at most major bookstores. This is an outstanding technical reference work showing that the structure of living things at the molecular level is clear evidence of design in nature.

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Despite the almost unanimous refusal of other evolutionists to acknowledge the evidence for design, biochemist Michael Behe is willing to accept the obvious. In his book *Darwin's Black Box* he likens much of modern biological research to a group of detectives investigating a flattened body. As they search for clues to the cause of death they have to keep stepping around the elephant in the room. However, because they have agreed in advance that there is no such thing as an elephant none of them is willing to say, "Maybe the elephant did it." Rather than go against the majority view and be labeled incompetent or superstitious, they keep searching for other explanations.

Behe rejects Biblical creation and believes all living things are descended from a common ancestor that appeared billions of years ago. Nevertheless, his book attempts to persuade his colleagues to quit ignoring the elephant. In this chapter we will see some of his examples of features in living things that could not have come together apart from intelligent design, as well as examples from other sources.

### A. ARGUMENTS AGAINST DESIGN, AND THE RESPONSE.

Atheists have two basic arguments against the possibility of design: (1) Things in nature just *can't* be designed because that would bring God into science, and (2) Many structures in living things are put together differently than the way they would have done it, so there can't be a designer.

#### 1. Rejection of the Supernatural.

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Suppose you saw what looked vaguely like a statue formed out of a lump of mud in the woods. Even though it seemed purely natural, you couldn't be sure that it was not the work of an artist who happened to like mud. Unlikely though it might be, if you insisted that it could not possibly have been made on purpose the burden of proof would be on

you. Likewise, those who say that living things *could not* have been designed are arguing from a position of weakness. The only way they could prove life was not designed would be to have observed it since the beginning.

Some scientists fear that allowing the possibility of design will bring religion into their domain. Such fear is groundless. Design or no, Behe points out that no biology professor would accept the excuse that an experiment failed because the angel of death killed the student's bacterial culture. Besides, the evidence for design tells us nothing about the character or motives of the designer. Such a study is in the realm of theology, not science.

## **2. The Argument from Imperfection.**

Some point to structures that seem imperfect as illustrations of randomness in nature. One example is the panda's "thumb," which is not a real thumb but a bony protrusion that the panda uses to strip leaves off bamboo shoots. Evolutionists make much of the fact that the animal does not have an opposable thumb, saying that a designer would have given it one. Such an argument is not scientific but philosophical, and ridiculous besides. Suppose we don't like the way a certain automobile looks. Does that mean there was no design engineer? Of course not. It just means that we have a different sense of style, or that we don't know his reasons for making it that way. Likewise, our disagreement with the way a living thing is put together may simply mean that we have a different sense of style from the designer of life, or that we don't understand his motives.

## **B. HOW TO RECOGNIZE DESIGN.**

On the other hand, someone's inability to disprove design does not entitle creationists to claim that it is thereby proven. We need to present our case in a logical manner. Behe gives us some good guidelines, starting by defining design as *purposeful arrangement of parts*. He divides the arguments for it into three categories:

### **1. Weak Arguments: Matters of Opinion.**

Some say that the beauty of nature is evidence for design. Since beauty is in the eye of the beholder, someone who thinks the sunset is ugly would not find this argument very persuasive. Likewise, we could point to the precision of the earth's orbit as evidence for design. If it were just a little closer to the sun or a little farther away, life as we know it would be impossible. Skeptics are not impressed. They believe the only reason we notice this arrangement is that the earth just happened to be in the right orbit to allow us to evolve.

### **2. Stronger Arguments: Specified Improbability.**

No matter how improbable it seems that a complex structure -- for instance, the eye -- might have evolved one step at a time, someone can always make up a story. For instance, evolutionists visualize some wormlike creature that acquired a light-sensitive spot through mutations in its DNA. Over many generations the spot deepened into a pit, which gradually filled with mucus and acquired a primitive lens as the outermost layer hardened. After a great while and a great many mutations, the eye had evolved.

Though stories such as these require a number of very improbable steps, evolutionists argue that they still could happen. After all, there are many possible outcomes to a series of random events, and no one outcome is any more or less likely than any other. For instance, though no one person's odds of winning the lottery are very good, we still expect that somebody is probably going to win. Thus, no matter how improbable any particular structure may seem, it just happens to be the one that evolved.

Such an argument has nothing to do with the search for design. We are not looking

for improbability alone, but rather, improbability in a specific direction.

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- Anyone can recognize that the arrangement of rocks at Mount Rushmore is designed, not random.
- If the same person wins the lottery three weeks in a row, we recognize that something besides randomness is going on.
- We might think that no particular arrangement of the grains of sand on a beach is any more probable than any other, but an airplane pilot flying over a deserted island and seeing “HELP” in large letters on the sand would recognize that the arrangement was not random.

Likewise, matter could be arranged in countless ways in nature, almost all of which would be biologically meaningless. Only a very tiny percentage of the possible arrangements would lead to any type of life at all, even fewer to complex life, and fewer yet to a form of life (ourselves) able to investigate whether the whole thing is just an accident. The question is, how probable is it that the specific structures required for life could evolve by chance?

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Scientists routinely investigate probabilities in nature by using such tools as *chi-square* or *t-tests*. These can be rather technical. We can use Behe’s idea to visualize the principle of specific improbability. Imagine a thousand lane highway with traffic whizzing by in both directions. Though it is a fearful place, a groundhog wants to get across to see his girlfriend. (In the South, we would talk about armadillos instead.) What are his chances? Not very good. He may make it across one lane or perhaps even two or three, but there is no way he is going to get all the way across. It’s not that there is any theoretical barrier that says he can’t make it - he just doesn’t because the obstacles are too great.

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Those who believe in gradual evolution might reject this illustration because evolution is supposed to depend on species, not individuals. (Punctuated Equilibria, on the other hand, *does* depend on just a few individuals.) Let’s use more groundhogs, then. Suppose we turn loose a million and give each one a very generous 50/50 chance of making it across any one lane. If 50% make it across lane one, there are still 500,000 at lane 2 that have the potential to go farther. If 50% make it across there, we’re down to 250,000 at lane 3. We expect 125,000 to make it to lane four, 62,500 to lane five, 31,250 to lane six, 15,625 to lane seven, about 7,800 to lane 8, about 3,900 to lane 9, about 1,950 to lane 10, about 975 to lane 11, about 490 to lane 12, about 245 to lane 13, 123 to lane 14, 63 to lane 15, 32 to lane 16, 16 to lane 17, 8 to lane 18, 9 to lane 20, 5 to lane 21, 3 to lane 22, 2 to lane 23, and one to lane 24. Even if this last survivor makes it a bit farther - splat. There are still over 970 lanes to go. It’s not that there is any theoretical barrier that says groundhogs can’t make across the highway, it’s just that extremely improbable, highly specific events simply don’t happen in reality.

