

## **Darwin Was Right! .... And Wrong**

(appropriate for High Schoolers and older)

Michael R. Daily, August 2009

### **Good news: Evolution has nothing to do with being a successful scientist or engineer!**

I have worked in the engineering research and development community for 25 years. During that time I have worked closely with PhD level scientists of various types: geochemists, geophysicists, microbiologists, biochemists, and many others. We have worked on everything from developing new ways to find oil to detecting disease agents. In addition, even though I am an electrical engineer by education, my one and only patent is actually in geophysics.

Never once was a belief in “Evolution” needed to do my work. Not once. Never. It has been completely irrelevant.

The only negative thing about not believing in Evolution is that, in some scientific circles, it is politically incorrect to hold that belief and may cause you to lose your job or your funding if the wrong people find out.

This is not a technical reason, it is an emotional reaction to a belief system that feels threatening to people.

Here’s the thing: People are messy, they skip steps, they iterate back and forth, and they make decisions based on emotion just as often as any other reason – This is also true for scientists and engineers!

### **Scientists Make Emotional Decisions Just Like Everyone Else**

Many times in my career I have seen this played out. Years ago when I was designing switching power supplies I came across a new circuit type (topology) developed by Dr. Slobodan Cuk, a professor at Caltech. Dr. Cuk’s circuit topology was very innovative and a true breakthrough in a field thought to be mature (i.e. boring). Unfortunately, instead of just calling it the “Cuk Converter”, his original name for the circuit was the “Optimum Topology Converter”. In other words, “mine is the best there is, period”. This, of course, irritated everyone and caused many years of research energy to go into trying to prove that it wasn’t the best. In person, Dr. Cuk is actually a very nice man but he got a little carried away in his excitement when he originally named the invention. Today the current name of his circuit is a more modest CUKonverter. What does all this have to do with science? Nothing, that’s the point - its all quite emotional.

Later, a funding organization wanted a smaller, less noisy power supply developed so they put out a request for proposal. In that proposal, designs that operated at unusually high frequencies were requested. This is because the prevailing thought at the time was the only way to make a small, less noisy power supply was to operate at much higher frequency. Dr. Cuk’s topology had the ability to meet the size and noise constraints (and had other advantages as well) but it operated at a lower, standard frequency. As a result he was not funded. Why? Because the funding organization had already stated publicly, in writing, that they wanted designs that operated at high frequency. So, a proposal that met the need at lower frequency had to be rejected. It would have embarrassed the funding organization that wrote the request, made the people in that organization feel stupid, and caused them to have to admit to the world that they were wrong. Sorry, but that is not going to happen. What does all this have to do with science? Nothing, that’s the point - its all quite emotional.

A program manager decided that he would invest his millions of dollars in research projects that included putting microchips in cockroaches in order to address a set of problems. If other solutions to these problems were proposed that didn’t include 1) a microchip and 2) a cockroach to put the chip in, the project did not get funded. Why? Because the solution did not include a MICROCHIP IN A COCKROACH! See how that works?

What does all this have to do with science? You guessed it, nothing.

Now, let's go back to our original topic, Evolution. The prevailing scientific community has bought into the idea of Evolution for many years now. Long enough that most scientists have believed in it for pretty much their entire career. What are the chances they are going to change their minds now? What are the chances that they are going to publicly admit that not only have they been wrong about something their entire careers but that they were so stupid they missed it by a mile? Its not likely (apart from the grace of God).

Think about it. The Earth is not billions of years old, it is only thousands of years old and you missed it, Mr. PhD. Sediments were laid down and fossils buried by a rapid worldwide flood - not over millions of years - and you missed that too. Life on the Earth was created and stays within boundaries called "kinds", it was not caused by a random initiating event that created the first living cell from which all living things descended and yet, once again, you missed it by a million miles!

That's a pretty tall order. As a result you can expect strong emotional reactions against anything that fundamentally disagrees with the idea of Evolution and nothing disagrees more completely with Evolution than the Bible. (see link for a comparison of the two: <http://www.montanabiblecollege.com/Documents/didgodcreateevolution.pdf>)

*Note: Not all scientists are atheists. According to Dr. Francis S. Collins, former director of the government's human genome project, surveys over the years have shown that about 40% of scientists believe in a God that you can pray to in expectation of an answer and this percentage has not changed much in the last century.*

*(ref: 2007 National Prayer Breakfast - <http://www.asa3.org/ASA/resources/Collins20070201.html>)*

### **The Strawman Argument**

These emotional reactions show up in many unproductive forms but one form you need to be aware of is the use of "Strawman" arguments.

A strawman argument occurs when a person ignores another person's actual position and substitutes a distorted, exaggerated or misrepresented version of that position. This sort of "argument" has the following pattern:

- 1) Person A has position X.
- 2) Person B presents position Y, which is an exaggerated version of X.
- 3) Person B attacks position Y and proclaims that X is therefore false, incorrect, or flawed.

An example strawman argument: Bob and Jane are arguing about cleaning out the garage

Jane: "We should clean out the garage. Its getting messy."

Bob: "We just cleaned it out last year. Do we have to clean out the garage everyday?"

Jane: "I never said anything about cleaning the garage every day. You just want to keep all your junk forever, which is ridiculous."

In this example both Bob and Jane have resorted to Strawman arguments. Jane never said she wanted to clean out the garage everyday and Bob never said he wanted to keep all his stuff forever.

In the Evolution / Creationism discussion you will see Strawman arguments occasionally being used by Evolutionists but also by Creationists. This is not helpful. During the rest of this study I will do my best to stay away from Strawman arguments.

### **Get Familiar With Evolution**

With that in mind I recommend you visit the web site below from the University of California Museum of Paleontology, Berkeley. It does an excellent job of explaining the current view of Evolution in a clear, complete, easy-to-understand way. Just go to this link and follow the "next" buttons.

[http://evolution.berkeley.edu/evolibrary/article/0\\_0\\_0/evo\\_01](http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_01)

The website below provides an excellent summary of the creationist viewpoint of evolution:

<http://www.answersingenesis.org/get-answers#/topic/evolution>

## What is Real Science?

But before you go any further it is important that you understand a few things about science otherwise it will be easy for people to deceive you.

What is science? When we say, "science says the universe is 15 billion years old, science says man evolved in the following way", what does that mean, "science"? That type of science is really made up of two things:

- 1) **Real science** – observations, experimental data, repeatable experiments. We Christians love this stuff and we have no problem with it – we like it. But there is another part of science:
- 2) **Philosophy** – This includes dogma or ideology (strongly held beliefs) and in science it usually is presented in the form of assertions. What is an assertion? The word "assertion" is a scientific word which means "to strongly insist" that something is true. When a scientist makes an assertion he is saying, "I have no data, I have no observational evidence, there are no experimental results that support what I am about to say, nevertheless I strongly insist that the following must be true". This is philosophy. We Christians reject philosophy in all its forms.

