Go to the "Slide Show" shade above

Click on "Play from Beginning"

Chapters 17 - 19
Creation & Evolution

WARM-UP

Dealing with Creation/Evolution

1. Understand that Creation/Evolution is potentially a very contentious issue.
2. Be open to listen and discuss, but no one is asking that anyone put their beliefs aside.
3. There will be opportunity for discussion and interaction. Here are the ground rules for LISTENING:
   a) LISTENING does NOT mean agreement.
   b) FOCUS on what the person is saying versus preparing your own thoughts for rebuttal.
   c) ACKNOWLEDGE the other person and what they are saying.
   d) CLARIFY (ask questions) to understand the other person's perspective.
4. For whoever does not love their brother and sister, whom they have seen, cannot love God, whom they have not seen. 1 John 4:20

   Love is the greatest commandment and reality that we have!

Lesson Objectives

By the end of this lesson, you should be able to:

- Establish the best way to deal with a potentially controversial and contentious issue.
- Identify and dismantle misconceptions related to creation / evolution.
- Learn and practice the appropriate questions to ask in a discussion of creation / evolution.
- Understand the fossil record, its place in earth's history, and the use of radioactive dating.

- **Science Practice: Fossils, Radioactive Dating**

Dealing with Creation/Evolution

Slander no one, to be UNCONTENTIOUS, peaceable and considerate, and always to be gentle toward everyone.

Titus 3:2

And the Lord's servant must not be contentious or quarrelsome but must be kind to everyone, able to teach, bearing with wrong.

2 Timothy 2:24

Be all of the same mind, sympathetic [*we are all fallen flesh*], love one another, tenderhearted [*versus hard hearted*], and humble-minded [*versus fleshly pride*].

1 Peter 3:8

Psalm 19:1
“The heavens declare the glory of God, and the sky above proclaims his handiwork.”

Why is it important to understand evolutionary theory?

- Within the theory of evolution are ideas/processes that are also true of creation (COMMONALITY).
- Evolution is taught worldwide. You will have to deal with it and most likely be challenged by its advocates. "Study to show yourself approved of God … Cut straight the word of truth" (2 Timothy 2:15).
- Develop the critical thinking skills needed to present an academic defense of creation (1 Peter 3:15-16).
- Many college entrance exams include Evolutionary theory. ☺

Commonality of Creation & Evolution

- Natural Selection & Microevolution (change over time).
- COMMON design vs. common ancestor (similar DNA).
- COMPARATIVES: Anatomy, Embryology, Cytology, Biochemistry
- Expanding Universe (*God is infinite*) that had a beginning.
- Competition and Adaptation
- Variation
- Fossil Record (amber, cast, mold, petrified, trace, imprint)

Not everything is false or incorrect or evil.

Dealing with Creation/Evolution

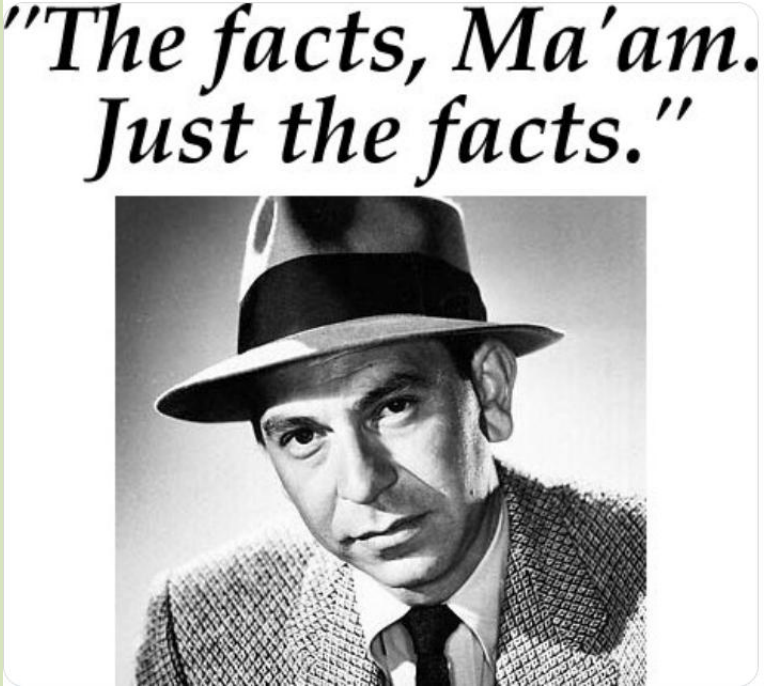
15 But in your hearts sanctify Christ as Lord. Always be prepared to give an answer to everyone who asks you to give the reason for the hope that you have. But do this with meekness and respect, 16 keeping a clear conscience, so that those who speak maliciously against your good behavior in Christ may be ashamed of their slander.

1 Peter 3:15-16

1. The world teaches evolution as fact. It is NOT!
2. We must address MISCONCEPTIONS that have been established as truth and replace them with scriptural facts and truth.
3. We need to learn to LISTEN and ask the appropriate questions to avoid contention and lead others to facts and truth.
4. We need to learn EVIDENCE to support our position as believers in Christ and His Holy scriptures.

- It is human nature to teach what we think is right as "FACT."
- Whether Christian or not.
- There are many false teachings and religions.

See to it that no one takes you captive through hollow and deceptive philosophy, which depends on human tradition and the elemental spiritual forces of this world rather than on Christ.
Colossians 2:8



There are many scripture verses that tell us to evaluate our thinking and understandings:

- "Do not be deceived" Galatians 6:7; 1 Corinthians 6:9; 15:33; 2 Corinthians 11:3; James 1:16
- "Do not be ignorant" Romans 11:25; 1 Corinthians 10:1; 1 Thessalonians 4:13
- "Beware" Matthew 7:15; 16:6; Luke 12:1; 2 Peter 3:17
- "Do not walk in the vanity of the mind" Ephesians 4:17-24

…Take captive every thought to make it obedient to Christ.

2 Corinthians 10:5

Can we honestly confess that we do this?

We need to be humble and watchful because we are easily deceived by God's enemy.

By definition "Pre-historic" means before recorded history.

Yet, so-called scientists promote models of "real-life" creatures of the pre-historic age as fact.

Humans indulge in SCIENCE FICTION (e.g. Star Trek, Star Wars, UFOs, Aliens, time travel, Jurassic World, Cataclysmic events, etc.).

Much of the so-called "Science" in our world is actually science fiction or speculation, legend, myth, passed along as fact. [2 Corinthians 10:4-5]

Pro-choice → "my body, my choice" is not science because the baby is in a "womb" separated from the woman's body. Yet, millions of people argue politically for abortion.

Dinosaur depictions are mostly speculation because a few fossilized bones are found yet complete images of their structure, appearance, skin color & behaviors are displayed!

"Evolution and Creationism are compatible."

People try to bridge the gap between evolution and creationism.

They are MUTUALLY EXCLUSIVE.

There is nothing random or chance in God's creation of the universe and all living things. "And it was so" (Genesis 1:3, 7, 9, 11, 15, 24, 29).

God was not **random**, but specific in all His creation. "*For you created my inmost being; **you knit me together** in my mother's womb. I praise you because I am fearfully and wonderfully made*." (Psalms 139:13)

God caused **vegetation** to spring forth on the 3rd day & made the **sun and moon** on the fourth day. That is not naturally possible (Genesis 1:11, 14, 18).

God created all living things "AFTER THEIR OWN KIND" (Genesis 1).

MISCONCEPTIONS ABOUT EVOLUTION

"Man came from an ape"

Evolution points to common ancestry.

"The universe came out of a primordial soup."

Evolution shows a progression from chemicals to genetic material to cells to living systems.

"Faith is not scientific"

Both evolution and Creationism are FAITH-based.

Faith-based Views

Creationism and **Evolution** are both origin theories.

There is no way of directly "testing" either view.

"There are TWO opposing views and no other valid ones: naturalism and creationism."