Stories about how living things might have evolved despite the probability against it are much like Behe’s groundhog story. As long as we don’t look too closely, we don’t see any theoretical barriers that would prevent complex structures from evolving. However, in reality there would have to be so many steps, each with much less than a 50/50 chance of succeeding, that it just wouldn’t happen.

To extend the metaphor, evolutionists sometimes cheat and bring their groundhogs most of the way across the highway in helicopters. For instance, we have already seen that researchers in origin-of-life experiments buy purified amino acids at a chemical supply house instead of manufacturing them in the kind of apparatus used by Miller. It doesn’t do much good. Even if they start their groundhogs at lane 760, they only get



across a few lanes before the experiments fail in a figurative splat. In trying to prove that intelligent design is not necessary, they succeed only in showing that intelligent design is necessary to get across more than a few lanes of the highway.

### 3. Strongest Argument: Irreducible Complexity.

Some might still not be convinced by arguments from probability. If we find one of our imaginary groundhogs on the other side of the highway, few evolutionists will admit that somebody might have brought him there. Instead, he or an ancestor must have made it across no matter how great the odds.

In response, Behe says to look at the details. Darwin and his contemporaries knew nothing of the molecular structure of cells so they treated them as the “black boxes” after which Behe’s book is named -- that is, nobody knew what went on inside a cell; they just knew what came out of it. Since nobody could prove you wrong, it was easy to make up stories about how a structure consisting of billions of cells might have evolved step by step. However, we now know that living things contain many mechanisms that are actually microscopic biological machines.

Most man-made machines are more complex than they need to be to accomplish their purpose. For instance, a car without air conditioning, a horn, lights, a radio and so forth, would still get us from one place to another. However, if we remove enough parts there comes a point when it no longer works. Behe describes the minimum operating condition below which the machine stops working as *irreducible complexity*.

A mousetrap is a good example of an irreducibly complex machine. At the minimum it must contain five parts: (1) a base to support the trapping mechanism; (2) a hammer to catch the mouse; (3) a spring to operate the hammer; (4) a latch to keep it in a state of readiness; and (5) a trigger to release the latch. (Assume that the parts fit together so that separate fasteners are unnecessary.) If we leave out any one of the parts, the trap no longer works. Instead of a useful machine, it is a pile of junk wasting resources that could have been better used elsewhere.

A machine needs at least the minimum number of parts in order to be useful, but it also needs to have at least minimal function, that is, it must function at least well enough to justify the trouble of making it. For example, what good is an outboard motor that turns a propeller only once a day? It would only take up needed space on the back of the boat so we couldn’t put a useful motor in its place. Or what good is a mousetrap with a flimsy base that breaks before a mouse has the chance to step on it? What use is the trap if the latch is too short to set it? Why buy it if it has a weak spring that takes five minutes to snap the hammer against the base? The mouse would see it coming and run away. If any one of the parts is the wrong size or strength, the trap is no more than a wasteful pile of junk that happens to have the right number of parts.

Because of the need to maintain at least minimal function every step along the way, an irreducibly complex machine could not evolve by gradual changes in the parts of a different type of machine. We might make a mouse trap by gradually reducing the size of the parts in a rat trap, but if we tried to make one by modifying a can opener we would quickly have a device that could neither open cans nor catch mice.

This principle applies equally well to the irreducibly complex molecular machines found in living things. Those that are essential to life could not develop step by step. They had to come into existence all at once.

Even if a cellular machine were a convenience rather than a necessity, it would have to convey some sort of survival advantage in order to evolve by natural selection. However, until it was at least minimally functional the cell would be better off with no

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machine at all than with a nonfunctional part of one. It would do nothing more than take up precious resources and interfere with essential processes and structures. Natural selection would work to eliminate partly formed machinery, not encourage it.

When dealing with the origin of life we already saw that assembling even the simplest living things would require a great many extremely improbable steps. In many cases, the mechanisms involve multiple parts and are irreducibly complex. It requires a tremendous amount of faith to believe that they could not have come together one piece at a time. To anyone open to the possibility of intelligent design, it makes much more sense to believe that they were created.

### C. HOW EVOLUTIONISTS DEAL WITH THE APPEARANCE OF DESIGN.

The most fundamental postulate for atheistic evolutionists is that everything must be explainable by purely natural processes. Any clear evidence of design in living things implies divine intervention. Even Darwin admitted that if this were the case, his theory would “absolutely break down.” So how can they reconcile the appearance of design with the axiom of randomness?

Darwin gives us a clue. Many creationists cite his admission in *The Origin of Species* that the eye was difficult to explain by chance:

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“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...”

If we stop reading there, we would think that Darwin was admitting defeat. He was not. He went on to make up a story about how it could have happened:

“Reason tells me, that if numerous gradations from a simple and imperfect eye to one complex and perfect can be shown to exist, each grade being useful to its possessor, as is certain the case; if further, the eye ever varies and the variations be inherited, as is likewise certainly the case; and if such variations should be useful to any animal under changing conditions of life, then the difficulty of believing that a perfect and complex eye could be formed by natural selection, should not be considered as subversive of the theory.”

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Atheistic evolutionists continue to follow Darwin’s example. No matter what structures we point out as evolutionary difficulties, they can always make up a story. And since they are so clever, therefore their stories must be true and we creationists should just give up and start believing them.

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Not all evolutionists are atheists, of course. Many believe in “Intelligent Design” (I. D.), a broad concept that could include either creation or theistic evolution. However, every school district considering the possibility of including I.D. in biology classes has immediately faced legal challenges by such groups as the ACLU. Judges in almost every court case have accepted the atheistic position that since the presence of a designer cannot be tested scientifically, therefore intelligent design is not scientific.

It is true that we cannot scientifically prove the possibility of intelligent design. What the judges are overlooking, though, is that we also cannot scientifically *disprove* the possibility of intelligent design. This is not a disagreement over scientific facts, but instead, over an *a priori* assumption.

Inductive logic requires that we look at many phenomena and try to discover a pattern that points to a general principle, in an attempt to determine the most reasonable (most likely) conclusion. This is how the scientific method works. In deductive logic, on the other hand, we start with general principles (a priori assumptions) accepted as true without proof and apply them to specific cases. Assuming that the premises are true, then the conclusion **MUST** be true. To summarize the contrast, the conclusions of inductive logic result from examination of observable phenomena (a posteriori). They are testable. The premises of deductive logic, on the other hand, may come from inductive conclusions or may just be a

priori statements. They are not necessarily the result of testing.

