

YOUNG EARTH ?

OLD EARTH ?



GLOBAL FLOOD ?

REGIONAL FLOOD ?

God Knows! Do We?

Steve Glaser

Job 38:4

*"Where were you when I laid the foundation of the earth?
Tell Me, if you have understanding."*

Isaiah 55:8-9

*"For My thoughts are not your thoughts,
neither are your ways My ways, declares the Lord.*

*For as the heavens are higher than the earth,
so are My ways higher than your ways
and My thoughts than your thoughts."*

Romans 1:19-20

*"For what can be known about God is plain to them,
because God has shown it to them.*

*For His invisible attributes, namely, His eternal power and divine nature,
have been clearly perceived, ever since the creation of the world,
in the things that have been made.
So they are without excuse"*

PREFACE

Emotions run high when discussing controversial topics. *Biblical Theology* is replete with many such controversies—*Calvinism vs. Arminianism*, *Spiritual Gifts*, and *Eschatology*, to name just a few. The discussion of the ‘*Old Universe/Earth*’ verses ‘*Young Universe/Earth*’ views of creation is just the latest hot topic to divide sincere, *Bible-believing Christians*. I doubt it will be the last.

Some *Christians* avoid controversy like the plague, but controversy can be good. It forces us to examine our own beliefs and to consider counter-arguments— strengthening our ability to think critically. Controversies provide an opportunity to learn how to evaluate complex issues, stand up for our convictions, and find constructive solutions.

The purpose of this study is to inform— not persuade. I was recently called a heretic by a beloved brother in Christ for not taking a definitive side in the argument as I wrote this study. So be it.

I’ve strived to deliver a balanced approach, but you’ll be the judge. Regardless, I pray that as we take the time to study both the theology and science behind each view that we approach our discussions with open minds and respectful voices.

Thanks for once again joining me in studying God’s Truth,

Steve Glaser

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INTRODUCTION

There's something I've just never understood about *Christians*— why do we eat our own? The tenets of *Christianity* are pretty simple. Jesus came to this earth, lived, died, and rose from the grave as atonement for our sins. Believe in Him and our sins are washed away— our eternal future is guaranteed. Yet, put two *Christians* in a room and they'll argue until hell freezes over about secondary theological issues that probably won't be settled until we're sitting across the table from Jesus in His favorite cafe in the *New Heaven/ New Earth*.

Ok, I admit it, I like a good fight as much as anybody. So I've decided to wade into one of the hottest topics of the day— the age of the *Universe/Earth*. Is the *Universe/Earth* billions of years old (*'Old Universe/Earth View'*) or just a few thousand (*'Young Universe/Earth View'*)?

You're probably asking yourself, "Is he crazy or just plain stupid?" Well, probably a little of both. But it's a topic that has become so divisive that we need to become as versed as possible in our discussions with *Christians* and non-*Christians* alike. As the ancient Jewish *Talmud* proclaims, "Know what to answer a skeptic."

'Old/Universe/Earth' apologists accuse *'Young Universe/Earth'* advocates of ignoring the science laid out plainly before their eyes indicating the *Universe* originated billion of years ago. *'Young Universe/Earth'* proponents sometimes claim one shouldn't even claim to be a *Bible* believing *Christian* if he or she doesn't believe God created the world in just six days just a few thousand years ago. Both sides sincerely make interesting arguments in defense of their positions.

Those arguments actually break down to a debate among **three groups**. The **first** are *secular (non-Christian)* scientists who believe everything in this world can be explained **without a divine originator**. Most are *evolutionists* who advocate the *Darwinian* model. Some are merely earnest scholars who examine the facts as presented in astrophysics, geology, biology, chemistry, etc. and conclude from the available data that the *Universe* and *Earth* must be billions of years old. The **ultimate origin** of the *Universe* and *Earth* are conveniently **omitted** from their discussions. They believe in *'design without a designer.'*

The **second** group consists of **sincere Christians (both scientists and theologians)** who acknowledge God as the creator of everything around us, believe the *Bible* is true and infallible, but who also conclude from studying the *Universe/Earth* that each is very, very old indeed. These individuals find no incongruity with science and the *Bible*— they see both as complimentary (the *'Constructive Integration'* model of viewing science and the *Bible*).

They readily admit **science** sometimes changes as new facts become available. After all, Ptolemaic astronomy was replaced by Copernicus' theories, Aristotle's explanations were superseded by Sir Isaac Newton's ideas, and Einstein and quantum theorists demonstrate the

limitation of Newtonian physics. But likewise, though the *Bible* is always true, sometimes *Biblical* passages need to be re-interpreted as both our knowledge of the *Bible* and science increase.

The **third** group is made up of *Christian scientists* and *Biblical scholars* who interpret the *Bible's* passages about the creation of the world quite **literally**. After all, the *Bible* does indeed seem to teach that the *Universe* was created in six '**days**.' They interpret (and sometimes re-interpret) scientific data and conclude the ages of the *Universe* and *Earth* are very young. Some admit that the *Universe* and *Earth* may often look old ("**Appearance of Age**"), but that's just the way God created it— He had His own reasons. The *Bible* always trumps science.

There are many well-respected experts in each group. Though some try to fit square pegs into round holes, most individuals in each camp are sincere in their beliefs. The debate breaks down like this. Is **science** incorrect in its interpretation of the voluminous data from astrophysics, geology, biology, and chemistry? Are some *Bible* scholars mistaken in their *hermeneutics* and misunderstand certain passages in the *Bible*. **Can science and the Bible both be true?** Let's see.

HOW OLD IS THE UNIVERSE?

HOW OLD IS THE EARTH?

HOW DO YOU KNOW?

CHAPTER ONE

“SECLAR SCIENCE—SOMETHING FROM NOTHING— REALLY?”

As mentioned in the introduction, the first group weighing in on the age of the *Universe/Earth* consists of **secular (non-Christian) scientists** who see no need for a **theistic originator** (ie. God). Today, most of these individuals believe the entire *Universe* began ‘**spontaneously**’ from a dense, extremely hot single spot about **13.8 billion years ago**.