- Naturalism advocates a 13.5 billion year old expanding universe with no supernatural (theistic) forces, but created through random, naturalistic processes, beginning from a Big Bang.
- "Creationists" believe in God's sovereignty, omnipotence, omniscience, and omnipresence as the Creator. They reject the notion that natural processes can produce change over time, holding to seven 24-hour days creation of all things. Genesis is a literal and chronological record of an ~6000 year old earth. Fossils are either ignored or derived from the great flood.
- *These are the EXTREMES and there are many other beliefs. Not all Bible believers accept either extreme.*

"For by Grace you are saved through faith, and this NOT of yourselves, it is a gift of God."

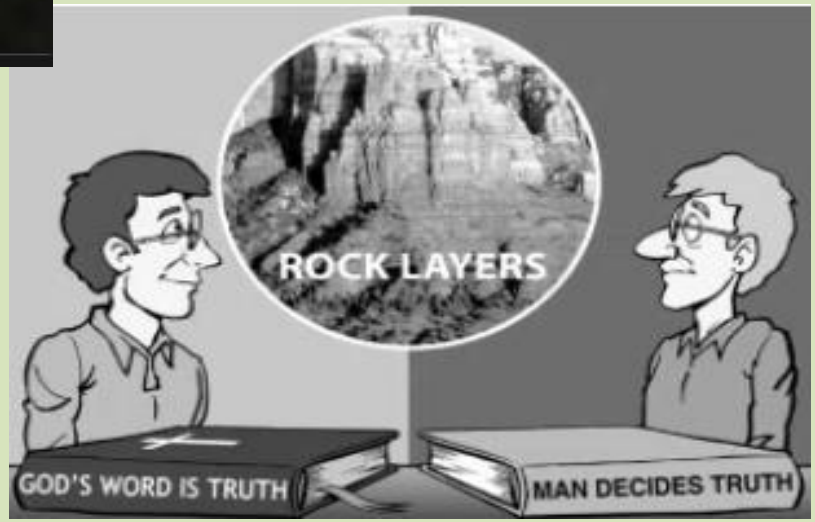
Ephesians 2:8-9

"Faith comes by hearing and hearing by the word of God" Romans 10:17

- There is a natural faith that all people possess.
- There is a spiritual faith that only believers in Jesus Christ possess (a gift from God).

We need to use the God-inspired Holy Scriptures as our basis of faith.

To believe the earth and universe may be billions of years old ***DOES NOT*** *mean one has to believe in evolution.*



Believers in Jesus Christ can hold absolutely to the Holy Scriptures but NOT to a ~6000 year young earth teaching or interpretation.

God can and does use natural processes in His creation. (e.g. creation itself is a process over 7 days; pregnancy; growth/maturation, metamorphosis).

Not all of God's miracles are instantaneous, but involve process.

Genuine believers in Jesus know that God COULD HAVE created the universe, earth, and all living things in 6 days if He so chose.

The word "Yom" (Hebrew) for "day" [Genesis 1] can be translated 24 hours or a period of time.

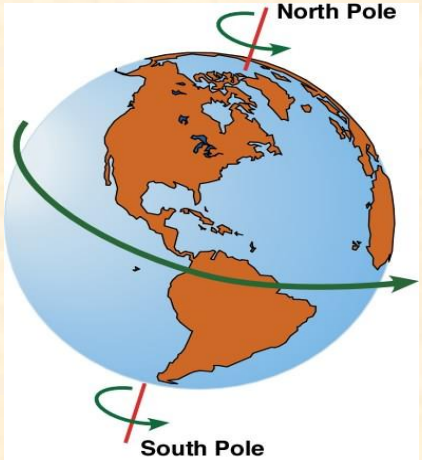
For instance, Genesis 2:4 states "This is the account of the heavens and the earth when they were created, in the "DAY" that the Lord God made the earth and heaven", implying a period of time.

http://somup.com/cZVbFDkpHP (6:58)

Young Earth or Old Earth? [by Christians]

Earth's Rotation

God set two great lights – the greater light to govern the day and the lesser light to govern the night. … And there was evening, and there was morning – the ***FOURTH*** *day.*
Genesis 1:16-19



- Earth spins on its imaginary "axis".
- It takes 24 hours (1 day – "Yom") for the Earth to make one complete rotation (evening and morning) based on the sun "rising" and "setting".

There was NO sun or moon ruling the earth for days 1 – 3 of Genesis 1, meaning that 24 hour daylength did not exist yet.

"Yom" can be translated either "period of time" or literal 24 hour day. Genesis 1:1-15 did not have the sun yet.

“Day” in Genesis 1

God called the light “day,” and the darkness he called “night.” And there was evening, and there was morning — one day. Genesis 1:5

- Translations changed the meaning to “*the first day*”, but that is not in the original Hebrew text.
- There is NO definite article, “the” for the first five days in Genesis 1 (vv. 5, 8, 13, 19, 23). It is added based on interpretation, not according to the Hebrew text.

The definite article, “the” is in the Hebrew text for days 6 and 7 (Genesis 1:31; 2:2).

Genesis 2 shows a different chronological order than Genesis 1

4 This is the account of the heavens and the earth when they were created, when the LORD God made the earth and the heavens. 5 Now ***no shrub had yet appeared on the earth*** *and* ***no plant had yet sprung up****, for the LORD God had not sent rain on the earth and there was* ***no one to work the ground****, 6 but streams came up from the earth and watered the whole surface of the ground.*

7 Then ***the LORD God*** ***formed man from the dust of the ground*** *and breathed into his nostrils the breath of life, and the man became a living being. 8 Now the LORD God had planted a garden in the east, in Eden; and there he put the man he had formed.*

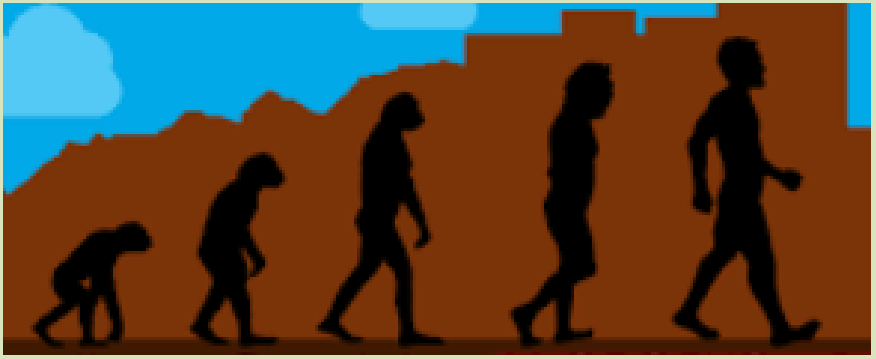
9 The ***LORD God made all kinds of trees*** *grow out of the ground.* Genesis 2:4-9