Despite the deception that many judges have fallen into, our ideas about whether I. D. is possible or impossible are not scientific. The question of I.D. vs. randomness is an issue of deductive logic based on opposing a priori assumptions.

- Either everything must be explainable by purely natural processes, or
- Some things may not be explainable by purely natural processes.

Neither one can be proven. It's a matter of deductive logic, not science.

### III. SPECIFIC EXAMPLES OF DESIGN.

Following are some examples from nature that point toward a low probability of randomness and a high probability of design. Think about which arguments for design apply to each: (1) Opinion, (2) Probability, or (3) Irreducible Complexity.

#### A. DNA AS A LANGUAGE / COMMUNICATION SYSTEM

In claiming that the intricate information contained in DNA came together by random processes operating on chemicals that themselves were produced by random processes (e.g., the nucleotides in RNA), atheists are overlooking a fundamental principal of communication. When we want to convey a message we do not randomly make sounds which we hope will come together and make sense.

- We start with an idea.
  - Then we decide how to convert that idea into syntax and grammar so that it can be expressed.
  - Finally we convert those elements into letters and symbols that convey the idea to others.
- Atheists, on the other hand, believe that:

- The letters of DNA and RNA (A, C, G, T, and U) came into existence randomly.
  - Then they randomly assembled themselves into words and grammar (genes, chromosomes, etc.).
  - Finally, they randomly turned into an intricate and fully functional information system.
- This is not how communication works. They have the whole process backwards.

We humans have no problem looking at even a simple digital computer program and recognizing that it took intelligence to produce it. Yet some have a problem looking at the most complex digital program ever discovered - DNA - and recognizing that it took intelligence. It's hard to convince someone who has already decided that everything MUST be explained by purely natural processes that maybe some things require an explanation outside of nature.

#### B. OPERATION OF DNA

We cannot appeal to irreducible complexity to show design in DNA, because it is a fantastically complex information storage system that contains far more than the bare minimum needed to keep an organism alive. The principal argument for design in this case is the extreme improbability of assembling such complexity by chance.

DNA functions like a better designed computer program than any human author has ever written, making excellent use of space, chemical resources, and subroutines. The probability that such a complex program could come together by random chemical action is comparable to the probability of the hypothetical groundhog making it across multiplied thousands of lanes on the superhighway.

No one has ever seen a self-replicating digital program come together by accident. It requires a programmer. Even a self-improving computer program such as "artificial intelligence" *starts* with the human intelligence of the programmers. The structure and operation of DNA are powerful arguments for design.

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### C. IRREDUCIBLE COMPLEXITY OF CELL REPRODUCTION

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- (1) In order to be alive, the first living cell would have needed enough parts such as proteins, enzymes, etc. to have at least minimal function.
- (2) Since we are all supposed to have evolved from the first cell, it would also need some sort of information storage system, a precursor to DNA, so that it could make copies of itself.
- (3) It would not be sufficient just to have the information stored somewhere. There would have to be a way to translate it into physical structures. Something that worked like messenger RNA would have to transport specific subsets of the information to a place where they could be used as a template for reproduction.
- (4) In that location within the cell, there would need to be some structure that would allow the parts of the newly forming daughter cell to come together. Cells do this today by fastening messenger RNA to ribosomes at the endoplasmic reticulum, then using transfer RNA to put together each protein, one amino acid at a time. The proteins are transported wherever needed throughout the cell by tiny molecular machines, then assembled into functioning structures.

This is an complex and well coordinated system. At the very least it requires messenger RNA, multiple enzymes, ribosomes, endoplasmic reticulum, and transfer RNA. Each of these exists because DNA contains the information needed to produce them. But the very first living cell would not have had any DNA yet, so none of these parts essential to cell reproduction would have been present to continue the process. Only by a great exercise of faith can evolutionists avoid the obvious conclusion that DNA and cell reproduction are an irreducibly complex system.

### D. UNIVERSAL GENETIC CODE AND MANUFACTURING APPARATUS.

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- (1) DNA is supposed to have evolved by accident some time after the first cell came alive. Once DNA finally evolved by some unknown process, it would have contained very little information, only a small number of base pairs.
- (2) Somewhere in the course of evolution, a tremendous amount of extra genetic information would have to be added so that instead of a few base pairs, many modern organisms have anywhere from millions to a hundred billion.
- (3) Later, the mechanisms that serve to prevent and correct errors would have had to develop due to copying errors that were not prevented and corrected.
- (4) However, one crucial thing “forgot” to evolve: the genetic code. Every type of organism, no matter how primitive or advanced it is supposed to be, uses the same genetic code and the same protein manufacturing mechanism of messenger RNA, transfer RNA, ribosomal RNA, ribosomes, and endoplasmic reticulum.

Evolution is supposed to have begun with primitive one-celled organisms and gradually progressed all the way to the highest mammals. However, the size, structure, and component design of the protein manufacturing apparatus (ribosomes, endoplasmic reticulum, etc.) is virtually the same in every cell. Nothing can be shown to be ancestral to or descended from anything else (Denton, 1986, 250). Could DNA have evolved billions of steps from nothing to its present condition, while the genetic code and manufacturing apparatus it uses didn't change even the slightest bit?

### E. UNIVERSAL ERROR CORRECTING MECHANISM.

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As noted earlier, every known cell, no matter how primitive or advanced it is supposed to be, uses exactly the same error correcting mechanism in copying its DNA. The error correcting mechanisms would have had to evolve as a result of errors that were not corrected, It would be an interesting exercise to calculate the probability that cells would evolve to

very high degrees of organization while the error correcting mechanism did not change in the slightest.

**F. BLOOD COAGULATION.** (Behe, 1996, 74-97)

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Our bodies are made of trillions of cells. Most of us take for granted that when we cut ourselves the bleeding will soon stop by itself. But why should it? If we puncture almost any other system filled with pressurized liquid it leaks until the pressure reaches equilibrium with its environment. Were it not for the blood's ability to coagulate, we would bleed to death the first time we got cut.