### Dictionary Definitions

**Philosophy** - *Investigation of the nature, causes, or principles of reality, knowledge, or values, based on logical reasoning rather than empirical methods.*

**Empirical Methods** - *Originating in or based on observation or experience, relying on experience or observation alone often without due regard for system and theory, capable of being verified or disproved by observation or experiment.*

**Ideology** - *A systematic body of concepts especially about human life or culture, a manner or the content of a thinking characteristic of an individual, group, or culture; the integrated assertions, theories and aims that constitute a sociopolitical program*

## Colossians 2:8,9

**See to it that no one takes you captive through philosophy and empty deception, according to the tradition of men, according to the elementary principles of the world, rather than according to Christ. For in Him all the fullness of Deity dwells in bodily form,**

Its critical that you be able to tell the difference between real science – observation and experimental results – and philosophy in the form of assertions. Accept the real science but reject assertions.

## Misunderstanding the Bible

Before we jump into Evolution there is one more thing to review. There have been two major instances in past history where a misunderstanding of the Bible has led to confusion.

- 1) Misunderstanding the location of the Earth in the universe
- 2) Misunderstanding the meaning of "kinds" of animals as mentioned in the Bible

In the 1500's the Christian view of the Earth's location was that we were located at the center of the universe. Genesis chapter 1 identifies the Earth as the location of the Creation event so it would make sense for the Earth to still be located close to the center of the universe.

## Genesis 1:1-8

**In the beginning God created the heavens and the earth. <sup>2</sup>The earth was formless and void, and darkness was over the surface of the deep, and the Spirit of God was moving over the surface of the waters. <sup>3</sup>Then God said, "Let there be light"; and there was light. <sup>4</sup>God saw that the light was good; and God separated the light from the darkness. <sup>5</sup>God called the light day, and the darkness He called night. And there was evening and there was morning, one day. <sup>6</sup>Then God said, "Let there be an expanse in the midst of the waters, and let it separate the waters from the waters." <sup>7</sup>God made the expanse, and separated the waters which were below the expanse from the waters which were above the expanse; and it was so. <sup>8</sup>God called the expanse heaven. And there was evening and there was morning, a second day.**

Unfortunately, the tools of astronomy were very limited in the 1500's and the "universe" that was known at the time was essentially our solar system. Copernicus came along and showed that the Sun was the center of the "universe" and that the Earth and other planets revolved around it. Copernicus was partially right - the Earth revolves around the Sun. But he was also wrong – the Sun is not the center of the universe.

As our observational tools have improved we have discovered that the sun is one star in a large galaxy of stars and that the universe is made up of a huge number of similar galaxies. Measurements taken by Edwin Hubble in the early 20<sup>th</sup> century indicate that the Milky Way Galaxy the Earth is located in does, in fact, appear to be located at the center of the known universe which is consistent with the Biblical record. What is interesting to note is that as observational science improves, the Bible is found to be correct after all.

For an in-depth discussion of this topic please see the study: "Starlight and the God of the Universe" (aka, "Starlight in a 6,000 Year Old Universe") at <http://www.gciweb.org/Youth%20Studies.asp>

The second issue is a misinterpretation of the Biblical record that states that things reproduce after their own "kind". This was misinterpreted to mean that animals and plants are fixed and have no capacity to change. The Bible does not say they can't change but that their ability to change is limited to staying within certain boundaries called "kinds". We will discuss this in detail in this study.

### **Genesis 1:11-13**

**Then God said, "Let the earth sprout vegetation, plants yielding seed, and fruit trees on the earth bearing fruit after their kind with seed in them"; and it was so. <sup>12</sup>The earth brought forth vegetation, plants yielding seed after their kind, and trees bearing fruit with seed in them, after their kind; and God saw that it was good. <sup>13</sup>There was evening and there was morning, a third day.**

### **Genesis 1:20-25**

**Then God said, "Let the waters teem with swarms of living creatures, and let birds fly above the earth in the open expanse of the heavens." <sup>21</sup>God created the great sea monsters and every living creature that moves, with which the waters swarmed after their kind, and every winged bird after its kind; and God saw that it was good. <sup>22</sup>God blessed them, saying, "Be fruitful and multiply, and fill the waters in the seas, and let birds multiply on the earth." <sup>23</sup>There was evening and there was morning, a fifth day. <sup>24</sup>Then God said, "Let the earth bring forth living creatures after their kind: cattle and creeping things and beasts of the earth after their kind"; and it was so. <sup>25</sup>God made the beasts of the earth after their kind, and the cattle after their kind, and everything that creeps on the ground after its kind; and God saw that it was good.**

### **Charles Darwin**

Charles Darwin lived during a time when the prevailing view was that God created life in all its forms and those forms were fixed – they did not change. In addition the Earth was relatively young and had experienced a worldwide flood. This general view was based on the understanding of the Biblical record at that time.

At the same time there were those before Darwin who theorized that the Earth was very old and others who believed that man and all other life descended from a common ancestor although no mechanism for how this might have happened was conceptualized at the time (this was well before knowledge of DNA).

Although Darwin's work was occurring at about the same time Mendel was doing his heredity experiments with pea plants, Mendel's work was not widely known until 1901 (about 40 years after Darwin published "On the Origin of Species"). Reference: [http://en.wikipedia.org/wiki/Gregor\\_Mendel](http://en.wikipedia.org/wiki/Gregor_Mendel)

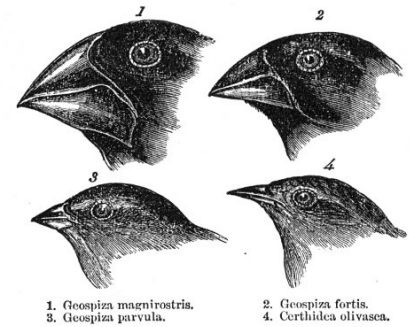
Darwin's own observations and the analysis by others of his collections from his trips led to the conclusion that life forms were not fixed – they changed or adapted to their environment to some degree.

The observational data appeared to indicate that, over time, species appeared to change. This was a revolutionary idea at the time.

## Darwin's Finches – An Example of Observable Natural Selection

Since 1973, biologists Peter and Rosemary Grant, working on the island of Daphne Major in the Galapagos, have studied a species of finch called *Geospiza fortis*. After a drought in 1977 devastated plants bearing small seeds, more than 1,000 of the 1,200 *G. fortis* finches on the island died. The Grants discovered that larger *G. fortis*, which could break open larger seeds than smaller *G. fortis* could, survived better. The survivors mated in 1978, and, on average, their offspring had beaks 4 percent larger than those of the previous generation. Following another drought in 2003, *G. fortis* with smaller beaks survived better, in part because of competition for bigger seeds after a larger finch species, *G. magnirostris*, settled the island. Between 2003 and 2005, *G. fortis* beaks shrank 5%.

<http://www.pbs.org/wgbh/nova/id/pred-flash.html>



[http://en.wikipedia.org/wiki/File:Darwin%27s\\_finches.jpeg](http://en.wikipedia.org/wiki/File:Darwin%27s_finches.jpeg)

## Define “Species”

One of the key points of confusion is the idea of species. The word, “species” is a human invention that is not well defined. In general, a species is a group of related organisms capable of interbreeding - although this definition is not universally agreed upon. For example, some animals are capable of interbreeding but choose not to – are they the same species or a different species?