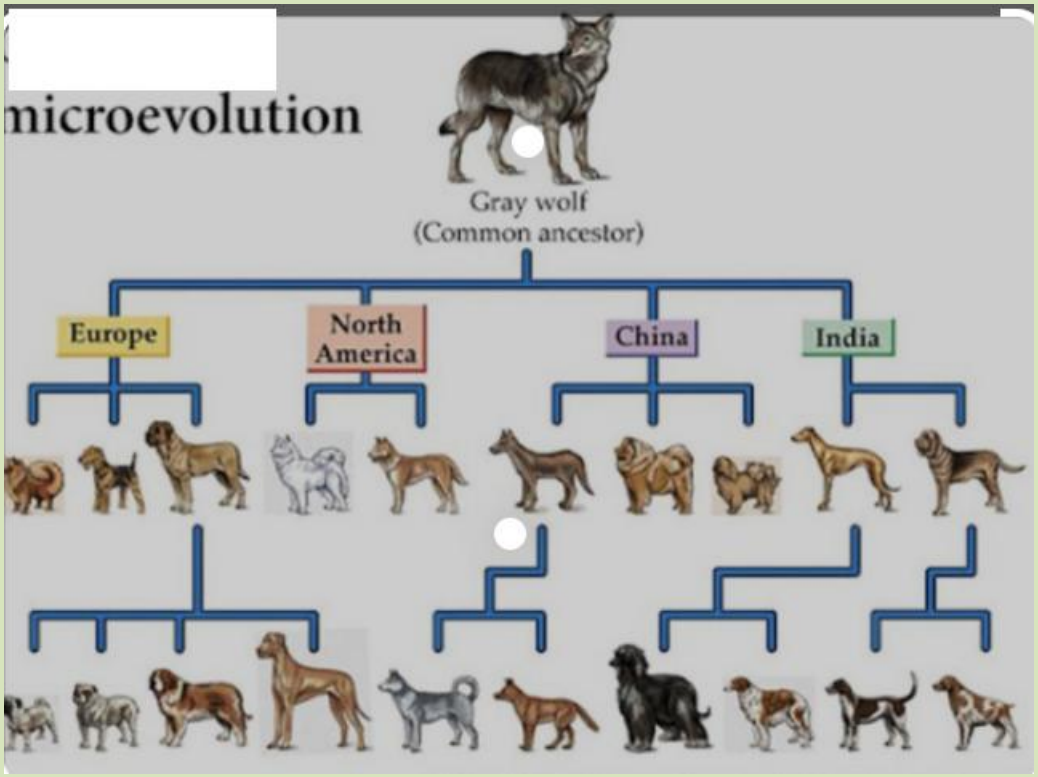
18 The LORD God said, "It is not good for the man to be alone. I will make a helper suitable for him." 19 Now the LORD God had formed out of the ground ***all the wild animals and all the birds*** *in the sky.* Genesis 2:18-19

- God formed man BEFORE the plants/trees [day 3 Genesis 1:11-13], wild animals [day 6 Genesis 1:24-25, 31], and all the birds [day 5 Genesis 1:21-23].

"**MICRO-evolution**" simply means any change over time. **All scientists accept** this.

"MACRO-evolution" is a change from one SPECIES to another over LONG periods of time: "speciation".





"**MICRO-evolution**" simply means any change over time (e.g. mutation). **All scientists accept** this.

Evolution improperly EXTRAPOLATES and makes quantum leaps that cannot be supported with actual science:

"MACRO-evolution" is a change from one SPECIES to another over LONG periods of time: "speciation".

- Evolutionists have misused microevolution as a foundation for macroevolution,
- Stating that since "change" occurs over time, then new species can develop over time, but
- There are NO "intermediates" supporting such a claim.
- Viruses and bacteria did not become something else.

Life's Biggest Questions

Which came first the chicken or the egg?

Why deal with such an issue when both sides disagree so strongly?

Life's Biggest Questions

Where did we come from?

What is our purpose on earth?

How do we find a reliable source for the answers to the questions about life, the world, and the universe?

The answers to our questions

… must rely on THE HOLY SCRIPTURES, inspired by God and profitable for teaching, conviction, correction and instruction in righteousness that the man of God may be fully equipped for every good work.

2 Timothy 3:16-17

Asking the Right Questions

Where did "it" come from?

The universe and earth?

The big bang?

The chemicals?

Eventually, one cannot answer …

Asking the Right Questions

What about ENTROPY?

2nd Law of Thermodynamics

Everything goes toward randomness and disorder.

The big bang produced order?

Textbooks define entropy properly UNTIL dealing with evolution.

Asking the Right Questions

Where are the intermediates?

Gradualism teaches that new species evolved over time. Therefore, there should be myriads of intermediates? But, there are NOT.

Natural history museums make up false "intermediates" … not based on actual creatures, but from pieces of bone or from imagination.

No Intermediates

e.g., The whale & cow have an evolutionary common ancestor. Where is the whale-cow?

[Evolutionist use the phrase "transitional fossils" based on microevolution to compensate.]

There are many animals that could NOT have evolved gradually because of the extensive and complicated mechanisms that had to come into existence simultaneously.

Incredible Creatures That Defy Evolution

Incredibles Creatures that Defy Evolution

A former evolutionist shows scientific evidence to disprove gradualistic evolution.

Incredible Creatures that Defy Evolution

https://somup.com/c31vDmuc3J (9:04)

https://screencast-o-matic.com/watch/c31vb6V0qex (11:23)

Asking the Right Questions

What about Spontaneous Generation?

Spontaneous Generation claims that life comes from NON-living things. It was disproved in the 1800's.

Yet, Evolution still teaches that chemicals and time produce the first living cells?

Interpretation

- **All people at some point ask the same questions.**
- **However, their interpretations are vastly different than God's.**

God has revealed Himself through nature (Romans 1:20).

For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that people are without excuse.

Did God fool us?

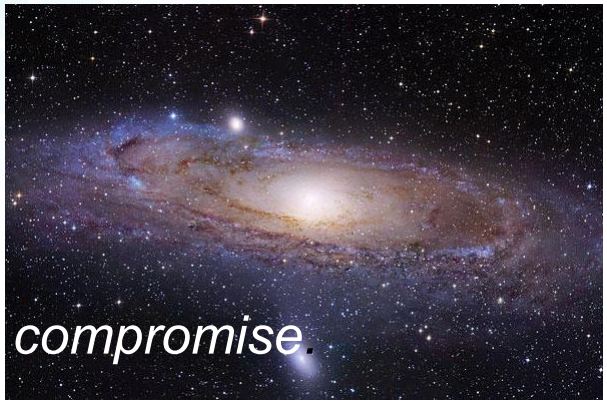
To take a strict 6000 year approach to the earth's age requires God to have bypassed laws of Physics.

The Genesis 1-2 account does NOT have to bypass laws of physics.

*Genesis 1 uses the word "**created**" (out of nothing) three times, showing cataclysmic changes:*

1. *1:1 the heavens & the earth*
2. *1:21 large animals; and*
3. *1:27 mankind.*

Job 37-38 (*written before Genesis*) shows God creating the water cycle (rain, mist, dew, frost, ice, hail).



The Bible and Science:

are absolutely compatible without the need to compromise.

Many famous scientists sought to honor God by their endeavors:

Johann Kepler (1571-1630) – Astronomer

Awed by the power and wisdom of God, he once said that in his discoveries he was merely "thinking God's thoughts after Him.

Blaise Pascal (1623-1662) – Mathematician (Pressure Law)

...maintained that "the only perfect knowledge [comes] through Christian revelation"

Robert Boyle (1627-1691) – "Father of Chemistry" (atom)

...convinced that the Bible is a divine revelation.

The Bible and Science

Sir Isaac Newton (1642-1727)

Einstein once paid tribute to Newton by suggesting that his own work would have been impossible but for the discoveries of Newton. "This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being."

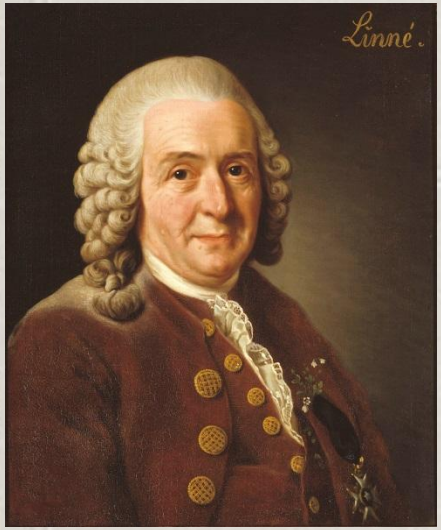
Michael Faraday (1791-1867) - Electromagnetism

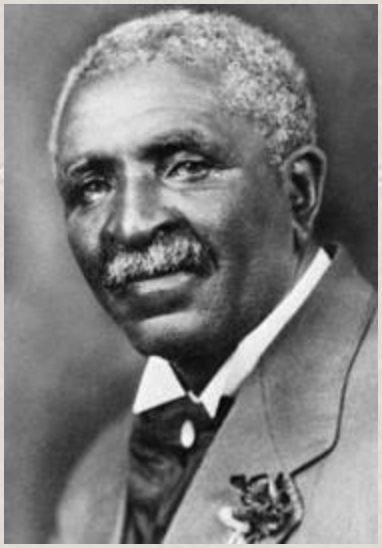
...devoutly believed that God was the maker and sustainer of all things and like Louis Pasteur was inspired in his scientific work by his simple but steadfast belief in the will of God.