Behe likens blood coagulation to a Rube Goldberg machine. Goldberg was a cartoonist popular in the early to mid 1900s, known for his humorous drawings of elaborate contraptions designed to accomplish a simple purpose. For example, Behe shows (p. 75) Goldberg's plan for an automatic mosquito bite scratcher that requires 16 steps involving such components as a drunken bird and a somersaulting dog. (The children's game of "Mousetrap" is another example of a Rube Goldberg type machine.) Though humorous, many of Goldberg's contraptions were irreducibly complex: if any component failed to function properly, the whole thing wouldn't work.

Blood coagulation is much more involved than any of Goldberg's mechanisms, but it too is irreducibly complex. From the time you cut yourself until you stop bleeding, over twenty proteins and other factors are busily at work. These include multiple proenzymes and enzymes, at least one vitamin, and such things as "Christmas Factor" and Stuart Factor. Throughout the process these components cut, fasten, activate and deactivate each other at exactly the right times and rates. There are feedback and feed ahead control loops. The whole cascade involves dozens of steps. If even one of the components fails to work properly you either bleed to death or die of blood clots.

While an evolutionist might argue that our coagulation system could have evolved from a similar one in lower life forms, this doesn't answer the question of how the very first such system could have come into existence. Not every type of organism has such a system. In even the most "primitive" organisms that do, a single malfunctioning component kills the creature. It is not possible to put together such a mechanism one step at a time by modifying a previously existing mechanism of a different type in a lower life form. Blood coagulation is irreducibly complex. It had to be designed.

**G. ANTIBODIES AND THE IMMUNE SYSTEM.** (Behe, 1996, 120-130)

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As mentioned in the last chapter, the immune system of multi celled organisms uses *antibodies* to mark objects that constitute a threat. Antibodies are tiny Y-shaped molecules composed of two "heavy" and two "light" chains of amino acids. Because of the three-dimensional shapes of amino acids, the ends of the chains form fingerlike protrusions with billions of possible shapes. When an invader bumps up against one of the combinations that matches its shape, the antibody attaches to it. Whenever the immune system detects an object with an antibody attached, it "knows" that it must destroy it and sends such molecules as lymphocytes and phagocytes to perform the work.

There are only about 3 billion nucleotides in our DNA. If every one of them were used to code for antibodies, they would constitute about one billion triplets, coding for perhaps a few million types of antibodies. Yet our cells have the ability to produce over ten billion distinct types because of the programming. Researchers have discovered that a gene coding for an antibody does not need to be a continuous segment. It can be interrupted without harm, allowing the antibody coding genes to function like a biological dictionary. The cell takes a piece of a gene, skips some, takes another, skips more, takes another and so on, until it assembles the complete gene needed to produce a desired antibody. (Some researchers

are considering the possibility that at least a few so-called pseudogenes may also include noncontiguous coding segments.)

The “dictionary” consists of a mere four gene clusters. The first cluster contains about 250 gene segments, the second has ten, the third has six, and the fourth has eight. The cell takes one from segment one, one from two, one from three, and one from four, giving about 120,000 possible combinations producing distinct types of heavy amino acid chains. Since the light chains need not come from the same segments, the number of possible combinations of heavy and light chains is tens of thousands of times greater. This enables the immune system to produce more than ten billion different types of antibodies.

Some might still insist that such an amazingly efficient system could have evolved by chance. Perhaps the groundhog might make it all the way across the highway, but it’s not likely. This is a matter of faith, not science.

Antibodies are not the only thing protecting us. In another irreducibly complex mechanism, they communicate with cells to notify them to produce billions more like themselves. Then the cells send out special natural killer cells such as NK cells, T lymphocytes, and B lymphocytes to destroy the invaders. The debris is then flushed out of the body.

Nobody knows what this mechanism could have evolved from. Since it requires multiple types of cells it could not have existed in any one celled organism. There is nothing in any known invertebrate, even multi celled ones, from which it might have evolved. It is extremely unlikely that the immune system is the product of random chance. It certainly gives the appearance of having been designed.

## H. CELL STRUCTURES.

We could look at almost any part of a cell – its method of reproduction, the interaction of DNA and enzymes, DNA and membrane permeases, etc. – and see evidence of design. A few specific examples:

### 1. Vacuoles.

Water moves across membranes by a process called *osmosis*. If the concentration of chemicals in water is different on opposite sides of a membrane, the water flows through until the concentration is equalized. This can cause a problem in cells, which contain many substances besides water but often float in a watery environment. More and more water forces its way inside the cell to equalize the concentration. Eventually, the cell would burst because of the internal pressure - except for a built-in safety feature, hollow chambers called *vacuoles*. As water pressure increases to a dangerous level, the cell pumps some of the water into the vacuole, from which it is forced out of the cell. Where did the vacuole come from? It is present because it is programmed in the DNA. DNA is needed to make vacuoles, but vacuoles are needed to insure the survival of DNA. The same question faces us: could this irreducibly complex system have come together a piece at a time by chance?

### b. Lysosomes.

Since cells are constantly dying in our bodies, why aren’t we cluttered up with dead cells? Because most cells contain tiny “suicide sacs” called *lysosomes*. These are filled with enzymes capable of digesting proteins such as those that make up the cell. During the life of the cell they help break down nutrients into usable components. However, when it dies they rupture, releasing the enzymes and causing the dead cell to eat itself up. The waste material is then easily flushed out of the body.

Multicelled organisms could still live (until attacked by some sort of pathogen) but would be much less healthy if the lysosomes did not rupture at the time of death. But

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why don't they rupture earlier? Because the cell environment prevents them from doing so. And why is that environment the way it is? Once again, we come back to DNA. Accidental or designed?

## I. SPECIALIZED ORGANS AND STRUCTURES.

### 1. The Giraffe's Neck.

When Darwin published *The Origin of Species*, nobody knew anything about genetics. In an attempt to explain odd features like the giraffe's long neck, the French biologist Lamarck proposed that as organisms use certain parts of their anatomy those parts become more developed. Likewise, as they stop using body parts those parts atrophy. Lamarck believed that their offspring would inherit the changes. The most famous example of this belief is his 1809 story about how giraffes developed long necks. He said that they must have lived in an area subject to periodic drought. When the weather dried up, so did the trees. The shorter giraffes starved as soon as the lower leaves were gone. Only those who stretched their necks enough to reach the higher ones survived. They passed on their longer necks to their offspring, who repeated the process for many generations. Finally, the familiar long-necked giraffe had evolved.

Lamarck's ideas about inheritance of acquired characteristics have been thoroughly discredited. However, many people have heard the updated evolutionary story of how the giraffe got its long neck. The scenario says that since some giraffes are naturally taller than others, only those fortunate enough to have longer necks would survive under drought conditions that reduced the availability of low hanging leaves. As the droughts continued for many generations all the giraffes with genes for short necks died out. Eventually, only giraffes with genes for long necks remained.