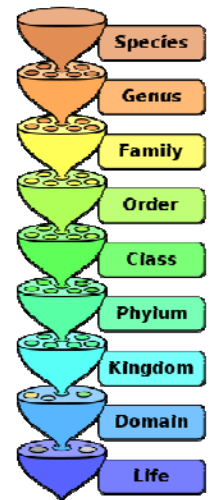
**Species** - A fundamental category of taxonomic classification, ranking below a genus or subgenus and consisting of related organisms capable of interbreeding.

To illustrate the difficulty of the idea of species consider that commonly used names for plants and animals sometimes correspond to species: for example, "lion", "walrus", and "camphor tree" – each refers to a species. In other cases common names do not correspond to species: for example, "deer" refers to a family of 34 species, including Eld's Deer, Red Deer and Elk. The last two species were once considered a single species. Because of the difficulties with both defining and tallying the total numbers of different species in the world, it is estimated that there are anywhere between 2 and 100 million different species. (<http://en.wikipedia.org/wiki/Species>)

The Bible does not talk about species but it does talk about “kinds”. In the example above, the word “deer” would be similar to what the Bible means by “kind”. So, a “kind” can be made up of multiple “species”. We also know that 2 million species would not have fit on Noah’s Ark so we know that “kind” is not the same thing as species.

A way to think of it is the pairs of animals on Noah’s Ark each represented a single “kind”. Although we don’t know exactly what those “kinds” were we could continue our deer analogy by saying that one of the pairs of animals was the deer kind. If you were on Noah’s Ark and saw the animals they may not look exactly like any of the deer of today but you would recognize them as being a “deer-like” animal. More importantly, this pair of animals’ DNA contained all the information from which a wide variety of deer species could develop - but nothing more than deer species. Some creationists speculate that “kind” may be closer to the biological classification of “family” but we don’t really know. If this was the case the number of animals on the Ark would have been around 2,000 or so.

(reference: <http://www.answersingenesis.org/articles/am/v2/n2/two-of-every-kind>)



## Genesis 6:17-22

"Behold, I, even I am bringing the flood of water upon the earth, to destroy all flesh in which is the breath of life, from under heaven; everything that is on the earth shall perish. <sup>18</sup>"But I will establish My covenant with you; and you shall enter the ark--you and your sons and your wife, and your sons' wives with you. <sup>19</sup>"And of every living thing of all flesh, you shall bring two of every kind into the ark, to keep them alive with you; they shall be male and female. <sup>20</sup>"Of the birds after their kind, and of the animals after their kind, of every creeping thing of the ground after its kind, two of every kind will come to you to keep them alive. <sup>21</sup>"As for you, take for yourself some of all food which is edible, and gather it to yourself; and it shall be for food for you and for them." <sup>22</sup>Thus Noah did; according to all that God had commanded him, so he did.

## Genesis 7

Then the LORD said to Noah, "Enter the ark, you and all your household, for you alone I have seen to be righteous before Me in this time. <sup>2</sup>"You shall take with you of every clean animal by sevens, a male and his female; and of the animals that are not clean two, a male and his female; <sup>3</sup>also of the birds of the sky, by sevens, male and female, to keep offspring alive on the face of all the earth. <sup>4</sup>"For after seven more days, I will send rain on the earth forty days and forty nights; and I will blot out from the face of the land every living thing that I have made." <sup>5</sup>Noah did according to all that the LORD had commanded him. <sup>6</sup>Now Noah was six hundred years old when the flood of water came upon the earth. <sup>7</sup>Then Noah and his sons and his wife and his sons' wives with him entered the ark because of the water of the flood. <sup>8</sup>Of clean animals and animals that are not clean and birds and everything that creeps on the ground, <sup>9</sup>there went into the ark to Noah by twos, male and female, as God had commanded Noah. <sup>10</sup>It came about after the seven days, that the water of the flood came upon the earth. <sup>11</sup>In the six hundredth year of Noah's life, in the second month, on the seventeenth day of the month, on the same day all the fountains of the great deep burst open, and the floodgates of the sky were opened. <sup>12</sup>The rain fell upon the earth for forty days and forty nights. <sup>13</sup>On the very same day Noah and Shem and Ham and Japheth, the sons of Noah, and Noah's wife and the three wives of his sons with them, entered the ark, <sup>14</sup>they and every beast after its kind, and all the cattle after their kind, and every creeping thing that creeps on the earth after its kind, and every bird after its kind, all sorts of birds. <sup>15</sup>So they went into the ark to Noah, by twos of all flesh in which was the breath of life. <sup>16</sup>Those that entered, male and female of all flesh, entered as God had commanded him; and the LORD closed it behind him. <sup>17</sup>Then the flood came upon the earth for forty days, and the water increased and lifted up the ark, so that it rose above the earth. <sup>18</sup>The water prevailed and increased greatly upon the earth, and the ark floated on the surface of the water. <sup>19</sup>The water prevailed more and more upon the earth, so that all the high mountains everywhere under the heavens were covered. <sup>20</sup>The water prevailed fifteen cubits higher, and the mountains were covered. <sup>21</sup>All flesh that moved on the earth perished, birds and cattle and beasts and every swarming thing that swarms upon the earth, and all mankind; <sup>22</sup>of all that was on the dry land, all in whose nostrils was the breath of the spirit of life, died. <sup>23</sup>Thus He blotted out every living thing that was upon the face of the land, from man to animals to creeping things and to birds of the sky, and they were blotted out from the earth; and only Noah was left, together with those that were with him in the ark. <sup>24</sup>The water prevailed upon the earth one hundred and fifty days.

## Genesis 8:16-21

"Go out of the ark, you and your wife and your sons and your sons' wives with you. <sup>17</sup>"Bring out with you every living thing of all flesh that is with you, birds and animals and every creeping thing that creeps on the earth, that they may breed abundantly on the earth, and be fruitful and multiply on the earth." <sup>18</sup>So Noah went out, and his sons and his wife and his sons' wives with him. <sup>19</sup>Every beast, every creeping thing, and every bird, everything that moves on the earth, went out by their families from the ark. <sup>20</sup>Then Noah built an altar to the LORD, and took of every clean animal and of every clean bird and offered burnt offerings on the altar. <sup>21</sup>The LORD smelled the soothing aroma; and the LORD said to Himself, "I will never again curse the ground on account of man, for the intent of man's heart is evil from his youth; and I will never again destroy every living thing, as I have done.

The Christians of Darwin's time incorrectly interpreted the Bible to mean that changes in species did not occur over time. In reality, changes do occur over time but they are limited within a "kind". For example, even though there are 34 species of deer – they are all still deer. The changes are limited to stay within this type or kind of animal. We'll discuss why a little later.

It is interesting to note that these changes happen rather rapidly – in just a few generations – which is why they are observable. This is also why artificial selection (breeding) can be used by people to develop animals and plants to have desirable characteristics.