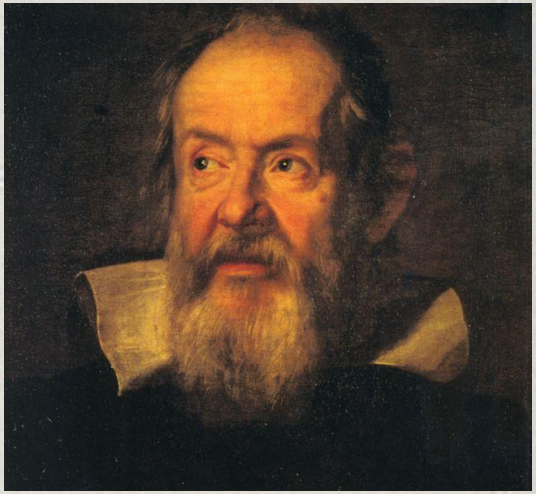
Wernher von Braun (1912-1977) - NASA Rocket Engineer

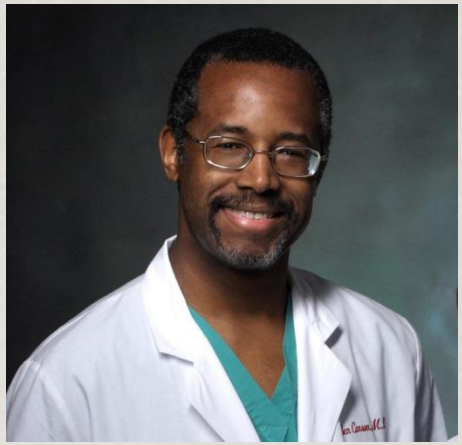
"*There is certainly no scientific reason why God cannot retain the same position in our modern world that He held before we began probing His creation with the telescope and cyclotron.*"

Influential Creation Scientists

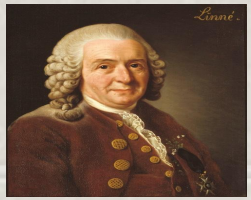


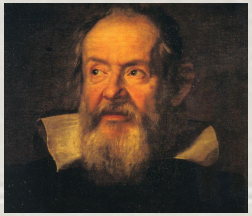






Influential Creation Scientists





Carl Linnaeus – Classification system (Binomial nomenclature)

John Dalton – British chemist identified the heredity nature of red-green color blindness;

George Washington Carver – botanist and inventor-uses for peanuts.

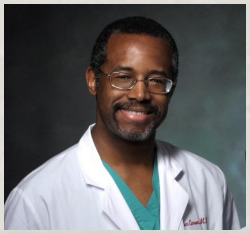
Galileo Galilei –physicist, mathematician, engineer, astronomer, and philosopher who played a major role in the scientific revolution during the renaissance.

Isaac Newton – physicist and mathematician – laws of gravity

Ben Carson – neurosurgeon.

Louis Pasteur – pasteurization process, understanding of microbes.

Gregory Mendel – Father of Genetics



Intelligent Design (ID) Movement

A politically motivated scientific effort between Christians and secular scientists to promote the concept of **intelligent design** in order to scientifically analyze and publicize the multiple scientific problems with evolutionary theory.

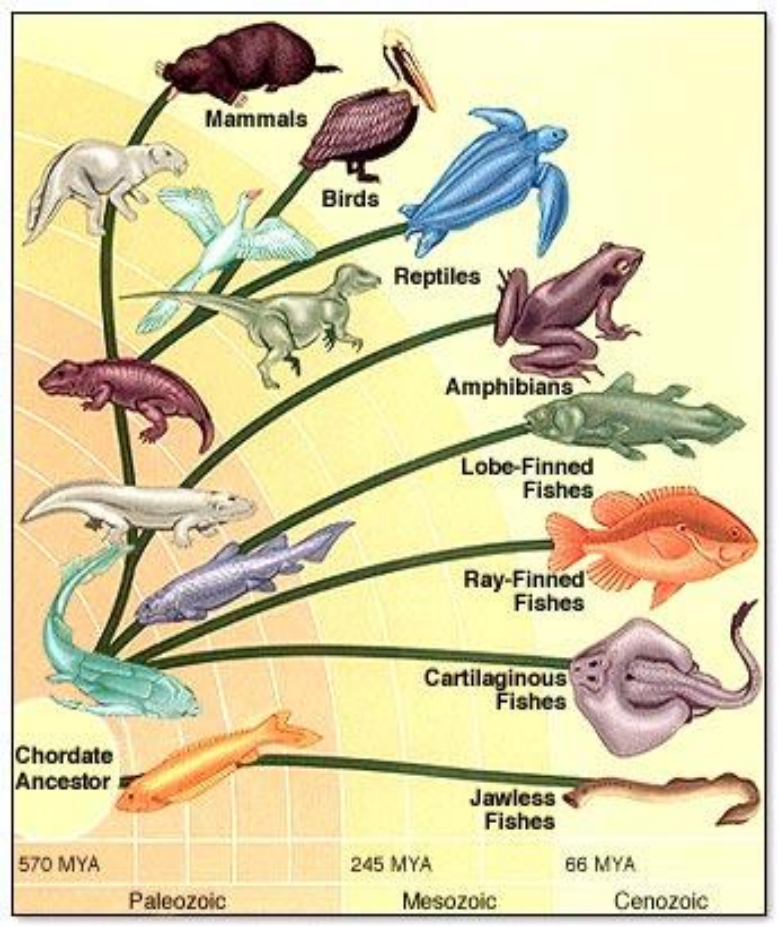
Gradualism - Macroevolution

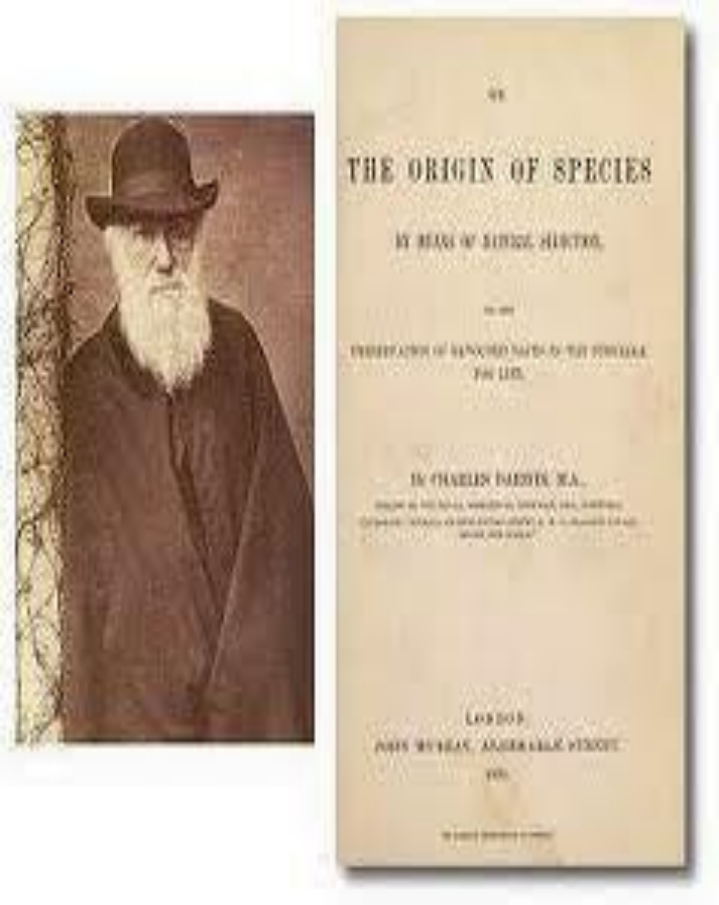
The foundation of this model was laid down in 1859 by Charles Darwin when he published his book "On the Origin of Species".