While this sounds plausible, the length of the modern giraffe's neck is not the only factor that needs to be considered.

#### a. *Survival of Other Leaf-Eaters.*

The giraffe is not the only leaf-eating animal. How did its leaf-eating neighbors survive in the same environment without developing long necks?

#### b. *Ability to Eat Grass.*

If other animals survived by simply bending down and eating grass, so could the shorter-necked giraffes. They should still be with us today.

#### c. *Fossil Giraffes.*

No one has ever found any short-necked fossil giraffes.

Though an animal called an okapi is similar in some ways to a giraffe, it is not considered ancestral. Like the giraffe, it appears in the fossil record suddenly and fully formed. Likewise, an extinct animal called *Samotherium* is considered a member of the giraffe family, but it is not considered an ancestor to the giraffe (Danowitz *et al.*, 2015).

#### d. *Sexual Dimorphism.*

Giraffes exhibit *sexual dimorphism*: the males are one to two feet taller than the females. In an environment in which a few inches more height meant the difference between life and death, the females would have starved. The species would have become extinct in one generation.

#### e. *Height at Weaning.*

An adult male giraffe grows as tall as nineteen feet. The young are only about twelve feet tall when their mothers refuse to nurse them any more. If adults had trouble reaching the leaves, the young would have been far too short to feed themselves. Giraffes would have become extinct in one generation.

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**f. Internal Neck Structures.** (Davis & Kenyon, 1989; Mitchell *et al.*, 2009)

Length is not the only unique feature of the giraffe's neck. Since the head is so high above the ground, the heart has to pump harder than any other animal's to get blood to the brain. But what happens when the giraffe lowers its head to get a drink of water? It not only has to contend with the full force of its heart's pumping action, it also has to deal with gravity trying to force the blood the wrong way through its neck. Were it not for the control structures in the neck, the pressure could produce brain aneurysms that would rupture and kill the animal.

Such a misfortune does not happen because the giraffe's neck has built-in pressure sensors which detect increases in blood pressure as it bends down. The brain then sends signals to the heavily muscled arteries. Some constrict to reduce the blood flow, while others reroute a portion of it through a network of blood vessels known as the *rete mirabile* ("marvelous net"). Meanwhile, a series of one-way valves prevent blood from flowing the wrong way back up the neck. When it straightens up again, everything goes back to normal.

No other animal known has such a system. The giraffe's supposed relative, the okapi, lacks these structures (Augliere, 2016; Coppedge, 2016). We cannot be sure about soft tissue in *Samotherium* because it is known only from fossils.

This elaborate system exists because of information contained in the giraffe's DNA. Though some of its evolutionary ancestors might be a bit taller or shorter because of genetic variation, no one has come up with any possible scenario to explain how the DNA might have mutated to produce the intricate blood control system at the same time as a gradually lengthening neck. The most reasonable conclusion is that giraffes were designed that way from the beginning.

The example of the giraffe's neck illustrates the fact that evolutionists must rely on made up "just-so" stories.

*i. Use and disuse of body parts* is not a valid mechanism for evolution.

*ii. Normal variation* is not sufficient to introduce radically new structures.

Evolutionists must admit that the only mechanism available to cause one species to evolve into another is random mutation. However, there is not a single known case where mutations add to the genetic content of a species; instead, they change segments of DNA from meaningful to meaningless. In those few cases where an individual benefits from a mutation, the species suffers because its gene pool is diminished. There is no way mutations could produce a giraffe. They don't create genetic information, they destroy it.

**2. Active Transport of Minerals in Plants.**

Plants get most of their hydrogen, carbon, and oxygen from air or water. Many of them also absorb minerals such as iron, potassium, zinc, calcium, molybdenum, magnesium, etc. from the soil. Since a plant is largely made of water and since it takes in these substances from wet soil, we would expect their concentration to be about the same inside and outside the plant. (According to the Second Law of Thermodynamics, everything tends toward equilibrium.) However, the concentration of minerals inside plants can range from 75 to 10,000 times greater than in the surrounding soil. There has to be a mechanism – *active transport* through enzyme action – to pull needed elements out of the soil and transport them into the plant. Where did the enzymes come from? They are programmed into plant DNA. One must ask himself if it is likely that such a highly ordered information system happened by accident.

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### 3. Interdependence of Animal and Plant Kingdoms.

We members of the animal kingdom need dozens of elements found on the periodic table, but we cannot make our own food from the elements in the soil. (We are *heterotrophs*.) Fortunately for us, plants (*autotrophs*) use the process of active transport to seek out and concentrate the minerals we need into their structures.

It would be an amazing set of coincidences for animals to evolve the need for particular minerals just at the time plants evolved the active transport mechanism that would extract those minerals from the soil to give us just what we need. Meanwhile, plants need members of the animal kingdom (e.g., bees and birds) to pollinate them.

### 4. Sap Transport in Trees.

Upright plants such as trees and shrubs need a constant flow of water and nutrients from the soil to their upper parts. This is a problem in tall trees.

Imagine you had a hundred foot high drinking straw in a glass of water. No matter how hard you sucked on it to get a drink, even if the straw didn't collapse, you couldn't do it. It's not the suction that makes the water move up the straw, it's the atmospheric pressure on the water that pushes it up. Normal atmospheric pressure can support a column of water about 32 feet high. Low pressure may support a bit less, high pressure a bit more. Even if we apply a perfect vacuum to the top of the straw, the water will rise no higher than about 35 feet even under extremely high atmospheric pressure. Yet some trees grow hundreds of feet tall. How do they get their water-based sap up to the top?

Part of the force to lift the sap does come from reduced pressure as water evaporates from the top of the tree. However, most of the force comes from a built-in pumping mechanism that operates all the way up the tree. The roots exert a certain amount of pressure, but other little-understood processes maintain it all the way up to enable the tree to keep getting taller.

Whatever these processes are, they are programmed into the tree's DNA. Where did they come from? Natural selection should favor organisms that fit best with their environment, not those that have to develop elaborate mechanisms to overcome it. Evolution should produce trees no more than about thirty-two feet tall. Yet here they are. Could it be they were designed that way?

### 5. Bacteria with Electric Motors. (Behe, 1996, 69-73)

We tend to think of bacteria as very simple organisms. However, some types contain at least one irreducibly complex structure that has no counterpart in more "advanced" cells - their swimming apparatus.