### **Darwin Was Right About Natural Selection**

Charles Darwin made a major contribution to science in his development of the idea of Natural Selection. Although he was not aware of DNA at the time, his basic concept of “Natural Selection” has been experimentally demonstrated many times over the last 150 years - so has Artificial Selection (Mendel's work).

However, “Evolution” as it is commonly referred to, has not been proven or observed.

One of the points of confusion is that Darwin got a little too excited (kind of like Dr. Cuk) and went too far in his conclusions. He observed natural selection causing changes in a species over short time periods and tried to extend the same idea to drastic changes over long periods of time which are not observable.

### **Darwin Was Wrong About Evolution**

Evolution is sometimes defined as being “descent with modification”. This definition of Evolution includes small-scale evolution (changes in gene frequency in a population from one generation to the next) and large-scale evolution (the descent of different species from a common ancestor over many generations).

This is another point of confusion. What some refer to as microevolution or small-scale evolution (more specifically, changes in gene frequency in a population from one generation to the next) has been shown to be true through observation and experimentation.

Large scale or macroevolution (the descent of different species from a common ancestor over many generations) has been observed to be limited to within “kinds”.

Unfortunately, the scientific community does not use the idea of “kinds” but continues to use the term “species” which is not as useful.

Evolution, as it is commonly thought of today, imagines that small changes (like those that have been observed) left to occur over large periods of time (assertion) will cause radical changes in species (assertion) far beyond the limits of “kinds” (assertion).

As Christians we accept natural selection but reject macroevolution as philosophy.

### **Natural Selection**

Natural Selection is the mechanism by which populations of living things seem to change over the generations. From a Christian viewpoint God has built in an excellent way for living things to automatically adjust to fit together with each other and with their local environment on Earth. You can think of it as “trimming around the edges” to fit things together better rather than radically changing the nature of something.

The basic idea is that in any population of living things there is genetic variation. Some of this variation is for things that don't have any real impact on improving the organism's chances of reproducing. For example, variations in eye color, in most cases, are interesting but have no bearing on improving chances of reproducing.

Other variations are damaging such as susceptibility to a particular disease – but this will also have no effect on future generations if the disease shows up mostly in old age, after offspring have already been produced.

Variations also have to be genetic in nature or they also have no effect on offspring. No matter how many members of a population have a finger cut off their offspring will continue to have all their fingers because the change was mechanical, not genetic.

Genetic variation shows up in offspring. How can a dark haired father and a blonde mother have a child with red hair? Its in the genes. It does not show up in every offspring but it shows up in some and sometimes it skips a generation.

Natural Selection has an effect when the characteristics that vary make a difference in the organism's ability to reproduce. If the genetic variation has no impact on improving or reducing reproduction, there is no natural selection. The characteristic could be anything – the ability to survive long enough to reproduce, the ability to survive a particular environment, a tolerance for certain types of food, a behavior of some type, etc.

Offspring who have significantly advantageous variations tend to survive and reproduce while those in the population without that variation tend to die before they can reproduce. As a result in just a few generations most of the population is made up of the descendants of those with the advantageous variation which tends to get concentrated more and more in the genes of the population.

### **Artificial Selection**

In Artificial Selection (Breeding) a human selects out individuals from a population with desirable characteristics and isolates and controls what other individuals they reproduce with. In this way the characteristics of a population over time can be changed.

### **Causes of Genetic Variation**

Without genetic variation there is no natural selection since there would be nothing to select from. The causes of genetic variation are Migration, Mutation, Genetic Drift, and Genetic Shuffling.

**Migration** just means that some individuals from a population of brown bugs might have joined a population of green bugs. That would make the genes for brown bugs become more frequent in the green bug population than they used to be.

**Genetic Drift** is caused by an unusual event. Someone steps on some bugs killing more of one variation than another before they can reproduce. The future population will have less of the variation that was killed even though their early deaths were just bad luck. Other variations of Genetic Drift are “bottlenecks” and “founder effects” which will be discussed later.

*As I have described it so far both Creationists and Evolutionists agree that Natural Selection is a random process that results in living things adapting to their environment over the generations.*

### ***At this point things start to diverge based on world view or ideology (strongly held beliefs).***

The two most interesting forms of genetic variation are Mutation and Genetic Shuffling.

**Mutation** means that something in the genetic code (DNA) of an individual was changed. The only mutations that cause changes in future generations are mutations that occur in egg or sperm cells. Mutations in skin, muscle, or other tissue will affect the individual but cannot be genetically passed on to offspring. Whether a particular mutation happens or not is not related to how useful that mutation would be. The most commonly recognized type of mutation is cancer.

### **The causes of mutations**

- 1) DNA fails to copy accurately - When a cell divides, it makes a copy of its DNA and sometimes the copy is not quite right. That difference from the original DNA sequence is a mutation.
- 2) External influences - Mutations can be caused by exposure to specific chemicals or radiation. These agents cause the DNA to break down. Even in the most isolated and pristine environments, DNA breaks down. When the cell repairs the DNA, it might not do a perfect job of the repair. So the cell would end up with DNA slightly different than the original DNA and, therefore, a mutation.

**Genetic Shuffling** is the mixing of genes from two organisms to create new gene combinations. This occurs through sexual reproduction. It also occurs in non-sexual reproduction through “gene swapping”. For example, bacteria swap genes with each other through non-sexual activity. In Genetic Shuffling no new information is being created it is just being rearranged.

## **The Core Issue - Can Noise Create Information?**

The Evolutionist believes that mutations play a very significant role in macroevolution. In order to get enough changes over time to bring completely new life forms into existence something has to create vast amounts of new information not in the current species' DNA. The Evolutionist asserts that mutations are the primary way this must be happening.

Observationally speaking, the vast majority of mutations are harmful or lethal to the organism or have no significant advantage (they are neutral). There are some mutations that appear to be helpful. Even in these rarely observed cases there are usually negative side effects. For example, people with a genetic tendency toward sickle cell anemia have a strong resistance to malaria but they also experience the severe negative effects of sickle cell anemia if it develops. However, the real issue is what has happened to the DNA.

The Evolutionist believes that a process of random noise (mutation) occurring over millions of years is able to generate vast amounts of complex, new information that has never existed before.

***In no other branch of science or engineering is it believed that random noise creates new information.***

As an example, if you came across Mount Rushmore and had never heard of it before how many of you would assume that wind, erosion, and other random processes, given vast amounts of time to work, would result in the mountain's unusual shape?

[http://en.wikipedia.org/wiki/Mount\\_Rushmore](http://en.wikipedia.org/wiki/Mount_Rushmore)

The information encoded into the mountain (likenesses of American presidents) can only have been put there by an intelligent being of some type (in this case a team of sculptors).

The Creationist believes that mutations essentially destroy information already placed in the DNA by God. In other words when God created a "kind", that animal's DNA had all the information in it for all the future variations that would be needed for local adaptation.



The genetic shuffling that occurs from sex provides the opportunities for the variations to be realized. Random mutation does not play a significant role.

***Key Point: Evolutionists place a heavy emphasis on the accumulation of random mutations to generate new information from a random process. Creationists view random mutations as the damaging effects of a fallen world that destroy information in the DNA, not create it.***

The idea that random mutations provide the genetic information for macroevolution has never been demonstrated. Although usually presented as fact, it is nothing more than a widely accepted assertion.