These scientists state this extremely dense spot, known as the ‘**singularity**,’ exploded with unimaginable force, creating matter and propelling it outward to make the billions of galaxies of our vast *Universe*. It marks the beginning of what we now know as **space, time, and matter**. Astrophysicists have coined the term ‘**Big Bang**’ to describe this event.

Other *secular* scientists speculate that our *Universe* is the offspring of another, older *Universe*. They propose that our *Universe* may have been born inside a ‘**black hole**’ and every ‘**black hole**’ in our *Universe* could each contain separate *Universes* as well— a ‘**multiverse**’ view. Still others propose a ‘**cyclical Universe**,’ where our *Universe* is just one phase in an ongoing ‘**cycle**’ of *Universes*.

Unfortunately, while the ‘**Big Bang**,’ ‘**Black Hole**,’ ‘**Multiverse**,’ ‘**Cyclic Universe**,’ and a multitude of other theories may explain the *Universe’s* path since its initial state, they don’t explain what, if anything, ultimately came before it. In other words, what (or who) caused it? Most *secular* scientists simply ignore the question as it seems to be too hard a nut to crack because **they deny divine intervention**.

However, one important thing that **all** scientists agree on (*secular* and *Christian* alike) is that the *Universe* **must** have had an ultimate ‘**beginning**.’ The **Laws of Thermodynamics** are universally accepted principles describing how **energy, temperature, and entropy** interact. The ‘**First Law of Thermodynamics**’ states that the total amount of energy is constant— **the Universe has a finite amount of energy**.

The ‘**Second Law of Thermodynamics**’ (**Law of Entropy**) states **(1)** the *Universe* is running out of usable energy and **(2)** *nature*, in time, eventually brings things to complete disorder (“**entropy**”). If the *Universe* had existed forever in the past then it would have already run out of usable energy and reached maximum ‘**entropy**.’ In other words, the *Universe* could not still exist today. But since the *Universe* is obviously still present around us, it could not have been eternal — **the Universe must have had a ‘beginning!’**

As *Christians*, we already know the *Universe/Earth* had a ‘**beginning**’ because our *Bible* begins by telling us, “*In the beginning, God created the heavens and the earth*” (Genesis 1:1).

Christians may not all agree on **how** or **when** God did it, but we do agree He designed everything around us— seen and unseen. Unfortunately, *secular* scientists deny their own cardinal rule that states ‘something cannot come from nothing’— they believe in ‘**design without a designer.**’

This is not to imply that *secular* science is irrelevant to our discussion of the ‘*Old Earth*’ / ‘*Young Earth*’ debate. In fact, we’ll be delving into the science at length later because the interpretation of the scientific information is critical to our understanding of the origin of the *Universe/Earth*. But all that data just doesn’t really tell us what (or who) first flipped the switch on. For that we have to open our *Bibles*.

Christian ‘Old Earth’ proponents analyze the **scientific data** and the *Bible* and see the **divine origin** of the *Universe* and *Earth* originating about **13.8 and 4.5 billion years ago** respectively. *Christian ‘Young Earth’* apologists examine much of the same information and conclude both the *Universe* and *Earth* were created by God only **6,000 to 10,000 years ago** in just **six days**. Which view is correct? Can we be certain? Does it matter? You’ll have to decide.

WHAT IS THE ‘BIG BANG’?

WHAT IS THE FIRST LAW OF THERMODYNAMICS?

WHY IS IT IMPORTANT?

WHAT IS THE SECOND LAW OF THERMODYNAMICS?

WHY IS IT IMPORTANT?

WHY MUST THE UNIVERSE/EARTH HAVE HAD A BEGINNING?

CHAPTER TWO

**“FOR WHAT CAN BE KNOWN ABOUT GOD IS PLAIN TO THEM,
BECAUSE GOD HAS SHOWN IT TO THEM...”**

(Romans 1:19)

The title of this chapter is obviously taken from Paul’s letter to the Romans. But it’s his next sentence that is even more critical to our discussion.

*“For his invisible attributes, namely, his eternal power and divine nature, **have been clearly perceived, ever since the creation of the world, in the things that have been made.** So they are without excuse”* (Romans 1:20).

Those *Christians* who advocate for an ‘*Old Earth*’ view of the *Universe* and *Earth* believe God has clearly left **visible clues**, not only about His creation, but also about His ‘**creative process.**’ They state that one only has to look at the **evidence** He’s left behind to not only grasp when the *Universe* was first created, but to also prove that He’s had His hand in every aspect of it since. Just like the apostle Paul, they claim, “***it has been clearly perceived ever since the creation of the world.***”

To be clear, ‘*Old Earth*’ *Christians* do **not believe science trumps the Bible, but only that science compliments the truths of Scripture.** They claim that as our collective knowledge of science **and** the *Bible* have increased through the years, God has incrementally allowed us to witness His might through the study of His creation. They admit science can sometimes be wrong, but also point out that our Biblical *hermeneutics* can also be fallible.

Both ‘*Old Earth*’ and ‘*Young Earth*’ *Christians* believe in God’s ‘**General Revelation**’ (truths that can be known about God through ‘*nature*’) and ‘**Special Revelation**’ (physical appearances of God, dreams, visions, and especially God’s written Word— the *Bible*). But they sometimes interpret each differently.

WHAT IS GOD’S GENERAL REVELATION?

WHAT IS GOD’S SPECIAL REVELATION?

ARE BOTH OF GOD’S REVELATIONS TRUE?

HOW DO YOU KNOW?