Any mechanism that moves an object through liquid must have at least three components: a paddle or propeller, some sort of motor, and a device to connect the two. Though some bacteria have tiny paddles known as *cilia* while others have the equivalent of propellers, both types of propulsion have all the necessary components. The one we are concerned with is the latter, the rotary *flagellum*.

Certain bacteria swim by means of flagella, hairlike filaments with a corkscrew shape. Rather than waving back and forth like flippers, the flagella rotate like propellers. The power to turn them comes from microscopic acid-driven electric motors. The motors are so small that even our most advanced scanning techniques are unable to reveal all the details, yet we know that they have a stator, a rotor, and electrical connections. There must also be some sort of extremely low friction protein bushings where the motor shaft penetrates the cell membrane. On top of everything else, the motors are individually reversible and connect to their respective flagella through biological gear boxes with a 30:1 gear reduction ratio. (Personal communication, Dr. Richard Lumsden.)

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Though hundreds of different proteins are involved, the motor-connector-propeller system is irreducibly complex, as is the motor itself. There is no mechanism in any known living thing from which the bacterial propulsion system could have evolved. Though evolutionists point out that a few of the parts are similar to parts in other cell mechanisms and thus could have been “co-opted” to use in the motors, the majority are found nowhere else except in the motors. We can make a choice -- by faith -- to believe the motors are the result of accidental mutations, or we can reach the obvious conclusion that they were probably designed.

## 6. The Climbing Gobies of Hawaii.

Several types of fish and shrimp, especially around Hawaii, have suction cups on their bellies. The one that seems to make best use of them is the Hawaiian goby *Sicyopterus stimpsoni*. This fish hatches in fresh water, then is swept out to sea where, unlike many other types of fish, it is able to modify its body chemistry to tolerate the increased salinity. When it is time to reproduce, the fish swims back up a freshwater stream then *climbs a waterfall* to lay or fertilize the eggs. It bends its mouth down to use as a suction cup, which it uses in conjunction with a separate sucker in its abdomen. It gradually wriggles up against the force of the water over a distance of more than 400 feet (Knight, 2012; Maie et al., 2012). This feat has been likened to a human traveling a vertical marathon race using only his mouth and a suction cup attached to the belly.

Some researchers refuse to admit the possibility that the features of the fish were designed, and continue to look for ways that they could have evolved by random chance. This is an issue of faith, not science.

## 6. Defense Mechanisms.

Just three of the many elaborate defense mechanisms throughout nature:

### i. Corals.

Some kinds of coral are supposed to date all the way back to the Ordovician Period, said to have ended 500 million years ago. One fossil deep-sea coral is virtually identical to its living counterpart, known as *Gorgonia*. These have an egg-shaped stinger called a *cnidocil* protruding slightly from a cap-covered hole filled with poison. When touched, the cnidocil springs out within *three to five ten-thousandths of a second* and injects its crippling venom (Fredericks, 1985, 87). Is it really reasonable to believe that such a lightning fast mechanism evolved by accident hundreds of millions of years ago in an otherwise almost motionless deep-sea coral?

### ii. The Bombardier Beetle. (Gish, 1977, 51-53; Behe, 1996, 31-36)

One of the most unusual defense mechanisms belongs to the “bombardier beetle,” *Brachinus tschernikhi*. This insect has two internal storage chambers containing a concentrated mixture of hydrogen peroxide and hydroquinone, which have the potential to react violently when certain catalysts are added. Each of these chambers is connected to a combustion chamber through a narrow tube controlled by a sphincter muscle. The combustion chambers act as firing tubes.

When threatened, the beetle aims the tubes at the enemy and injects some of the hydroquinone/peroxide mixture into the combustion chambers along with the enzymes catalase and peroxidase. This produces a violent explosion of boiling hot, foul tasting liquid. A predator hit in the face with such a blast quickly loses interest in eating the beetle.

Could the chemistry have evolved one step at a time?

- If the mechanism to produce catalase and peroxidase did not evolve at the same time as that for concentrated peroxide and hydroquinone, the latter two

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substances would have been useless and would have taken up precious resources that could have been better used elsewhere.

- If the combustion control mechanism did not evolve at the same time as the chemical manufacturing apparatus, the beetles would have become extinct because they would have exploded.
- At the same time, they needed the storage chambers, connecting tubes, sphincter muscles, combustion chambers, and swivel tubes to deliver the blast.
- If the combustion chambers had not been strong enough to withstand the force of the blast they would have blown up. Even if the chambers were strong enough for normal circumstances, too great a concentration of chemicals at any one firing could generate too much heat and explosive force for the beetle's body to withstand. There has to be a regulating mechanism to precisely control the manufacture and mixing of the chemicals.

Though evolutionists might be able to invent a scenario in which such a mechanism could evolve one piece at a time by changes in previously existing components, they must once again ignore the details. Everything in the apparatus, from the mix of chemicals to the strength of the sphincter muscles to the shape of the storage and combustion chambers, exists in the beetle's body because it is coded for in the DNA. Once again we have to ask, what are the chances such a system could develop one mutation at a time? Very slim.

### iii. *Camouflage.*

Many animals have shapes, colors, or markings that enable them to blend in with their environment. These include the "walking stick" and other animals that look like leaves or twigs, fish that look like rocks, octopi and squid that can change colors and patterns, and many butterflies and moths. The latter have colors and designs that either make them hard to see or else fool predators into thinking they are poisonous.

The animals blend perfectly with their environment not because they *need* camouflage (Lamarckianism) but because it is programmed into their DNA. This is hard enough to explain when they look like inanimate objects such as rocks, but even harder when many of them look like surrounding plants whose features are also determined by *their* DNA. Either the two kinds of DNA evolved independently and just happen to fit together - *two* groundhogs crossing different superhighways - or else they were designed that way. When we remember the harmful effects of mutation and the cell mechanisms designed to prevent it, we see that it takes much more faith to believe in random chemical processes than in design.

## 7. **Bioluminescence.**

Over a hundred species from at least three biological kingdoms are *bioluminescent*, that is, they have the ability to produce light by internal chemical reactions. At minimum, they manufacture a light-producing chemical called a *luciferin* and an activating enzyme called a *luciferase*. (These are generic terms like protein or enzyme. Each species has a unique formula for the chemicals it produces.) These must be stored inside the creature, ready to be mixed when needed. In addition, many species such as cuttlefish and octopi have the ability to produce intricate moving patterns used for camouflage, hunting, etc. (*See [www.ted.com/talks/david\\_gallo\\_shows\\_underwater\\_astonishments](http://www.ted.com/talks/david_gallo_shows_underwater_astonishments).*)

The luciferin, luciferase, storage chambers and control mechanisms are produced by information coded in the organism's DNA. So how could this system have evolved? Some ancient line of non-bioluminescent creatures had to experience repeated mutations

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in DNA, building one upon another until all the correct parts had developed. Other bioluminescent organisms would eventually evolve from this common ancestor.