Experiments done using radiation to cause mutations in rapidly reproducing fruit flies have never produced a positive mutation much less the evolution of a fruit fly into some type of "higher" life form. (reference: [http://www.pathlights.com/ce\\_encyclopedia/Encyclopedia/10mut10.htm](http://www.pathlights.com/ce_encyclopedia/Encyclopedia/10mut10.htm))

Mutations have been observed to weaken, cripple, or kill organisms but not improve them. This is consistent with a loss of genetic information. (reference: <http://www.darwinismrefuted.com/mechanisms06.html>)

## The Problem With Mutations

DNA has been shown to be encoded information. As such it is more than just a repeating pattern or geometric shape – it is an information language made up of symbols and syntax.

**Syntax:** 1: *the way in which linguistic elements (as words) are put together to form constituents (as phrases or clauses)*, 2: *a connected or orderly system : harmonious arrangement of parts or elements*

The symbols only have meaning if they are in a particular order. Most other possible orders or sequence of symbols have no meaning and are useless.

For example, 3 of the symbols of the English language are shown below in various combinations of order or sequence:

boy, byo, oby, oyb, ybo, yob

Only one of these strings of symbols has meaning, “boy”. The others are meaningless. Notice that the majority of sequences have no meaning. As the number of letters in the words increase the percentage of meaningless combinations grows dramatically.

Below are the possible combinations of the letters in the word, “girl”.

girl, gilr, glir, glri, gril, grli, igrl, iglr, irgl, irlg, ilrg, ilgr, rgil, rgli, rigl, rilg, rlig, rligi, lgir, lgri, lirr, ligr, lrgi, lrig

With 3 letters only 1/6 of the possible combinations had meaning. If we increase the size of the word to 4 letters the percentage of meaningful combinations is now 1/24.

In mathematics these combinations are called, “permutations”.

For 5 letters there are 120 combinations

For 6 letters there are 720 combinations

For 7 letters there are 5,040 combinations

For 8 letters there are 40,320 combinations

For 9 letters there are 362,880 combinations

For 10 letters there are 3,628,800 combinations! (the word “meaningful” is 10 letters long)

A tiny number of these combinations will be meaningful words but the vast majority will have no meaning. The more letters in the word the less likely other combinations of the letters will have meaning. And this is just for one word!

But remember, you also have to have multiple words and you have to place the words in a meaningful order with spaces in the right places (syntax) in order for a meaningful sentence to be created.

In addition, the rules that you use to assign meaning to each symbol (letter) and each word (meaningful sequences of letters), and each sentence (meaningful sequences of words) must also be known by the entity that will “read” the message. For DNA, the molecular machines that read DNA and use that information must know what the rules are that the information was encoded by. The fact that there are molecular machines that know how to decode and use the encoded information is a bigger mystery than the encoded DNA itself!

Although things are rapidly getting out of hand the problem has just started. If a mutation comes along it can change any of the letters to any other letter in the alphabet. In the example of the word, “boy” a mutation can change the b to an a so now we get “aoy”.

The problem with mutations is they keep changing things, one letter at a time. While you are waiting for lots of mutations to come along in the right combinations to create meaningful sentences the mutations are destroying the sentence you already have faster than anything else.

If you look at the permutation growth mentioned above it is clear that as you increase the number of letters in the word the number of meaningful combinations is dropping while the number of meaningless combinations is skyrocketing (over 3.6 million combinations for the letters in the word “meaningful”). As an exercise, see how many meaningful words you can make using every letter in the word “meaningful” once and only once (you can use “n” twice since there are two of them in the word “meaningful”).

**Key Point: information theory (a branch of mathematics) shows that noise (random mutation) destroys information very rapidly and, in the best case, degrades information faster than any benefit it might bestow.**

So, here’s the problem. We are not talking about 10 letters in one word. The human genome has 3 billion letters arranged in a specific syntax. (It would take 31 years just to read 3 billion letters out loud!). Even the simplest known microorganism, Nanoarchaeum, has about 500,000 characters in its DNA. Any change to these 500,000 characters must provide an advantage to the organism and must fit within the existing syntax of the DNA code without destroying existing encoded information.

This is mathematically impossible.

Set aside the 3,000,000,000 letters in the human genome for a moment and let’s just look at a 60 character string (example string: *Well, this is mathematically impossible, wouldn’t you agree?*). The probability that a 60 character sequence could be enhanced by random mutation into a more meaningful sequence is less than 1 chance out of  $10^{80}$ . (permutations of 60 letters).

$10^{80}$  is the current estimate of the number of atoms in the entire universe!  
(ref: Perry S. Marshall, <http://www.randommutation.com/darwinianeolution.htm>).

### **The Information “Counter” Argument**

There are a few odd situations in engineering where small amounts of noise seem to make a communications system work better but the noise is not improving the information content, it is still degrading it. In these few special cases the noise in the system helps keep feedback control loops from locking up when signal strengths are so small the system can’t tell that they are not zero without a little noise or “dither” in the system.

An analogy would be someone very far away trying to signal you by reflecting sunlight at you with a small hand mirror. If the mirror was perfectly motionless (transmitting noiseless location information) and the sun was not very bright (low signal strength) you may not notice the reflection off the mirror even if the reflection was pointed right at you. But if the person wiggles the mirror a little bit (adds noise to the location information) the contrasting flickers that you would see would immediately draw your attention. The information content (location) has not changed (in reality it has degraded by a small amount) but the ability of the system (you) to detect the signal has improved.

I bring this up because some Evolutionists try to use examples like these as counterarguments to show that noise can increase information. The truth is these “counter” examples are not really about information but the unrelated topic of signal detection.

### **Kitzmiller v. Dover Area School District**

In 2005 a lawsuit was brought against Dover Area School District in Pennsylvania because they instituted a policy of having Intelligent Design taught in their high schools as an alternative theory to consider along with Evolution. The school district lost the case primarily because of how the rules of the game were biased heavily against them and because they were not completely honest.

The school district claimed that Intelligent Design was science and was not creationism. In order to win the case the opposition only had to show that Intelligent Design was not science and that it was closely linked to creationism.

Since no one was around to observe the “Intelligent Designer” when He did His designs it was relatively easy to show that Intelligent Design was not science since it could not be observed at the time it happened.

Unfortunately the Evolutionists that provided testimony were allowed to submit their assertions as being science since their beliefs were widely accepted in the scientific community even though their assertions were equally unobservable. The court allowed the term “science” to be defined as that which the prevailing scientific community believes to be true instead of proof based on observations, data, and repeatable experiments.

The point is that things that were not and cannot be observed are not science. That does not mean they are not true they are just outside the capabilities and limitations of science.

It is also true that there are many people who believe in Intelligent Design who do not believe in Biblical Creation. Most of these people believe that the designer was God but they don't accept the Biblical account of creation.

Some of these people believe the designer or designers were aliens from another planet or dimension.