‘Old Earth’ apologists believe God established His ‘**General Revelation**’ according to ‘**fixed**’ (consistent) observable ‘**natural laws**’ that can be reliably tested within the edicts of science. This principle of ‘**uniformitarianism**’ suggests that the natural laws and processes we observe today have operated in the same way throughout *Earth’s* history. Jeremiah 33:25 states:

*“Thus says the Lord: If I have not established my covenant with day and night and the **fixed order of heaven and earth.**”*

This verse (and many like it) doesn’t use the term ‘*scientific rules*,’ but it does seem to emphasize God’s role in creating a *Universe* with inherent **order and design**, which aligns with the idea of ‘**natural laws**’ that science seeks to understand. This ‘**Uniformitarianism**’ view states that present-day processes acting over long periods of time shaped the *Earth*, which supports a much older *Earth* (billions of years).

‘*Young Earth*’ advocates claim God sometimes temporarily changes observable *laws of nature* and suspends His established order (ie. An ‘*Old Earth*’ principle states the speed of light has been observably **static** throughout history whereas ‘*Young Earth*’ proponents claim it could have been variable in the distant past).

This ‘**Catastrophism**’ *viewpoint* is the ‘*Young Earth*’ belief that *Earth’s* major geological features formed from sudden, catastrophic events, implying a young age for the *Earth* (only a few thousand years old).

WHAT IS UNIFORMITARIANISM?

WHAT IS CATASTROPHISM?

CAN THEY BOTH BE TRUE?

A classic historical example of the ‘*push/pull*’ between the human interpretation of science and the human interpretation of the *Bible* was the conflict between Galileo and the ‘*church*’ of his time regarding whether the *Earth* actually ‘**moved**.’ It may sound silly today, but in the sixteenth century many respected theologians such as Luther and Calvin argued that the *Earth* did not ‘*move*’ based on *Biblical* statements that seemed to state the world was stationary:

“...the world is established; it shall never be moved” (Ps 93:1)

“...Yes, the world is established; it shall never be moved” (Ps 96:10)

“He set the earth on its foundations, so that it should never be moved” (Ps 104:5)

But, Galileo argued for a ‘**heliocentric**’ concept of the *Universe* where the *Earth* revolves around the *Sun*— a theory from Copernicus who observed this with his telescope. Using only *Scripture*, the ‘*church*’ rejected this as **heresy** and adhered to the ‘**geocentric**’ view with the *Earth* as the center of the *Universe* and everything revolving around it.

In 1633, Galileo was brought before the *Roman Inquisition*, tried for *heresy*, found guilty, and placed under house arrest. Though the ‘church’ leaders did admit that the earth ‘*appeared to move*,’ they would not concede that it actually did ‘*move*’ based on their interpretation of *Scripture*.

Obviously today no-one believes the *Earth* does not ‘*move*.’ Instead, we understand that the church’s earlier **interpretation of Scripture** on this matter was **flawed**. There are many other examples throughout *Scripture* where science has greatly aided our interpretation of God’s message. **The Bible is unchanging and inerrant, but our ‘interpretation’ can sometimes be a little off the mark if viewed within a vacuum.**

Some claim that using science as an addendum to *Scripture* is a slippery slope that can lead to *Biblical* error. This is true— science sometimes changes with increased knowledge. But, **we must also accept that our ‘interpretation’ of Scripture should not be confused with Scripture itself.** God always knows what He’s talking about. But can we always say the same about our understanding of every dot and iota in the *Bible*?

The next few chapters will attempt to summarize the debate between ‘*Old Earth*’ and ‘*Young Earth*’ advocates from both *scientific* and *theological* viewpoints. We’ll look at the evidence presented by each side and then examine their rebuttals.

WHAT IS BIBLE HERMENEUTICS?

DOES GOD ALWAYS KNOW WHAT’S HE’S TALKING ABOUT?

DO WE ALWAYS KNOW WHAT GOD’S TALKING ABOUT? WHY? WHY NOT?

HAVE YOU EVER BEEN WRONG IN YOUR BIBLICAL HERMENEUTICS? HOW? WHY?

CHAPTER THREE

“THE THEOLOGY OF THE OLD UNIVERSE/EARTH VIEW”

The **theology** of an *Old Universe/ Earth* reconciles modern **scientific findings** on the age of the cosmos with the **Biblical account** of creation. While rooted in the belief that God is the Creator, this theological framework involves various interpretations of the Genesis narrative to accommodate a vast timescale, contrasting with the ‘*Young Earth*’ view.

There are primarily **five theological interpretations** (though **only the first two** seem to have **any teeth**) that embrace an *Old Universe/Earth*. These include:

- ‘*Day-Age Creationism*’
- ‘*Progressive Creationism*’
- ‘*Theistic Evolution*’
- ‘*Gap Creationism*’ (or ‘*Ruin-Restoration*’)
- ‘*Framework Hypothesis*’

I. Day-Age Creationism

This view interprets the ‘*six days*’ of creation in Genesis 1 as representing **six long, indefinite periods of time, or epochs, rather than literal 24-hour days**. This is based on the **linguistic flexibility** of the Hebrew word for ‘*day*’ (‘*yom*’), which is used elsewhere in the *Bible* to denote **long periods**. In fact, the word ‘*yom*’ is used **2,300 times** in the *Old Testament* alone!

Nothing divides ‘*Old Earth*’ apologists and ‘*Young Earth*’ advocates more than this simple Hebrew word:

‘*yom*’

The *Oxford English Dictionary* currently contains **171,476 words**, but ancient Hebrew consisted of under **10,000 words**. Thus, **many words had several meanings** depending on context. The *Biblical Hebrew* word, ‘*yom*,’ used in Genesis 1 is no exception. It has **four distinct translations**:

- (1) Part of the daylight hours (ie. noon to 3 pm)
- (2) All of the daylight hours
- (3) A 24 hour period
- (4) A long but finite time period

Modern Hebrew has **two words** for an extended, finite time period:

- ‘*dor*’ meaning *generation* or *age* and

- ‘*olam*’ meaning *eternity* or *long period*’

BUT

Ancient ‘*Biblical*’ Hebrew had only **one word** to describe a long but finite period of time (even ‘*eons*’ of time!):

‘*yom*’

The translation of the word ‘*yom*’ must take into consideration the grammar, sentence structure, and context in which the word is used. By analyzing the structure and grammar of Genesis 1:1 and 1:2 many Hebrew linguists have determined that the **creation of the ‘*Universe*’ must predate the events described in the six creation ‘*days*’ of ‘*Earth*’** (whether 24 hour periods or eons of time) by an unspecified but finite duration of time.