A major problem with this scenario: bioluminescence occurs not just in species considered closely related, but in varieties ranging from plankton to fungi to bacteria to soft-bodied invertebrates to insects to fish, and many more. A display at Chicago's Field Museum of Natural History says the phenomenon had to evolve over a hundred times independently, in organisms belonging not just to different species but to at least three different kingdoms.

Remember that Lamarckianism has been thoroughly falsified. Living things do not evolve the features they *need*. If anything is to evolve, it must be because of mutations in DNA.

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Imagine how improbable it would be for bioluminescence to evolve in even a single species. There would have to be a great many mutations that slipped through the cell's error correcting machinery to make it happen even one time. Now multiply that improbability by the improbability of every one of the other hundred or so species acquiring this ability. Evolutionists must totally ignore the laws of probability to maintain their faith in naturalism.

## 8. Symbiosis.

The world is full of *symbiosis* or *mutualism*, in which members of unrelated species work together for their mutual advantage. A few examples:

### *i. Insects and Plants.*

Many plants and insects depend on each other. For instance, bees feed on pollen from all sorts of plants. In the process of feeding they fly from one plant to another, spreading the pollen and enabling the plants to reproduce.

There are many examples of insect/plant interdependence, for instance, the desert yucca plant and the pronuba moth (Meldau, 1974, 114-116). The yucca blooms only at night, at certain times of the year. On the exact night it blooms, the moth breaks out of its cocoon, flies to a flower, gathers pollen, deposits it on a different flower, lays its eggs, then goes off and dies. When the eggs hatch the caterpillars eat their fill of seeds then lower themselves to the ground by a thread. They bury themselves in their cocoons and the process repeats. In those years when the plants don't bloom, the moths remain dormant in their cocoons. They only come out the very day the flowers bloom.

There are several species of the plant and several of the moth. Each species of plant reproduces with the aid of exactly one species of moth, and vice versa. Could this be the result of a fantastic series of parallel mutations?

### *ii. Cleaning Symbiosis.*

- *Crocodiles and Plovers.*

Crocodiles normally eat anything they can get in their mouths. However, they have a unique relationship with one species of bird, the Egyptian plover. When the plover approaches, the crocodile opens its jaws wide. The bird walks in, picks the leeches off the crocodile's gums, then walks safely back out. The crocodile gets a free cleaning and the bird gets a free lunch. (Barnett, 1960, 229)

- *Cleaning Stations in the Sea.*

Marine biologists have discovered a number of "cleaning stations" in the sea. Fish of all kinds, including such voracious predators as sharks and barracudas, come to these areas and line up for cleaning. When one of the cleaners (usually small fish or shrimp) approaches, the predator opens its gills and mouth and

Visual  
#9-53

allows the cleaner to swim in and remove fungus, parasites, and damaged tissue. When the cleaner is done it swims back out, the cleaned fish swims away looking for its next meal, and the next in line moves up for its turn. (Barnett, 1960, 240-241)

Both of these are irreducibly complex systems requiring a cleaner willing to enter a predator's mouth and a predator willing to not eat it. If this mutual behavior is the result of mutations, we have to marvel at how fortunate the cleaners are. Just at the time they acquired a mutation that made them want to walk or swim into a crocodile, shark, or barracuda's mouth, the predator acquired a mutation that made him decide not to eat the cleaner. If the predator's mutation had come a little after the cleaner's, it would have been all over.

**iii. *Hunting and Protection.***

The skunk clown fish (like "Nemo" in the Disney movie) is an ordinary little creature, except that it makes friends with the deadly sea anemone. Other fish stay away from the anemone because of its poison, yet it lets the skunk clown – as vulnerable to the poison as any other type of fish – swim around in its arms without attacking. The skunk clown receives protection from larger predators; in return, it brings back part of its prey to share with the anemone, which is unable to move in order to hunt food. (Barnett, 1960, 241)

Visual  
#9-54

**9. Migratory Birds (Gitt, 1986, 36-41)**

Many kinds of birds migrate in the winter. Some, such as the ruby-throated hummingbird, travel thousands of miles over land. Others journey even farther over open water with no landmarks to guide them. These include the East Siberian Golden Plover, Alaska to Hawaii (4000 km); the North American Golden Plover, Labrador to north Brazil; the Japanese snipe, Japan to Tasmania (5000 km); the needle-tailed swift of Eastern Siberia, Siberia to Tasmania; and the American sandpiper, Alaska to Tierra Del Fuego (16,000 km). If they were mistaken in their navigation by a fraction of a degree, they would miss their target and finally fall exhausted into the ocean. Yet they arrive at their destination year after year. How do they do it?

- Experiments have shown that they do not have to memorize the route. Different species have been shipped thousands of miles from home in crates that were periodically rotated to keep them disoriented. Yet when released, they find their way home.
- Perhaps they use the earth's magnetic field to help navigate, but so far we have not located any organ that would enable them to do so.
- We cannot explain their remarkable accuracy by saying they navigate only by the sun and stars. These seem to make it easier, but the birds fly in all sorts of weather conditions. They don't get lost when it's cloudy.

Four factors are needed for successful migration: a point of origin, a destination, a means of locomotion, and a means of navigation. Though birds that fly over land might learn to navigate by landmarks, the navigation system of those that fly long distances over open ocean requires at least minimal function for survival.

The first birds are supposed to have evolved from reptiles hundreds of millions of years ago. Even if we were to accept these ages, fossils show us that they haven't changed much since. So when did they develop the ability to navigate by the stars or the earth's magnetic field? According to evolution, both the stars and the continents were arranged much differently millions of years ago than they are now. In addition, the magnetic field is supposed to have reversed several times. Whatever part of the

Visual  
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birds' DNA gives them the homing instinct would have had to continually mutate since then to enable them to keep up with the changing arrangement of land, stars, and magnetism. Ridiculous, no? Such abilities could not evolve by trial and error. One error would take away the ability to make another trial. The birds would all fall into the ocean and drown. The alternative is obvious: they were designed that way.