For an in-depth discussion of the topic of aliens, including UFOs and alien abduction experiences, please see the study: “Aliens Among Us” at <http://www.gciweb.org/Youth%20Studies.asp> (to be posted in the last quarter of 2009).

Nevertheless, most of the proponents for the idea of Intelligent Design are Creationists in their beliefs so it was relatively easy to find documents linking these two beliefs together.

The moral of the story is, be honest, set the rules up front to define what “science” is and what it is not, and expect the decisions to be made based on emotion rather than logic.

But the real reason I mention this lawsuit is because of some of the “evidence” that was presented by Evolutionists in the trial to show why evolution is compelling to them.

### **Evidence We Evolved From the Apes!**

At the Dover trial one of the arguments presented in favor of evolution was the observation that the Great Apes have 24 chromosomes but people only have 23 and that one of the human chromosomes (number 2) is clearly made up of two chromosomes combined together. The assertion being that people must have evolved from the Apes given this structure in their chromosomes.

However, in an August 29, 2007 article, a geneticist at the Stanford School of Medicine, Monica Rodriguez, shows that the argument is not really as strong as you might think (she is an evolutionist herself). (Reference: <http://www.thetech.org/genetics/ask.php?id=229>)

What is known today is that two chromosomes can stick together and that people who have two chromosomes stuck together usually have no problems. We know this because it happens in 1 out of every 1000 people. In other words, this is relatively common. As long as chromosomes break apart and reattach at certain points the order is not always that important. This chromosomal rearrangement is called a “Robertsonian Translocation”. What is not clear to most scientists is how it happened to all people at chromosome number 2.

Going back to our analogy of the English language if I write a paper with multiple paragraphs in it there are a few paragraphs whose order in the paper is not that important. I can cut and paste one paragraph in front of another and change the order of the paragraphs without changing the information communicated by the paper. In a similar fashion if chromosomes break apart and reattach at the genetic equivalent of “paragraphs” there is not a problem in many cases. It is the problems of mutation changing the equivalents of letters in words and words in sentences that cause problems and loss of information.

Just like paragraphs in a paper there are some paragraphs that really do need to come before others. Likewise there are some translocations that cause problems such as Down's Syndrome. However, translocations are either neutral or negative, we don't know of any translocations that bestow only benefits.

So, how did this Robertsonian Translocation at chromosome 2 become characteristic of all humans? No one really knows but one possibility is a genetic bottleneck or “founder effect”. The idea here is that at some point most of the people died and the few remaining people had this chromosomal characteristic.

For Biblical Creationists we can point to one obvious bottleneck – the Genesis Flood. If the chromosomal translocation had occurred sometime before Noah such that Noah and his immediate family all had this translocation then after the flood their descendants (all people) would also have this characteristic in their chromosomes. Once again the Biblical account fits the observable data quite well.

Using the observation of translocated chromosomes to support the assertion of common descent of man and apes is not science. It is just an assertion. The Biblical model actually fits better.

### **Macroevolution Cannot Be Science**

In fairness to the Evolutionist the long time spans imagined for macroevolution to occur mean that it is not possible to observe the asserted changes. Unfortunately, this also means that macroevolution falls outside the realm of real science (not observable) and is in the realm of philosophy.

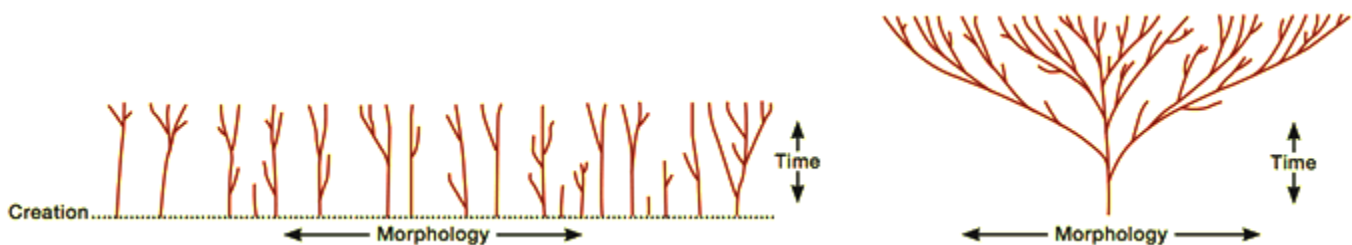
The problem is that the scientist who has built their career around macroevolution got their PhD in order to be a respected scientist, not a philosopher. As a result the scientific community is strongly committed to mixing the observational science part of Darwin’s work (the real science) with the ideology part (philosophical assertions) and trying to convince everyone that all of it is real science.

As Christians we need to make sure we make clear what part of our beliefs are based on observational science and what parts are our ideology (our ideology is that the Bible is the inerrant Word of God and is to be taken as literally true unless the Bible makes it clear that it is using figurative or symbolic language).

But we also need to point out when the Evolutionist has left the realm of science and is speaking from a platform of their ideology (belief in macroevolution and a universe that is billions of years old).

### **Conclusions**

The Creationist Model and the Evolutionary Model are shown below:



The **Creationist Model** (left) is like an “Orchard of Life” (term coined by Dr. Kurt P. Wise, Bryan College) showing that God created animals and plants in “kinds”. These original kinds were rich in genetic information containing all the future variations that would be needed for local adaptation. Over time these kinds separated into unique species as genetic information was lost or “turned off”. Because this process of speciation is a result of the loss of genetic information, selected out by natural selection, less complex life forms cannot produce more complex life forms, only adaptations. For example, wolves, coyotes, dingoes, jackals, foxes, and the hundreds of different dog breeds all came from an original pair of dog-like animals. This variation within a kind is always in a downward trend constrained by the genetic code.

The **Evolutionary Model** (right) is described as a “Tree of Life” (term coined by Charles Darwin) where all life forms evolved from a single ancestor which was of the simplest form of single cell life. Random noise over millions or billions of years created vast amounts of incredibly complex information (a blob of DNA the size of a head of a pin contains about 40 Gigabytes of information) which enabled the diversity of life on the Earth, including human beings.

Unfortunately, the observable data, the science, only covers the top of each model. In other words when Creationists and Evolutionists look at the observable evidence it appears to fit the “tops” of both the Tree of Life and the Orchard of Life.

The Creationist fills in the bottom part of the Orchard based on ideology (belief in the Biblical account of created kinds) and the Evolutionist fills in the bottom part of the Tree of life based on ideology (belief in undirected evolution).

In both cases this “filling in” is not science. Science is limited to that which is observable.

This is why evolution has nothing at all to do with being a successful scientist or engineer.

The Creationist looks at the workings of Nature and concludes that it could only have been designed, initiated, and directed by a God worthy of our worship. The Evolutionist looks at the same workings of Nature and decides to worship Nature and deny there is a God even though deep in their hearts they know better.