Many others believed in spontaneous generation and evolution long before Darwin.

Naturalistic Worldview

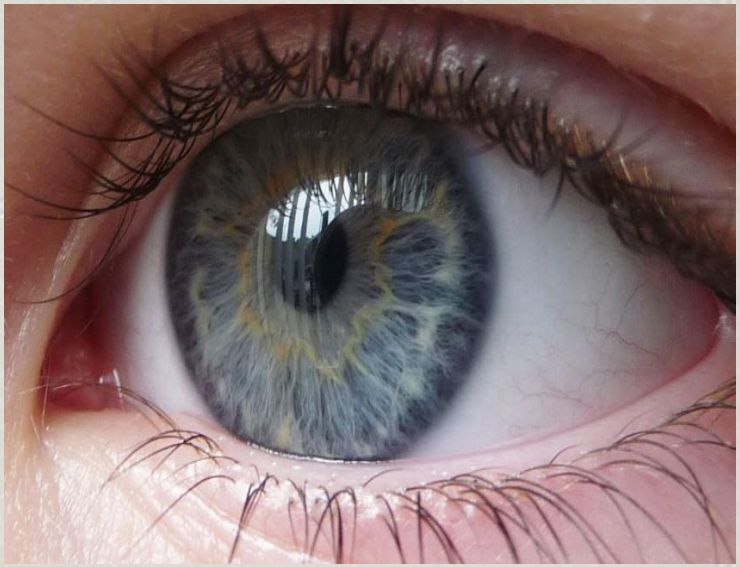
Common Ancestor





Eyes to See, but Blind

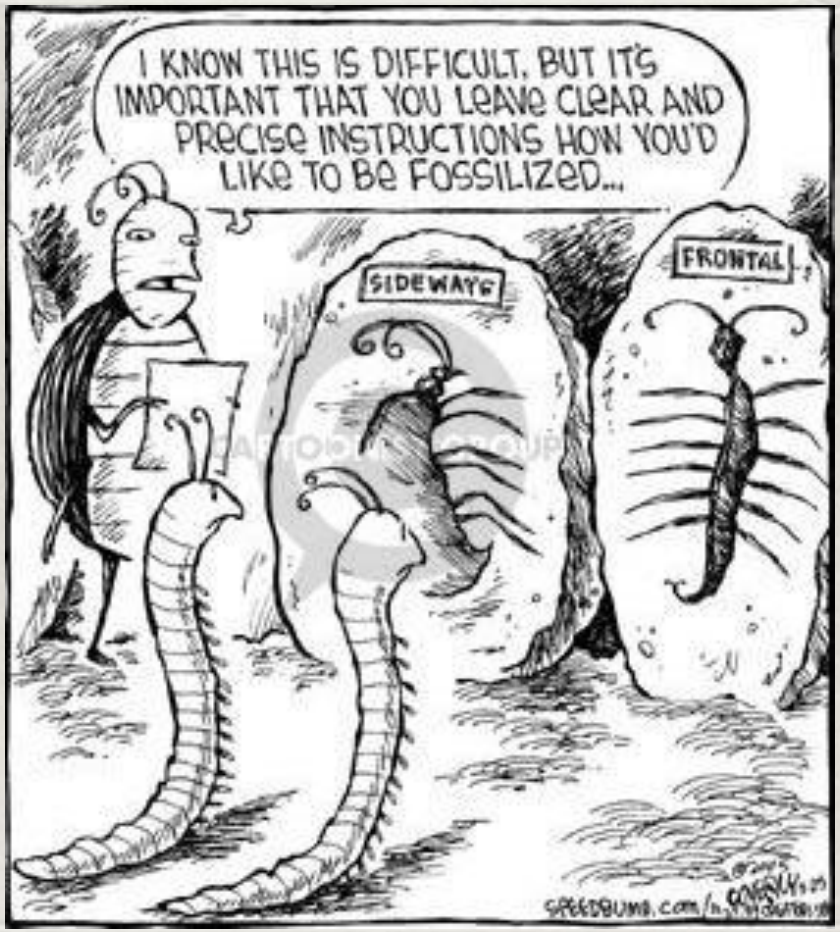
Bombardier Beetle



"The eye is an utterly amazing creation of God. **Even Darwin was quoted as saying that to think the eye was formed by random natural selection is absurd in the highest degree**" (London: Penguin Classics, 1985, p. 217). Yet, he still advocated evolution as the source.????

This is why I speak to them in parables: "Though seeing, they do not see; though hearing, they do not hear or understand. In them is fulfilled the prophecy of Isaiah: "'You will be ever hearing but never understanding; you will be ever seeing but never perceiving. Matthew 13:13-14

Fossil Record



Some people deny the existence of fossils … that is not good science nor good reasoning.

Types of fossils:

preserved, cast, mold, petrified, trace, carbonized.

Fossil Record

Fossils

- Remains or traces of organisms from the past.
- Found in **Sedimentary Rock due to deposition.**
- **Paleontology** → study of fossils

- Darwin predicted the existence of fossil **INTERMEDIATES** in forming new species **(Transitional Fossils)** So far, NONE have been scientifically substantiated.

Fossil Record

According to evolutionists the earliest clues about life on earth date to about **3.5 billion years ago**.

Fossils are the remains of a previously-living life form.

Organisms that die rarely leave behind bones that fossilize.

Fossil Record

When an animal dies in nature, its body is quickly pulled apart by vultures and other scavengers, big and small.

Decomposers like bacteria, fungi, and insects, and physical factors such as water, wind, and sunlight, further break down the body, leaving few remains.

Occasionally, **PARTS** of a dead organism escape decay. If the right conditions exist, then parts of a dead animal can be fossilized before they decay completely.

- Fossils can be divided into **body fossils**, which entail whole organisms or body parts (usually small in size), and **TRACE fossils**, which preserve evidence of an organism's activities or behaviors.
- Examples of TRACE fossils include footprints, nests, eggs, worm burrows, gizzard stones, and even feces.

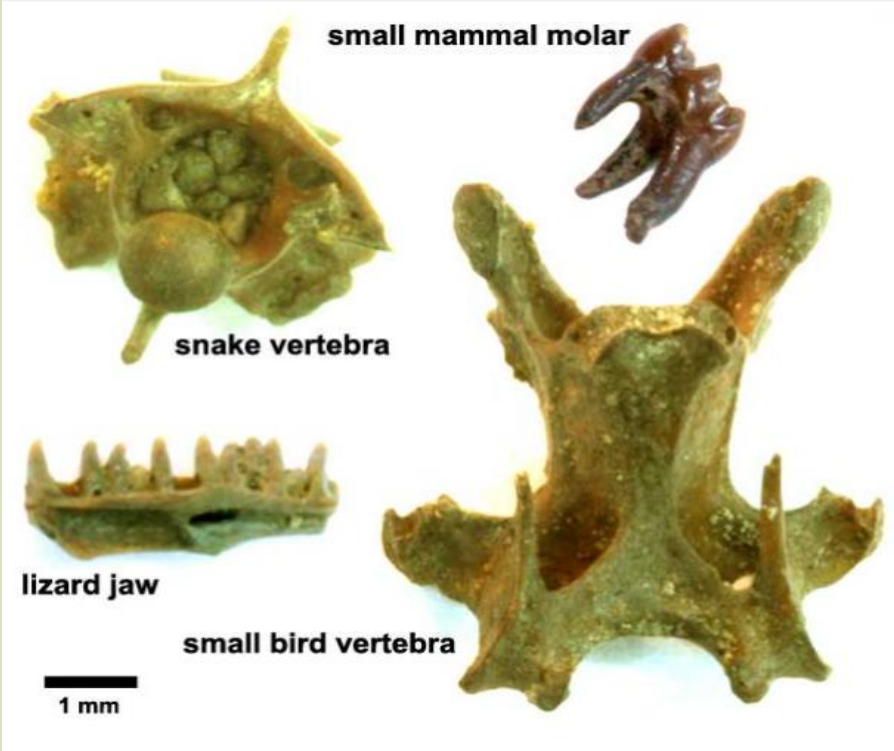
- Body fossils preserve a piece of the organism's anatomy and can be further separated based on the condition of that preservation.
- Sometimes, the remains of an organism are preserved in a virtually **unaltered** state, meaning that the original composition of the organism is largely intact. Materials such as ice, volcanic ash, amber, asphalt, peat bog, and lake sediment can preserve remains in this way.