Another fact difficult to explain in evolutionary terms: such a lengthy nonstop journey requires more energy than an individual bird can store in its body. The birds overcome this problem by flying in V formation. The lead bird breaks the wind resistance for the others, enabling them to reduce energy consumption by 23%. When it gets tired it drops to the rear of the formation and the next bird moves up to take its place. The birds' cooperation with each other enables them to fly much farther than they could individually. Did some ancient ancestors figure out that a V formation helped them all and then passed the knowledge on to future generations? Which better explains how they know what to do: purposeful design or random chance?

### 10. The Human Eye.

We saw that Darwin said that his theory would “absolutely break down” if any structure were found that could not be explained by the slow accumulation of minor changes. He admitted that the eye gave him a great deal of difficulty, but because of his presupposition that evolution must be true he made up a story about how it evolved anyway. However, there are some interesting features of the human eye Darwin didn't know about.

The following is taken from “Design In the Human Eye” by Joseph Calkins, M.D., *Bible-Science News*, January 1992. The article may be obtained at <https://creationmoments.com/article/design-in-the-human-eye/>.

Visual  
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The retina lining the back of the eye is a thin, transparent membrane that contains millions of photoreceptors at a density of about 200,000 per square millimeter. This is many times greater than the concentration of circuitry on a computer chip. Some of these light receptors are rods, others are cones. They have a dynamic range of about ten billion to one: that is, they automatically adjust their “volume control” to enable you to see in light conditions ranging from dim starlight to bright sunshine. Compare this to the best photographic film, which has a dynamic range of about a thousand to one. The eye is ten million times better able to deal with changing conditions.

Each of these receptors is connected to a nerve that does a tremendous amount of preprocessing before sending the signal through the optic nerve to the brain. Dr. John Stevens, a professor of physiology and biomedical engineering, tells us (*Byte Magazine*, April 1985) that

“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 super-computer. Keeping in mind that 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.”

Though computers have become much faster since then, it would still take at least weeks or months for even the fastest ones to process the visual information your eyes take in each second.

Visual  
#9-57

Some skeptics claim that if the eye is designed at all, it is a poor design because the rods and cones are on the back of the retina instead of the front. This, they say, makes it harder for light to get to them. However, they are ignoring three key points:

1. The parts of the eye are so thin that they are optically transparent. There is almost no loss as the light passes through the retina.
2. The eye has to continually keep itself in top condition. The “backwards” arrangement helps it to do so.

Every time you look at a bright light some rods and cones are damaged. However, because the rods and cones are on the back instead of the front, they are in constant contact with nutrients and are able to repair themselves immediately. If the arrangement were reversed, it would take your eyes months to recover from a camera flashbulb instead of a few seconds.

3. The eye is far more complex than we knew just a few years ago. Scientists at Leipzig University reported in 2007 that there is no loss of light to the rods and cones because the eye uses microscopic fiber optic tubes to transmit the light to them (Franze, 2007). Humans only invented fiber optics a few decades ago. Little did we know that our eyes have used the technology since the beginning of humanity. Consider this also: even if we follow Darwin’s reasoning about a series of structures in nature that seemed more and more eyelike, any sort of eye would be useless without an optic nerve and a specialized area of the brain to interpret the signals it sends. This is an irreducibly complex system in which all the features work perfectly together. Could a series of random DNA mutations produce a coordinated group of structures that puts the fastest computers to shame, or is it perhaps more likely that somebody designed it all?

Visual  
#9-57

Many volumes are available for students wanting to learn more about design in nature. The point is: When we consider the complexity of DNA, the elaborate cell mechanisms geared to preventing mutations, and the fact that mutations damage preexisting genetic information rather than adding it, we are forced to the conclusion that evolution *could not* happen. When we look at the real world, we see that creation is a far more reasonable explanation of what *did* happen. Those who reject the possibility of creation (or any form of intelligent design) do so for religious reasons, not scientific.

### CHAPTER 9 REVIEW QUESTIONS

1. The most basic assumption of evolution is that everything must be explainable by \_\_\_\_\_  
\_\_\_\_\_
2. What is the contradiction in claiming to believe in both evolution and the Bible? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. How old does any variation of evolution require the universe to be?  
\_\_\_\_\_
4. How long would God need to create the universe? \_\_\_\_\_  
\_\_\_\_\_

5. How old do evolutionists and old-earth creationists think the earth is? \_\_\_\_\_  
\_\_\_\_\_
6. What is uniformitarianism? \_\_\_\_\_  
\_\_\_\_\_
7. How much of the fossil record do evolutionists and old-earth creationists attribute to Noah's Flood? \_\_\_\_\_  
\_\_\_\_\_
8. Whose word is the final authority for evolutionists and old-earth creationists? \_\_\_\_\_  
\_\_\_\_\_
9. Give an example of where the search for design in nature is not limited to creationists.  
\_\_\_\_\_  
\_\_\_\_\_
10. What is the weakest of the three main arguments for design in nature? \_\_\_\_\_
11. Explain how the study of probability is a common part of science. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. What does "irreducible complexity" mean? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
13. Why would a structure in a living thing need to have at least minimal function? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
14. What do evolutionists do when they find something that cannot be explained by purely natural processes? \_\_\_\_\_  
\_\_\_\_\_
15. Explain how those who think DNA evolved by accident have the whole process backwards.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



16. How is the process of DNA and cell reproduction irreducibly complex? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
17. How is the genetic code different between the “lowest” and the “highest” organisms?  
\_\_\_\_\_
18. How is the error correcting mechanism different between the “lowest” and the “highest” organisms? \_\_\_\_\_
19. How are your cells able to produce 10 billion different types of antibodies from only 3 billion base pairs (nucleotides)? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
20. If the ancient ancestors of giraffes stretched their necks to reach higher leaves, would the stretched necks be passed on to their descendants? \_\_\_\_\_  
Why or why not? \_\_\_\_\_  
\_\_\_\_\_
21. What types of materials do we in the animal kingdom need from the soil but are unable to obtain? \_\_\_\_\_
22. How do plants furnish us these needed substances? \_\_\_\_\_  
\_\_\_\_\_
23. What would happen to bacteria with rotary flagella if even one of the proteins were not available or were out of place? \_\_\_\_\_  
\_\_\_\_\_
24. What would have happened to the ancestors of the bombardier beetle if any one of the parts of its defense mechanism were missing? \_\_\_\_\_  
\_\_\_\_\_
25. How many separate times would bioluminescence have had to evolve to produce all the types that have it? \_\_\_\_\_
26. If migratory birds use the earth’s magnetic field to navigate over the ocean, how would their ancestors have had a problem 150 million years ago? \_\_\_\_\_  
\_\_\_\_\_
27. Explain how the eye is not wired backwards. \_\_\_\_\_  
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