### **Romans 1:18-25**

**For the wrath of God is revealed from heaven against all ungodliness and unrighteousness of men who suppress the truth in unrighteousness, <sup>19</sup>because that which is known about God is evident within them; for God made it evident to them. <sup>20</sup>For since the creation of the world His invisible attributes, His eternal power and divine nature, have been clearly seen, being understood through what has been made, so that they are without excuse. <sup>21</sup>For even though they knew God, they did not honor Him as God or give thanks, but they became futile in their speculations, and their foolish heart was darkened. <sup>22</sup>Professing to be wise, they became fools, <sup>23</sup>and exchanged the glory of the incorruptible God for an image in the form of corruptible man and of birds and four-footed animals and crawling creatures. <sup>24</sup>Therefore God gave them over in the lusts of their hearts to impurity, so that their bodies would be dishonored among them. <sup>25</sup>For they exchanged the truth of God for a lie, and worshiped and served the creature rather than the Creator, who is blessed forever. Amen.**

### **Coming Attractions**

As you might expect the complexity of biological systems is such that there are many issues which current Evolutionary and Creationist models don't currently address. These are areas to watch for future work.

#### **Distribution of Human Skin Color**

For example, how did the distribution of human skin color occur? Dark skinned people have an advantage when living in sunny climates close to the equator because skin cancer is less prevalent among them. However, skin cancer does not typically show up until after people have already raised their children. In other words natural selection would not appear to be a viable mechanism to explain this distribution. (by comparison light skinned people have an advantage at higher latitudes due to their improved ability to synthesize vitamin D from sunlight).

For evolutionists the only mechanism they have available is natural selection. So, to address these types of questions they are looking at mathematical modeling to see if selective processes that are so weak that a field biologist cannot detect them through observation could, over time, still end up having the end effect.

Creationists, on the other hand, have other options available. For example, current Creationist models assume that once the Creation week ended God no longer intervened in the processes He started. On the other hand we know that God intervened at the Tower of Babel and rapidly redirected the development of human language. In the same way there may have been points in time where God redirected genetics in order to develop the distribution of skin color and other things.

What is interesting about the Tower of Babel incident is that along with instantly redirecting human language God also took the same opportunity to scatter the people over the whole earth. Although the Bible does not say, it would not be inconsistent for God to do something similar in redirecting human skin color, either as part of the Babel incident or at a later time. Once again the Biblical model fits the evidence better.

### Genesis 11:1-9

Now the whole earth used the same language and the same words. <sup>2</sup>It came about as they journeyed east, that they found a plain in the land of Shinar and settled there. <sup>3</sup>They said to one another, "Come, let us make bricks and burn them thoroughly." And they used brick for stone, and they used tar for mortar. <sup>4</sup>They said, "Come, let us build for ourselves a city, and a tower whose top will reach into heaven, and let us make for ourselves a name, otherwise we will be scattered abroad over the face of the whole earth." <sup>5</sup>The LORD came down to see the city and the tower which the sons of men had built. <sup>6</sup>The LORD said, "Behold, they are one people, and they all have the same language. And this is what they began to do, and now nothing which they purpose to do will be impossible for them. <sup>7</sup>"Come, let Us go down and there confuse their language, so that they will not understand one another's speech." <sup>8</sup>So the LORD scattered them abroad from there over the face of the whole earth; and they stopped building the city. <sup>9</sup>Therefore its name was called Babel, because there the LORD confused the language of the whole earth; and from there the LORD scattered them abroad over the face of the whole earth.

### Directed Mutation

Some Evolutionists have taken the step of suggesting that perhaps there is another type of mutation occurring to explain these classes of problems. Instead of "random mutation" (noise) they are beginning to refer to an idea called "directed mutation". The idea of directed mutation is that somehow the genetic code is able to detect environmental factors and change itself to provide advantageous variations. At the present time there is no known mechanism for how this could happen.

This idea also raises the issue of who the "director" is or who had the foresight to design in such specific capabilities.

To the atheist this idea of directed mutation being proposed by other Evolutionists (typically Evolutionists who believe in God but not the Bible) is a threat to their ideology built on the belief that there is no God and that everything happens from random processes.

***The Bottom Line: The Word of God can be trusted to be true. You don't have to compromise your beliefs for the sake of science. Real science (observational, experimental science) fully supports the Biblical account.***

### Psalms 33:4-9

For the word of the LORD is upright, And all His work is done in faithfulness. <sup>5</sup>He loves righteousness and justice; The earth is full of the lovingkindness of the LORD. <sup>6</sup>By the word of the LORD the heavens were made, And by the breath of His mouth all their host. <sup>7</sup>He gathers the waters of the sea together as a heap; He lays up the deeps in storehouses. <sup>8</sup>Let all the earth fear the LORD; Let all the inhabitants of the world stand in awe of Him. <sup>9</sup>For He spoke, and it was done; He commanded, and it stood fast.

## **Appendix: Other Arguments People Have Used In Support of Evolution**

(reference: <http://www.allaboutcreation.org/evidence-for-evolution.htm>)

In this section I will address some of the historical arguments that have been used in support of Evolution. I have put these in an appendix because I want to avoid the accusation of using strawman arguments. In other words, some of these arguments are somewhat dated and may not be viewed by Evolutionists as beliefs they currently hold. On the other hand I include them in case someone is still using these arguments.

**Homology** - Many animals have similar bone structures, giving the appearance they are related.

Answer: Advancements in genetics have shown that some animals that were previously thought to be related based on structural similarity, cannot be, based on genetics. From a Creationist view, similarities in structure are to be expected from an intelligent designer. Even human designers like to reuse modified versions of their best design ideas in new products.

**Embryology** - Embryos of different vertebrates look alike in early stages, giving an appearance of relationship.

Answer: Embryos of different vertebrates do not look alike in their early stages. "This idea was fathered by Ernest Haeckel, a German biologist who was so convinced that he had solved the riddle of life's unfolding that he doctored and faked his drawings of embryonic stages to prove his point." (William R. Fix, "The Bone Peddlers: Selling Evolution," 1984, p. 285.) Haeckel's drawings were shown to be frauds in 1874. Nevertheless, these drawings (or similar ones) can sometimes be found in biology textbooks.

**The Fossil Record** - Fossils of "missing links" are claimed to be evidence of evolution from one kind of animal to another. For example, Archaeopteryx is thought to be a transition between reptiles and birds.

Answer: There are no unambiguous transitional fossils. Archaeopteryx was thought to be a transition between reptile and bird because of its teeth and the claws on its wings. This animal is just an extinct species. To imagine that it was a transition from a reptile to a bird is an assertion.

**Vestigial Organs** - Useless body parts are remnants of things left over from the process of evolution.

Answer: Back in 1895, Robert Wiedersheim listed 180 alleged vestigial organs. This list included: tonsils, coccyx (tail bone), thymus, little toe, ear nodes, pineal gland, adenoids, appendix, wisdom teeth, parathyroid, ear muscles, body hair, and the nictitating membrane of the eye. Since the compilation of Wiedersheim's list at the end of the 19th century, we have discovered important biological functions for every one of these organs. Dr. Walt Brown writes concerning vestigial organs in general, "The existence of human organs whose function is unknown does not imply they are vestiges of organs inherited from our evolutionary ancestors. As medical knowledge has increased, at least some functions of all organs have been discovered." (Walt Brown, "In the Beginning," 2001, p. 9.). Examples of nonhuman vestigial organs given in some textbooks are misleading. For example, the "whale pelvis" is sometimes presented in textbooks as a useless structure but it is actually used for muscle attachments, without which the whale could not reproduce.