Unaltered Preservation

Over 3.5 million fossils have been excavated from the **La Brea Tar Pits** (south of Los Angeles, CA). Over 1 million bones, representing over 231 species of vertebrates, 159 species of plants, and 234 species of invertebrates have been identified.

Dire wolves are the most common large mammals from La Brea Tar Pits, with about 4,000 individuals represented in its collections. The remains of over 2,000 individual saber-toothed cats rank second and coyotes rank third.

Asphalt, not tar, is the preservative.



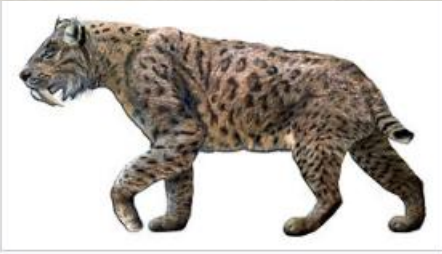
Unaltered Preservation

Up to 90% of this mammoth's bones were discovered.

60 mammoths have been found.

The bones and faeces of a woolly mammoth has been discovered from a shallow lake in Siberia.

Fact or Fiction?



S. fatalis restored with spotted coat

FACT

The actual skull bones of a Smilodon (saber toothed tiger).

FICTION

The science fiction version of what people think the saber toothed tiger looked like and acted like!

Smilodons are recent (~10,000 years old).

Fact or Fiction?

A skull was found preserved in ice and this is what artists created!

Most dinosaurs were constructed from one or a few fossilized bones like a femur or jawbone.

Dinosaurs as depicted by museums were never found as complete specimen.

An artistic representation of Issi saaneq, a dinosaur that scientists believe lived in what is now Greenland 214 million years ago.

Article from 2022
Fact or Fiction?

Only the ribs and vertebrae have come to light so far, but the paleontologists believe the rest of the skeleton may be buried nearby. Future excavations will tell.

A man found dinosaur bones in his yard. It could lead to largest skeleton ever found in Europe

A man in Portugal stumbled upon fossil fragments while working in his yard. T...

"The massive skeletal remains of a dinosaur believed to be a brachiosaurus sauropod.

The brachiosaurus stood on four legs and used its extremely long neck to eat from tall trees. It roamed the earth for more than 140 million years, according to the American Museum of Natural History."

The creature discovered likely lived 100 to 160 million years ago and measured roughly 39 feet tall and 82 feet long, the researchers said.

Where are the giant creatures today?

The largest land animals on earth today are elephants.

Two important aspects to consider:

1) Anything larger cannot support its weight without water.

2) Larger creatures cannot disperse the excessive internal body heat produced in their bodies without living in water.

Naturists claim that dinosaurs had hollow bones.

Some claim that dinosaurs and birds are distantly related.

People tend to interpret according to their already established ideologies, allowing prejudice, bias and improper assumptions.

Altered Preservation

Petrification

- Most of the time, however, remains become **altered** through environmental exposure and decay. There are several types of fossilization processes that can alter an organism's remains.
- In the case of **petrification**, minerals seep into the remains of an organism and crystallize over long stretches of time, forming a stone version of the original organism.

Altered Preservation

Carbonization

Carbonization is like making a “carbon copy” of an organism.

The carbon contained within the remains of a soft-bodied animal or plant forms a stamp-like impression on the sediment, while the remaining molecules break down.

Cast & Molds

- A **mold fossil** forms when the remains of an organism leave a mark in sediment that hardens before the organism rots or is washed away.
- Sediment can then fill in that mold, forming what looks like a sand or clay version of the organism; this is called a **cast fossil**.
- (Molds and casts may sound like trace fossils, but they are considered body fossils because they preserve an aspect of an organism's anatomy rather than its activity.)

Cast & Molds

Cast fossils are fossils formed when sediments fill up a mold, creating a solid mass that resembles a rock. This usually happens when water seepage deposits minerals in the mold. As the mold is filled, the deposited materials harden, which produces a copy of the original fossil. The cast shows the outward appearance of how a creature once looked.

Although mold fossils and cast fossils seem the same, they're different. While the mold forms the outside of an object, the cast is formed from within the mold.

A good way to understand the difference is to compare ice to the tray holding the ice. In other words, the tray is the mold and the ice is the cast.

DNA?

Only possibly found in "preserved" specimen.

DNA from dinosaurs and contemporary creatures is NOT available because there is no organic material remaining.

DNA breaks down within a few years.

Most organisms decompose or are consumed by decomposers and scavengers before they have a chance to become fossilized.

*Only those that are **buried rapidly in sediment** are preserved.*

*This occurs more frequently with organisms **living in water** because the sediment is constantly settling, covering, and preserving the remains of organisms.*

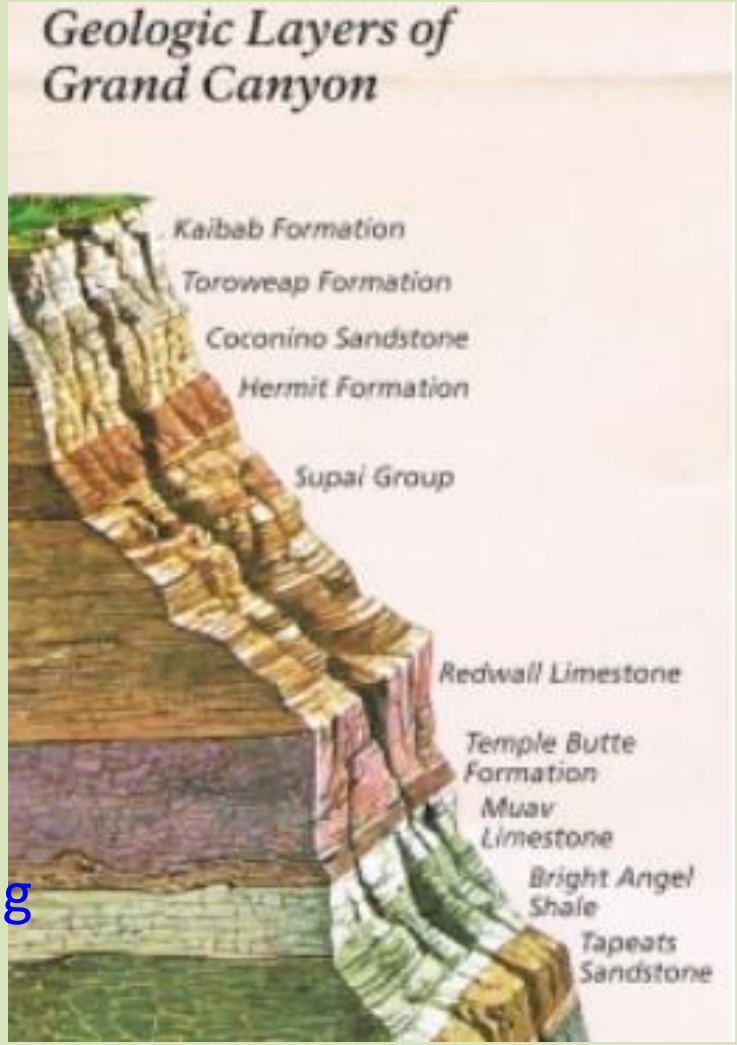
Was the Fossil Record created exclusively by Noah's Flood?