When an ‘*Old Earth*’ advocate is describing a ‘*day*’ (‘*yom*’) in the *Biblical* Genesis 1 narrative it implies an **extended period of time** (even millions or billions of years sometimes). ‘*Young Earth*’ apologists use ‘*yom*’ to describe only a **24 hour period of time**.

WHAT IS A DAY?

HOW MANY DIFFERENT WAYS DO YOU USE THE WORD ‘DAY’?

HOW DOES GOD MARK TIME?

Of historical interest, the ‘*day*’ controversy is nothing new. **It has been debated since the first century.** Among early church leaders, probably no one wrote a more extensive analysis of the creation ‘*days*’ than **Augustine** (354-430 AD). In his “*City of God*” he wrote:

“As for these ‘*days*,’ it is difficult, perhaps impossible to think, let alone explain, what they mean.”

In his “*The Literal Meaning of Genesis*” he added:

“Seven days by our reckoning after the model of the ‘*days*’ of creation, make up a ‘week.’ By the passage of such ‘*weeks*’ time rolls on, and in these ‘*weeks*’ one ‘*day*’ is constituted by course of the sun from its rising to its setting; **but we must bear in mind that these ‘*days*’ indeed recall the creation, but without in any way being really similar to them.”**

He saw the use of ‘*days*’ as a way for God to condescend to human understanding providing **anthropomorphic representation** of a complex event. He understood the ‘*evenings*’ and

‘*mornings*’ of the Genesis creation ‘*days*’ in a **figurative sense**. His question was why God needed **any** amount of *days* at all. He believed God created **everything instantaneously**— not in ‘*days*’ as we commonly interpret the word.

In his “*Confessions*” Augustine noted that for the seventh ‘*day*’ Genesis makes no mention of a ‘*evening*’ and a ‘*morning*.’ He deduced from this omission that God’s sanctified the **seventh ‘day,’** making it an **epoch extending onward into eternity**. (We’ll discuss this further when we discuss ‘*day seven*’)

Theoretical chemist and *Christian* apologist John Millan (“*Coming to Grips with the Early Church Fathers’ Perspective on Genesis*”) noted that neither the duration of the creation days nor the age of the *Earth* was ever listed as part of the Church’s ‘*rule of faith*’ (‘*regula fidei*’), which was a statement of key doctrines.

In other words, though the debate over the length of ‘*days*’ of creation have been discussed for centuries, **there was never a dogmatic doctrine established about it.**

“*Ante-Nicene scholars* (early *Christian* theologians and writers who lived and produced writings before the *First Council of Nicaea* in 325 AD) devoted some two thousand pages of commentary to the ‘*hexameron*’ (the portion of Genesis 1 describing the six creation days). Only two pages addressed the meaning of ‘*day*’ or the time for creation; and, though some favored a ‘*day age*’ (epochs of time) interpretation, not one page endorsed the literal 24 hour day interpretation” (David G. Hagopian, “*The Genesis Debate: Three Views of the Days of Creation*”).

Early ‘*Church Fathers*’ accepted a diversity of views on the matter. It was only in the beginning of the *Twentieth Century* that ‘*Young Earth*’ creation advocates began insisting on only one interpretation.

HOW LONG HAS THE WORD ‘YOM’ BEEN DEBATED?

HOW DID AUGUSTINE INTERPRET THE WORD ‘YOM’ IN GENESIS? WHY?

HOW DO YOU INTERPRET THE WORD ‘YOM’ IN GENESIS? WHY?

‘*Young Universe/Earth*’ Counter-Argument— Day Mean Day

That’s not to say that ‘*Young Earth*’ advocates don’t have strong arguments for believing ‘*yom*’ in the early Genesis narrative is a **24 hour day**. One argument comes from the study of the linguistics of the ancient Hebrew. As mentioned before, grammar, sentence structure, and context are indeed critical.

Whereas the single word ‘*yom*’ is used in Genesis 1, the term ‘*be yom*’ is generally (but not exclusively) used throughout the *Old Testament* to represent **more** than a 24 hour period.

The combination, *be yom* (בַּיּוֹם), is a Hebrew idiom for "*when*" or "*a time when*" that was often used to signify a **period of time** (ie. Gen 2:4, Nu 7:10, 7:84; Deut 4:32; 2 Sam 22:19). The word '*yom*' used **alone** usually (but not exclusively) indicated only a **24 hour 'day.'**

But even '*Young Universe/Earth*' advocates admit '*yom*' can mean periods other than strictly **24 hours**. Genesis 1:5 states, "*God called the light 'day' ('yom') and the darkness evening*"—clearly indicating **less than 24 hours** here.

'*Old Universe/Earth*' apologists state that the '*morning*' and '*evening*' does **not** require one to conclude that '*days*' must be a 24 hour period. They claim it is merely the author's way of establishing the end of one creative '*day*' (an undisclosed period of time) and the beginning of another.

'*Old Universe/Earth*' advocates also point out that the first creative '*days*' could **not** have been **24 hour periods** as determined by the *Earth circling the Sun* (on which 24 hour cycles depend) because, according to '*Young Universe/Earth*' apologists, the sun was supposedly not even created until the **fourth 'day.'**

The analogy of '*days*' ('*yom*') is certainly used throughout *Scripture* to represent periods of time **other than a 24 hour period**. '*Old Universe/Earth*' apologists point to the apostle Peter who quoted the '*Psalm of Moses*' referencing the creation theme:

2 Peter 3:8- "*But do not overlook this one fact, beloved, that with the Lord one day is as a thousand years, and a thousand years as one day*"

Psalm 90:2-6- "*Before the mountains were brought forth, or ever you had formed the earth and the world, from everlasting to everlasting you are God.*

You return man to dust and say, "Return, O children of man!"