Even if body parts are found that have absolutely no function is still would not provide evidence of evolution. For example, human designers leave "vestigial organs" in their designs all the time. An example is the dashboards of mass produced cars. Depending on what options you order for your car your dashboard may be completely full or may have some areas where a plastic insert or blank has been installed where something else (clock, switch, CD player, etc.) could have been installed. Designers do this because it is more efficient from a systems viewpoint to build a large number of one type of dashboard than to build small numbers of custom designed dashboard, each model being a unique, optimized design. In the same way God could choose to take a similar approach in His design of living things in order to keep the complexity of the genetic system to a minimum.

## Appendix: Other Bible Passages on “Kinds” (Baramin)

(reference: <http://creationwiki.org/Baramin>)

### Leviticus 11:1-23

<sup>1</sup>The LORD spoke again to Moses and to Aaron, saying to them, <sup>2</sup>“Speak to the sons of Israel, saying, ‘These are the creatures which you may eat from all the animals that are on the earth. <sup>3</sup>“Whatever divides a hoof, thus making split hoofs, and chews the cud, among the animals, that you may eat. <sup>4</sup>“Nevertheless, you are not to eat of these, among those which chew the cud, or among those which divide the hoof: the camel, for though it chews cud, it does not divide the hoof, it is unclean to you. <sup>5</sup>“Likewise, the shaphan, for though it chews cud, it does not divide the hoof, it is unclean to you; <sup>6</sup>the rabbit also, for though it chews cud, it does not divide the hoof, it is unclean to you; <sup>7</sup>and the pig, for though it divides the hoof, thus making a split hoof, it does not chew cud, it is unclean to you. <sup>8</sup>“You shall not eat of their flesh nor touch their carcasses; they are unclean to you. <sup>9</sup>“These you may eat, whatever is in the water: all that have fins and scales, those in the water, in the seas or in the rivers, you may eat. <sup>10</sup>“But whatever is in the seas and in the rivers that does not have fins and scales among all the teeming life of the water, and among all the living creatures that are in the water, they are detestable things to you, <sup>11</sup>and they shall be abhorrent to you; you may not eat of their flesh, and their carcasses you shall detest. <sup>12</sup>“Whatever in the water does not have fins and scales is abhorrent to you. <sup>13</sup>“These, moreover, you shall detest among the birds; they are abhorrent, not to be eaten: the eagle and the vulture and the buzzard, <sup>14</sup>and the kite and the falcon in its kind, <sup>15</sup>every raven in its kind, <sup>16</sup>and the ostrich and the owl and the sea gull and the hawk in its kind, <sup>17</sup>and the little owl and the cormorant and the great owl, <sup>18</sup>and the white owl and the pelican and the carrion vulture, <sup>19</sup>and the stork, the heron in its kinds, and the hoopoe, and the bat. <sup>20</sup>“All the winged insects that walk on all fours are detestable to you. <sup>21</sup>“Yet these you may eat among all the winged insects which walk on all fours: those which have above their feet jointed legs with which to jump on the earth. <sup>22</sup>“These of them you may eat: the locust in its kinds, and the devastating locust in its kinds, and the cricket in its kinds, and the grasshopper in its kinds. <sup>23</sup>“But all other winged insects which are four-footed are detestable to you.

### Leviticus 11:27-31

<sup>27</sup>“Also whatever walks on its paws, among all the creatures that walk on all fours, are unclean to you; whoever touches their carcasses becomes unclean until evening, <sup>28</sup>and the one who picks up their carcasses shall wash his clothes and be unclean until evening; they are unclean to you. <sup>29</sup>“Now these are to you the unclean among the swarming things which swarm on the earth: the mole, and the mouse, and the great lizard in its kinds, <sup>30</sup>and the gecko, and the crocodile, and the lizard, and the sand reptile, and the chameleon. <sup>31</sup>“These are to you the unclean among all the swarming things; whoever touches them when they are dead becomes unclean until evening.

### Deuteronomy 14:3-19

<sup>3</sup>“You shall not eat any detestable thing. <sup>4</sup>“These are the animals which you may eat: the ox, the sheep, the goat, <sup>5</sup>the deer, the gazelle, the roebuck, the wild goat, the ibex, the antelope and the mountain sheep. <sup>6</sup>“Any animal that divides the hoof and has the hoof split in two and chews the cud, among the animals, that you may eat. <sup>7</sup>“Nevertheless, you are not to eat of these among those which chew the cud, or among those that divide the hoof in two: the camel and the rabbit and the shaphan, for though they chew the cud, they do not divide the hoof; they are unclean for you. <sup>8</sup>“The pig, because it divides the hoof but does not chew the cud, it is unclean for you. You shall not eat any of their flesh nor touch their carcasses. <sup>9</sup>“These you may eat of all that are in water: anything that has fins and scales you may eat, <sup>10</sup>but anything that does not have fins and scales you shall not eat; it is unclean for you. <sup>11</sup>“You may eat any clean bird. <sup>12</sup>“But these are the ones which you shall not eat: the eagle and the vulture and the buzzard, <sup>13</sup>and the red kite, the falcon, and the kite in their kinds, <sup>14</sup>and every raven in its kind, <sup>15</sup>and the ostrich, the owl, the sea gull, and the hawk in their kinds, <sup>16</sup>the little owl, the great owl, the white owl, <sup>17</sup>the pelican, the carrion vulture, the cormorant, <sup>18</sup>the stork, and the heron in their kinds, and the hoopoe and the bat. <sup>19</sup>“And all the teeming life with wings are unclean to you; they shall not be eaten.

**QUIET TIMES ALONE WITH GOD**  
**JEREMIAH 15:16**  
**THEME: *Darwin Was Right ... And Wrong***

**PASSAGE FOR MEDITATION: *Colossians 2:8-9***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION: *Genesis 1:1-8***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION: *Genesis 1:11-13, Genesis 1:20-25***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**QUIET TIMES ALONE WITH GOD**  
*JEREMIAH 15:16*  
**THEME: Darwin Was Right ... And Wrong**

**PASSAGE FOR MEDITATION:** *Genesis 6:17-22*

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION:** *Genesis 7 (whole chapter)*

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION:** *Genesis 8:16-21*

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**QUIET TIMES ALONE WITH GOD**  
**JEREMIAH 15:16**  
**THEME: *Darwin Was Right ... And Wrong***

**PASSAGE FOR MEDITATION: *Leviticus 11:1-23***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION: *Leviticus 11:27-31***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION: *Deuteronomy 14:3-19***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**QUIET TIMES ALONE WITH GOD**  
*JEREMIAH 15:16*  
**THEME: *Darwin Was Right ... And Wrong***

**PASSAGE FOR MEDITATION: *Romans 1:18-25***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION: *Genesis 11:1-9***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**

**PASSAGE FOR MEDITATION: *Psalms 33:4-9***

**How does this passage relate to the theme?**

**When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:**

**How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?**