- **There are thousands of DISTINCT LAYERS of sediment containing different fossils … versus ONE layer with all types of organisms.**
- Only a tiny decimal percentage of organisms are fossilized. Yet, millions upon millions of fossils have been discovered, meaning that billions of organisms have lived at some period in time. (Could representatives fit in the ark?)
- There are MULTIPLE EVENTS (not just once) in earth's history that caused rock strata to be overturned [*trilobites, worm and brachiopod burrows, footprints, fossilized mud cracks, raindrop craters, graded bedding that are usually found facing downward in the rock are found facing upward*].
- Sedimentary layers go up to 30,000 feet deep. This takes time.

Many processes exist suggesting long periods of time.

Multitudes of sedimentary rock layers are exposed in the Grand Canyon for all to see.

The shades of color from one layer to the next going down over one mile deep from the canyon rim down to the Colorado River tells us that there is an INCREDIBLY VAST AND CHANGING HISTORY associated with how these layers were deposited.



We find fossils in many of these layers, showing the history of life forms going backward in time as you go down through the successive layers to earlier time periods.

Fossils CHANGE from layer to layer, indicating dramatic changes in the environment and in the species of life populating the Earth, and also may imply long periods of time.

Many processes exist suggesting long periods of time.

Rates of CORAL REEF build-up, tectonic plate activity, mountain building, certain weathering and erosion rates, and even the rate of continental mass build-up SUGGEST a minimum of several hundred MILLION YEARS OF TIME necessary for what we see today to have been produced.

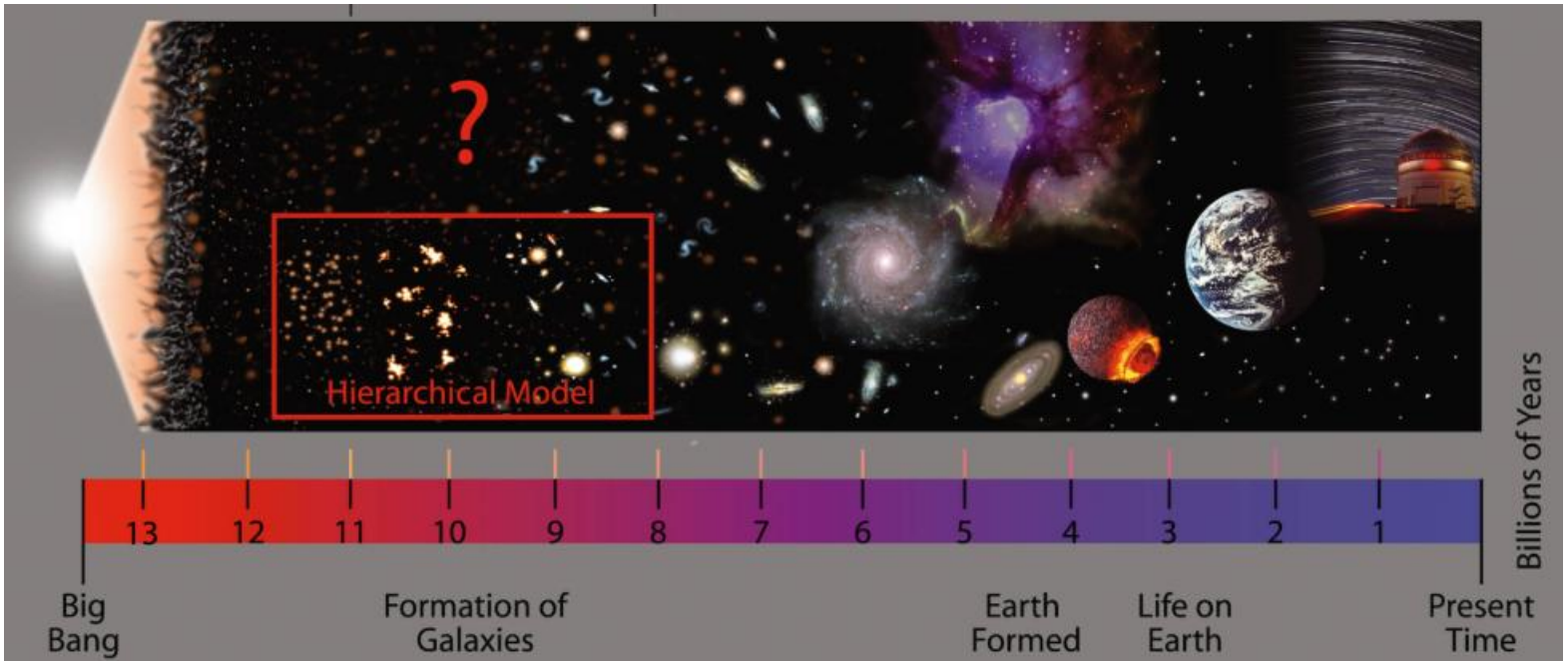
There are ways of showing how these processes occurred at fairly constant rates throughout history. The process of coral reef, sand bar, and carbonate deposit formation is by nature a **GRADUAL BUILD-UP**. Tectonic plate activity is presently recorded in successive layers of rock being pushed outward while new rock is deposited on the ocean floor surrounding the mid-Atlantic Ridge.

Both reflections of laser light off of the Moon and the pattern of rock deposition indicate a **SLOW, CONTINUAL PROCESS**.

Consideration of whether all of these processes could have occurred in a large scale rapid event in the past leads to some absurd consequences. For example, any faster tectonic plate motion in the past would have been accompanied by extremely violent earthquakes that would have left many other evidences behind in their wake (*but no evidences were found*).

Radioactive Dating

According to the Theory of Evolution, the universe is over 13 Billion years old and our Earth is considered 4.5 Billion years old all based on radioactive dating. Fact or Fiction?



The Gap Theory

Many Christians assume the gap theory relates to an improper rendering of scripture that may belittle the Bible, and compromise with evolution. It does NOT have to.

A significant number of believers in Jesus hold to at least some form of the "Gap" theory.

"*And the Earth* ***BECAME*** *waste and void.*" Genesis 1:2

The Hebrew word ***hayah*** can be translated "was" or "became". E.g. *The man has "become" like one of us (Genesis 3:22).*

Proponents of this view insert Satan's fall (Ezekiel 28, Isaiah 14) in the "gap" as well as the millions to billions of years of history, including dinosaurs, etc..

Did God Create Waste and Darkness?

"*And the earth became waste/formless (**tohu**) and empty/void (bohu)*." Genesis 1:2

The meaning of a Biblical Hebrew word is derived from the way it is used in the scriptures and from its root (etymology).

"He who created the heavens, He is God; He who fashioned and made the earth, He founded it; ***He did not create it (tohu) waste/chaos/void/empty/in vain***". Isaiah 45:18

The same Hebrew word for waste/chaos/emptiness, ***(tohu)*** *in Genesis 1* is used in Isaiah 45:18.

Did God Create Waste and Darkness?

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"I have not spoken in secret, in a dark place of the earth; I did not say to the seed of Jacob, '***Seek Me in vain***' ***(tohu)***." Isaiah 45:19.

God declared that Israel (Jacob) sought Him in vain (*tohu*), but He did not tell them to do so. Similarly, God did not create waste/void when creating the heavens and the earth.

Therefore, who caused the earth to become waste and void since it was not God?