For a thousand years in your sight are but as yesterday when it is past, or as a watch in the night.

*You sweep them away as with a flood; **they are like a dream** like grass that is **renewed in the morning:***

in the morning it flourishes and is renewed; in the evening it fades and withers."

HOW/WHY IS “ONE DAY AS A THOUSAND YEARS AND A THOUSAND YEARS AS ONE DAY” TO GOD?

HOW/WHY IS “A THOUSAND YEARS BUT AS YESTERDAY WHEN IT IS PAST” TO GOD?

HOW/WHY IS “A THOUSAND YEARS AS A WATCH IN THE NIGHT” TO GOD?

‘*Young Earth*’ apologists state that the **numbering of days** in Genesis 1 with the concomitant use of ‘*morning*’ and ‘*evening*’ demand that a 24 hour period must be concluded.

But, though ‘*Old Universe/Earth*’ advocates cede that no other passages can be found in *Scripture* in which days are numbered and have a generic sense, they equally point out that this uniqueness also makes it hard to insist on any particular interpretation because there are no other numbering of days in this form anywhere in *Scripture*—whether referring to 24 hour days or any other period of time.

Today there are many well known *Christian* apologists who fall on either side of the issue of the meaning of ‘*yom*’ in Genesis 1.

Representing the ‘*Young Earth*’ view are major organizations including ‘*Answers in Genesis*,’ the ‘*Institute for Creation Research*’ (ICR), and ‘*Creation Ministries International*.’ These groups advocate for ‘*Young Earth Creationism*’ (YEC), which holds that the *Universe* and *Earth* were created by God in a short 6 day period, likely between **6,000 and 10,000 years** ago, based on an absolute literal interpretation of the *Biblical* account in Genesis.

Well known *Christian* apologists such as **Gleason Archer** (*Old Testament* scholar and author advocating Biblical inerrancy), **Normal Geisler** (author and coauthor of over 90 books including “*Systematic Theology*”), **William Lane Craig** (noted *Christian* philosopher, theologian, and author), **Hugh Ross** (*Christian* astronomer and president of ‘*Reasons to Believe*’) and many others advocate for ‘*Yom/ Day*’ as an **extended period of time**. They hold that the *Universe* and *Earth* were created by God approximately **13.8 and 4.5 billion years** ago respectively based on the Biblical interpretation of ‘*yom*’ representing long periods of time and on available scientific information.

WHY DO SOME CHRISTIAN APOLOGISTS SAY ‘YOM’ MUST BE 24 HOURS?

WHY DO SOME CHRISTIAN APOLOGISTS SAY ‘YOM’ MUST BE MORE THAN 24 HOURS?

IS IT IMPORTANT TO YOU? WHY? HOW?

II. Progressive Creationism

'*Progressive Creationism*' is a specific **variation** of the '*day-age*' view. This model proposes that God **progressively** and **supernaturally** created new forms of life over millions of years **in harmony with** the *geological* and *fossil* records. This position accepts the mainstream scientific age of the *Earth* but **rejects** '*macro-evolution*' and '*common descent*' ('*Darwinism*').

It's main tenets include:

- **Divine creation from nothing (Creatio Ex Nihilo):** The *Universe* and *Life* did **not** arise by unguided, naturalistic processes alone. **God miraculously created the cosmos out of nothing and intervened at different points in history.** Proponents often argue that modern cosmology, like the *Big Bang theory*, is consistent with a beginning point for the *Universe*.
- **Old Earth Creationism:** '*Progressive creationism*' accepts the mainstream scientific view of an ancient *Universe* and *Earth*, on the order of **billions of years**.
- '**Days**' as **Ages**': The '*days*' of creation in Genesis are interpreted as **long periods of time**, or ages, rather than 24-hour periods.
- **Supernatural Intervention:** God directly intervened **at specific times** to create **new forms of Life**, or '*kinds*' of plants and animals, explaining the order seen in the *fossil record*.
- **Rejection of Macro-evolution:** The concept of *macro-evolution* and *universal common ancestry* are **rejected**, as '*progressive creationists*' argue that **species appear all at once and fully formed**.
- **Limited evolution:** While **rejecting** the concept of *macro-evolution* (the transition of one '*kind*' of organism into another) '*progressive creationists*' generally **accept micro-evolution**. They believe this allows for adaptation within a created '*kind*' but **not** the development of entirely new types of life.
- **Sequential creation bursts:** According to this view, the progression of *Life* seen in the *fossil record* was guided by God through a series of '*creative bursts*.' In these events, God directly created new '*kinds*' of organisms over millions of years, rather than having new *species* arise through unguided evolution.
- **God as Creator:** God is presented as **continually active in creation**, with ongoing creative acts rather than a single initial creation event.
- **Nature as Revelation:** *Progressive creationists* often view the **natural world** as a **second book** of revelation, equal in reliability to the Bible ('*General Revelation*')
- **Pre-Adamite Creatures:** Some proponents believe in the existence of *pre-Adamite*, '*soul-less*' **human-like creatures** ('*hominids*') that **predate** Adam and Eve
- **Historical Adam and Eve.** Unlike proponents of '*theistic evolution*,' '*Old-Earth*' creationists typically affirm the **historicity of Adam and Eve** as the unique, specially created human parents of all humanity.

- **Localized Flood:** The *Flood* described in Genesis is often interpreted as a **localized event in the Mesopotamian Valley, not a Global Flood**. Many proponents (but not all) believe that the *Genesis Flood* was a local event, not a global one, given the limited extent of human populations at the time (**much more on *Global verses Regional Flood* later in our study!**)

WHAT IS PROGRESSIVE CREATIONISM?

HOW IS PROGRESSIVE CREATIONISM DIFFERENT THAN EVOLUTIONARY THEORY?

DID GOD LEAVE HINTS ABOUT HIS CREATIVE PROCESS? HOW? WHY?

‘*Young Universe/Earth*’ critics of ‘*progressive creationism*’ argue that it undermines the authority of *Scripture* by supposedly ‘**re-interpreting**’ Genesis to align with science. They also contend that it compromises *Christian* theology by placing *animal death* before the *Fall of Man* (more on this later).

Secular (**non-Christian**) scientists argue that ‘*progressive creationisms*’ rejection of universal ‘*common descent*’ and ‘*macro-evolution*’ is not supported by the evidence of the *fossil record*, *genetics*, and other biological fields.

Some ‘*theistic evolutionists*,’ the religious belief that God created the universe and humanity, but that ‘*macro-evolution*’ was the actual **process** God used to bring about life (**see next section**), also argue that the ‘*progressive creationism*’ view proposes an unnecessary ‘*God of the gaps*’ explanation for biological diversity—arguments that invoke God to explain the current unknowns in science, suggesting that as science advances, God's role would diminish.

WHY DO ‘YOUNG UNIVERSE/EARTH’ ADVOCATES DISAGREE WITH PROGRESSIVE CREATIONISM?

WHY DO SECULAR SCIENTISTS DISAGREE WITH PROGRESSIVE CREATIONISM?

WHY DO THEISTIC EVOLUTIONISTS DISAGREE WITH PROGRESSIVE CREATIONISTS?

III. Theistic Evolution

Theistic evolution is the belief that God used **evolution** as the process to create *Life* on *Earth*. It is a perspective that tries to reconcile belief in God with the scientific theory of *evolution*, suggesting that God is the ultimate creator who works through **natural processes** like '*natural selection*.' This view accepts scientific evidence for *evolution* and the **age of the Earth**, while interpreting religious creation stories as potentially **non-literal or symbolic**.

- **Compatibility of Science and Faith?**— Proponents believe that religious teachings about creation and the scientific *theory of evolution* do not conflict. They often view the *Biblical* creation accounts in Genesis as primarily **theological** or **metaphorical**, rather than as a literal, historical, or scientific narrative.
- **Acceptance of Mainstream Science**— *Theistic evolutionists* generally accept the **secular scientific consensus** on the age of the universe (**billions of years**), the *Big Bang*, an '*Old Earth*,' and '*common descent*' for all life, **including human**.
- **Divine Role**— The central tenet is that the *evolutionary process* was either **(1) initiated**, **(2) sustained**, or **(3) guided** by **God** (or a '*divine intelligence*') to bring about His intended outcome, which may include the emergence of human beings with a unique spiritual nature or soul.

Counter-Argument Against 'Theistic Evolution'

Both '*Young Universe/Earth*' advocates **and** '*Progressive Creationism*' ('*Old Universe/Earth*') **theologians** and **scientists** state that '*Theistic Evolution*' contradicts fundamental *Christian* doctrines regarding the **historicity of Adam and Eve**, the origin of **sin** and **death**, and the **nature and character of God**:

- **Historicity of Genesis and Original Sin:** A central argument is that '*theistic evolution*' requires interpreting the early chapters of Genesis as **allegory or myth**, rather than literal history.

This view is seen as **undermining the historical existence of Adam and Eve** as the **first humans**, which in turn removes the basis for the doctrine of *original sin* as described in Romans 5. If sin did not enter the world through one man, the argument goes, then the need for Christ's redemption as the '*second Adam*' is negated, impacting the core of the *Christian* gospel.

- **God's Nature and Character:** Some argue that a God who would use a process as seemingly random, inefficient, and full of suffering as *evolution* (which involves the '*survival of the fittest*' through millions of years of death and trial-and-error) contradicts the nature of an all-powerful, all-loving, and wise Creator.

— **Scientific Challenges:** Critics of ‘*Theistic Evolution*’ also argue that there is insufficient scientific evidence for the *evolutionary pathways* that ‘*Theistic Evolution*’ relies on.

Specifically, they point to a **lack of fossil evidence** for *macro-evolutionary* change (e.g., from **ape to human**) and that ‘*natural selection*’ and **mutation** are **not capable** of producing the vast *genetic information* seen in living organisms.

Despite its challenges, there are **religious groups** and **denominations** who support ‘**Theistic Evolution**’:

— **The Catholic Church:** The *Catholic Church's* position, refined over the last century, is that there is no inherent conflict between *Christian* faith and the *theory of evolution*, as long as it is understood that God created all things and directly created the individual *human soul*.

— **Mainline Protestant Denominations:** There are many *Protestant* seminaries and denominations, such as the *Methodist, Lutheran, Episcopalian, Presbyterian, United Church of Christ*, and some *Baptist* churches, that teach or are open to ‘*theistic evolution*.’ (C.S. Lewis and Tim Keller were also proponents of this view).

— **Eastern Orthodox Church:** Most members of the *Eastern Orthodox Church* are also considered to be ‘*theistic evolutionists*.’

— **Judaism:** Many *Jewish* scholars and movements, including some in *Karaite Judaism* and *Samaritanism*, interpret the creation account in the *Torah* symbolically or non-literally to accommodate an ‘*Old Earth*’ and *evolution*

WHAT IS THEISTIC EVOLUTION?

HOW DOES IT DIFFER FROM THE ‘YOUNG UNIVERSE/EARTH’ VIEW OF CREATION?

HOW DOES IT DIFFER FROM ‘PROGRESSIVE CREATIONISM’?

IV. Gap Creationism

‘*Gap creationism*,’ also known as the "*ruin-reconstruction*" or "*ruin-restitution*" theory, is a form of creationism that proposes a vast, unspecified **gap of time** between the events described in **Genesis 1:1** (the original creation of the universe by God) and **Genesis 1:2** (the earth being "*without form, and void*"). This ‘*gap*’ is used to account for the billions of years of geologic time suggested by scientific evidence, while still allowing for a literal six-day creation week for humanity and present-day species.