Satan

Radioactive decay

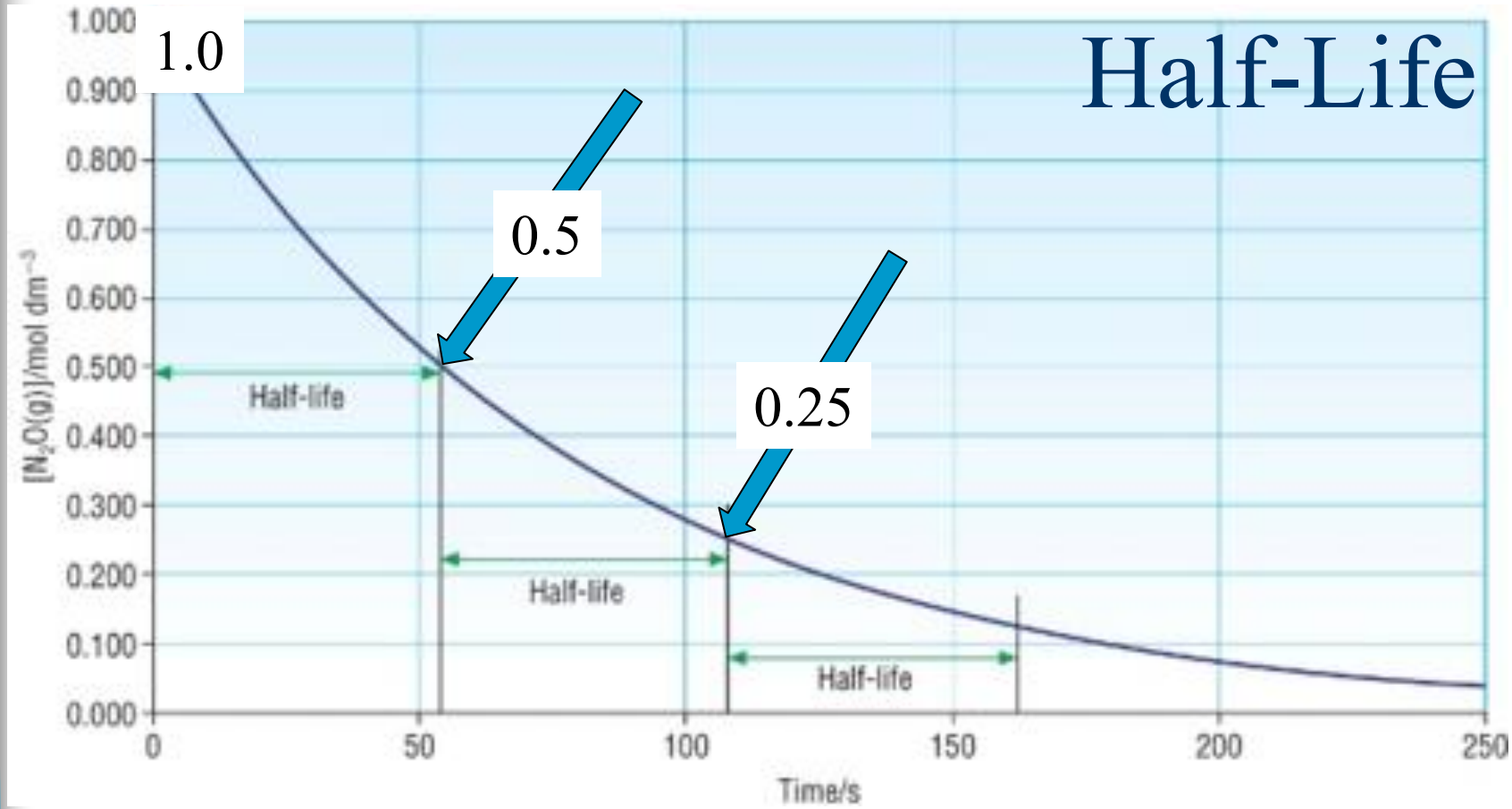
- Radioactive isotopes are used based on the decay of specific atomic nuclei.
- The moment in time at which a particular nucleus decays is unpredictable.
- However, a collection of atoms of a radioactive nuclide decays exponentially at a rate described by half-life.
- Half-life is usually given in units of years.

Half-Life

- Measures the rate of decay of a radioactive isotope

- The time it takes for ½ of an original quantity of a radioactive element to decay into another element.

Half-Life



Half-life is the time it takes for a radioactive isotope to half its amount.

Reliability greatly decreases with each half-life. After 2-3 half lives, the dating of a sample is relatively unreliable.

Half-Life Example

- Radium-226 has a ½ life of 1,620 years
- This means ½ of a sample of radium will change into other elements after 1,620 years
- After another 1,620 years (*3240 years total*), ½ the remaining radium will decay (leaving ¼ the original amount)

Half-Life

- The shorter the half-life of an element, the faster it decays
- The more radioactivity it gives off

Half-Life Example

TRY IT

Carbon-14 has a ½ life of 5,730 years. If a fossil has 1/8 of its original carbon-14, how old is it?

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- Each half-life took 5,730 years and there were three half-lives.
- So, 5,730 x 3 = **17,190 years old**
- **Now → 5730 yrs → 11,460 yrs → 17,190 yrs**

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The half-life of Zn-71 is 2.4 minutes. If one had 100.0 g at the beginning, how many grams would be left after 7.2 minutes has elapsed?

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7.2 / 2.4 = 3 half-lives

100.0 g → 50.0 g → 25.0 g → ***12.5 g***

$y = a\,(1/2)^t$ $\quad$ $y = (100\text{ g})\,(1/2)^3$

$X = 100\text{ g}^{(1/8)} =$ **12.5 g**

Radioactive Dating

Three assumptions of Radioactive dating:

1) The original amount of both mother and daughter elements is known.
2) The sample has remained in a closed system.
3) The rate of decay has remained constant throughout the past.

$$y = a\,(1/2)^t$$

y = Known amt
a = original amt

The half-life equation requires the original quantity.

Is Radiometric Dating Reliable?

Just as the coroner may have to work against some unknowns in the environment, the original amount of the “parent” isotopes in a rock sample may be unknown, as well as the pre-existing levels of the “daughter” isotopes resulting from their decays.

However, by sampling many different parts of a rock formation and comparing the parent and daughter isotope ratios relative to stable isotopes, we can perform crosschecks, which can either tell us somewhat reliably what the original levels were, in addition to the age of the rock, or whether contaminations render the measurements unreliable.

Carbon-14 is virtually non-existent after 40,000 years. Plus, the ratio of C-12 to C-14 has not remained consistent in the atmosphere over time. Carbon dating is limited.

Radioactive Dating

Although evolutionists claim “absolute age” based on dating, we struggle knowing dates within a few thousand years, but we certainly cannot know precise dates over millions and billions of years.

Some things to consider:

1) People often believe what they were taught even if it is proven false (e.g. prejudice).
2) Historians cannot even decide on exact dates within the past 6,000 years. How can scientists be so sure of millions of years ago?
3) We should not reject the fossil record, but neither should we compromise the Bible.

Is Radiometric Dating Reliable?

Many Christians are afraid to even ponder the age of the earth (is it really ~6000 years old?), because they feel that might be suggesting the Bible is wrong.

When people are unwilling to pursue facts and truth outside their own understanding, it is common to denounce all scientific evidence that appears to disagree with their interpretation of the Bible as erroneous.

We should not be ignorant concerning evidence from many fields of scientific research that indicate an older Earth and universe, but seek God and ask Him about it.

Some claim that God purposely allowed confusing evidence to confound fallen man. That would seemingly make God deceitful … which He is not.

Is Radiometric Dating Reliable?

Only a few isotopes found naturally occurring on Earth have a half-life less than a few million or billion years (*with the exception of a few isotopes which are short-lived intermediates of much longer lived radioactive isotopes or cosmic ray products, e.g., for medicine*).

Some isotopes are produced in laboratories: Plutonium-239 can be produced through nuclear reactions with Uranium-238. Plutonium-239 has a measured half-life of only 24,000 years.

No Pu-239 is found naturally occurring in our environment. Neptunium-237 has a 2.14 million year half-life, is not found naturally occurring either. A sufficiently old Earth may have had many of these isotopes present in its infancy, which by now are long gone due to their relatively short half-lives.

If, however, the Earth were very young, there would be no particular reason for the complete absence of such isotopes, especially when all of the long-lived isotopes [such as Uranium-238, Uranium-235, and Thorium-232] are found in abundance. It would be a very peculiar coincidence.