It proposes that an original, perfect creation was **destroyed** and reduced to a **ruined** state before God's "*reconstruction*" of the Earth during the six days.

Key aspects of ‘Gap Creationism’:

- **Original Creation:** Genesis 1:1 is seen as the **initial creation** of a **perfect Universe and Earth** by God.
- **The "Gap":** Between Genesis 1:1 and 1:2 a period of millions of years occurs.
- **Ruin:** During this gap, the original creation was ‘**ruined**’ or **destroyed**, possibly due to **Lucifer's rebellion** and subsequent fall from grace.
- **Reconstruction:** The six-day creation described from Genesis 1:3 onwards is God's "*reconstruction*" of the earth, creating the present world.
- **Fossil Record:** The *fossil record* and ancient ruins found on Earth are attributed to this original, now-ruined "**world that then was**," **not** *Noah's Flood*.

Critics argue that **Genesis does not contain any hint of a gap between the first two verses** and that this theory imposes outside ideas onto the text. It is seen as a compromise that prioritizes scientific theories over the plain meaning of *Scripture*. This theory seems to conflict with Genesis 1:31 where God declares His finished creation "*very good*."

‘*Gap Theory*’ proponents take the Hebrew word ‘*haya*’ (usually translated ‘*was*’) in Genesis 1:2 to instead mean ‘*became*.’

In other words, they suggest that *Earth* did not ‘*begin*’ formless and empty but rather ‘*became*’ formless and empty. **This translation is challenged by most ancient Hebrew scholars!**

According to the ‘*gap*’ theory, astronomers, geophysicists, and paleontologists are measuring the **ancient, ruined creation**, whereas the *Bible* addresses God’s recent **repair of creation**.

However, scientists point out a cataclysm severe enough to cause the "*formless and void*" state described in Genesis 1:2 would have **obliterated** the *geological* and *fossil records* that the theory is meant to explain.

Thomas Chalmers, a Scottish theologian popularized the idea of ‘*Gap Creationism*’ in the early 19th century. Unfortunately, the ‘*Scofield Reference Bible* (1909)’ included notes endorsing this ‘*gap theory*,’ cementing its popularity within some (fewer today) *American fundamentalist* circles.

| Feature | Progressive Creationism | Young Earth Creationism | Evolutionary Creationism / Theistic Evolution |
|------------------------|--|--|---|
| Age of Earth/ Universe | Billions of years, aligning with scientific findings. | Thousands of years, based on a literal reading of Genesis. | Billions of years, accepting scientific dating methods. |
| Genesis creation days | Interpreted as long ages or eras. | Interpreted as six literal, 24-hour days. | Generally viewed as a theological narrative rather than a literal scientific account. |
| Creation of life | God performed intermittent, special creative acts throughout history to produce new "kinds" of life. | God created all "kinds" of life in six literal days. | God used natural, evolutionary processes to bring about all life on Earth. |
| Death before the Fall | Animal death existed before the fall of Adam and Eve. | All animal and human death is a consequence of Adam's sin. | Death and suffering were part of the natural process God used to bring about |
| | | | |

WHAT IS GAP CREATIONISM?

WHY WAS IT POSTULATED?

WHY HAS IT BEEN MOSTLY REJECTED TODAY?

V. Framework Hypothesis

The '*Framework Hypothesis*,' (also known as the '*framework interpretation*') is a view of the creation account in Genesis 1 that sees the '*days*' as a **literary structure** — **not a literal chronological sequence**. It proposes a parallel structure where the **first three days** of '*forming*' (creating environments— light, sky, seas, land, and vegetation) are matched by the **last three days** of '*filling*' (creating inhabitants for those environments— birds/fish, animals, and humans).

This '*topical arrangement*' emphasizes God's act of bringing order to the cosmos and establishing His '*Sabbath rest*,' rather than providing a precise timeline for creation.

Key Aspects of the Framework Hypothesis:

- **Literary and Thematic Focus:** The primary goal is to **convey theological truths** about God's creative power, order, and establishment of a covenantal relationship with humanity, **not** to provide a scientific or chronological account of events.
- **Parallel Structure:** The days are divided into two '*triads*':
 - Days 1-3 (*Forming*):** Create fundamental realms or environments (light, sky and seas, land and vegetation)
 - Days 4-6 (*Filling*):** Fill those created realms with inhabitants (sun, moon, and stars; fish and birds; land animals and humans)
- **Non-Sequential Order:** The arrangement of creative acts is **topical** and **logical** rather than **historical** and **sequential**, with later days corresponding to earlier ones in terms of their theme.
- **Harmonization with Science:** This interpretation allows for an '*Old Earth*' understanding of the planet's history and *fossil record*, without requiring a conflict between science and the *Biblical* text
- **Reconciling Faith and Science:** By presenting the Genesis account as a literary framework, proponents believe it removes the pressure to interpret the '*days*' as literal 24-hour periods, enabling compatibility with scientific findings about the *Universe's* vast age
- **Eternal Sabbath Rest:** The **seventh 'day,'** in which God rested, lacks the concluding "*evening and morning*" formula, which some framework supporters interpret as an **eternal, unending day**. The six workdays of creation are seen as culminating in this permanent *Sabbath rest* for God and, ultimately, for humanity

Counter-Argument To The Framework Hypothesis

Biblical scholars and literalists **argue** that the Hebrew text of Genesis 1 is written as a **historical narrative, not as a poem or semi-poetic account**. They cite the frequent use of consecutive *preterite verbs* (words which denote a sequence of events in the past tense) as evidence for a chronological sequence. Hebrew **poetry**, by contrast, uses different literary devices, such as *parallelism*, which are not found in the Genesis One creation account.

‘*Young Universe/ Earth*’ critics contend that if the historical narrative of creation can be reinterpreted as only a literary device, it creates a ‘**slippery slope**’ for reinterpreting other historical accounts in the *Bible*. They argue this could lead to a disregard for the historicity of core events like the fall of Adam, which is foundational to *Christian* theology regarding sin and salvation.

WHAT IS FRAMEWORK HYPOTHESIS?

WHY WAS IT PROPOSED?

WHY IS IT USUALLY REJECTED?

The more complete **rebuttal** to the *Theology* of the ‘*Old Universe/Earth*’ view will be presented in

Chapter Six

“*The Theology of the ‘Young Universe/Earth’ View*” of Creation.

CHAPTER FOUR

“THE SCIENCE OF THE OLD UNIVERSE VIEW ”

Christian ‘Old Earth’ proponents are often accused of being “*Darwinian Evolutionists*” because they see God’s creation of the *Universe* as an orderly process referred to as ‘*Progressive Creationism*.’ But this is very misleading. ‘*Darwinism*’ supposes that **random** processes **without** supernatural involvement can account for the *Universe*, *Earth*, and *mankind* itself. On the other hand, ‘*Progressive Creationism*’ **acknowledges God as Creator of all ‘Heaven and Earth.’**

‘*Old Earth*’ *Christians* readily point out that even with the data indicating the *Universe* is approximately **13.8 billion years old** and *Earth* **4.5 billion years old**, ‘*statistical analysis*’ (mathematical models of know facts) proves these billions of years are still **not enough time** for any conceivable process to yield even the simplest of organisms **without divine input**. In other words, even without the myriad of scientific proofs of the fallacy of ‘*Darwinian Evolution*,’ **time itself works against the ‘Darwinian’ model!**

But, putting the discussion of *Darwinian Evolution* aside for now (**more on this later**), how did *Christian* astrophysicists even come to the conclusion about the **age of the Universe**? How did they determine the *Universe* is approximately **13.8 billion years old**? Are they just guessing or is there legitimate data to support their claims?

HOW DO YOU MAKE DECISIONS?

WHERE DO YOU GET YOUR FACTS?

WHY DO YOU BELIEVE YOUR SOURCES?

According to *Christian* astrophysicist Hugh Ross, the four most easily understood methods for **age-dating the Universe** involve observation of:

- (1) **Expansion of the Universe**
- (2) **Cosmic background radiation temperatures**
- (3) **Stellar burning process**
- (4) **Cosmic abundances of radioactive elements**

1. Expansion of the Universe

Isaiah 42:5- “*Thus says God, the LORD who created the heavens and **stretched them out...***”

Isaiah 44:24- “*Thus says the LORD, your Redeemer, who formed you from the womb:
“I am the LORD, who made all things, who alone **stretched out the heavens,**
who spread out the earth by myself”*

Jeremiah 10:12- “*It is he who made the earth by his power, who established the world by his wisdom, and by his understanding **stretched out the heavens***”

a. ‘Redshift Velocities’ vs ‘Blueshift Velocities’

The farther away a given galaxy is, the faster it moves away from us. This can be proven in **three independent ways**. The first proof involves the measurement of something called ‘*spectral line shifts*’ emitted by galaxies. ‘*Spectral line shifts*’ refer to the **wavelength (or frequency) of light** emitted or absorbed by an object primarily due to its **relative motion** with respect to the observer.

These measurable *light shifts* can be used to determine the **speed** and **direction** of the object. ‘*Redshifts*’ indicate the object is **moving away** from the observer and ‘*Blueshifts*’ indicate the object is **moving towards** the observer.

This relationship between distance and light wavelength shifts is formalized in ‘*Hubble's Law*’ which states that **the velocity of a galaxy receding from us is proportional to its distance**. This law is a cornerstone of modern cosmology and supports the observations that tell us **the Universe is expanding outward from a ‘beginning’ in space and time.**

‘Young Universe’ Rebuttal Regarding ‘Redshift Velocities’ vs ‘Blueshift Velocities’

‘*Young Universe/Earth*’ creationists **do not believe the Universe is expanding** because their interpretation of a literal reading of the *Bible* suggests the *Universe* is only a few thousand years old.

Adherents of ‘*Young-Universe*’ models offer alternative explanations for *redshifts* and *blueshifts* that they say aligns with a *Universe* just **thousands of years old** (rather than the billions of years supported by conventional cosmology). While most of the *Universe* shows a strong *redshift*, which in standard cosmology indicates a massive and long expansion, ‘*Young-Universe*’ cosmologies **propose alternative mechanisms** for how **light** from distant objects reaches *Earth*:

- (1) **"Tired Light" Hypothesis:** This model suggests that **light loses energy** and becomes **redder** as it travels through space, **without the Universe expanding**. The farther the light travels, the **"more tired"** it gets, which **'mimics' Hubble's Law** (the farther a galaxy is from the *Earth*, the faster it moves away).
- (2) **Gravitational Time Dilation:** Some '*Young Universe*' models propose that **clocks near *Earth* ran much faster in the past** than those in distant regions of the cosmos. As light from distant regions traveled toward *Earth*, it would have been significantly *redshifted* due to *gravitational time dilation*.
- (3) **"Intrinsic" Redshifts:** A separate explanation suggests that *redshift* is a property **intrinsic** to certain astronomical objects.
- (4) **Redshift Quantization:** Some '*Young Universe*' proponents highlight the observation of '*quantized*' '*redshift*,' where the *redshifts* of galaxies tend to cluster around specific values. They argue that this implies a ***Universe centered around our own galaxy*, challenging the standard model's assumption that the *Universe* has no unique center.**
- (5) **'Blueshifts' Caused By Local Motion:** '*Young Universe*' cosmologies accept that *blueshift* is caused by local, gravitational motion (for example, a nearby galaxy moving towards the *Milky Way*). But, by **rejecting the expansion of the *Universe***, these models have no need for a cosmological *redshift*, meaning *blueshift* can be more readily interpreted as simply a **nearby object's motion towards us**.
- (6) **"Mature Creation" model:** This idea suggests that God created the *Universe* with the '*Appearance of Age*,' including starlight that appears to have traveled billions of years to reach *Earth*. **In this view, *redshift* is an intrinsic property of the created light and not an indicator of immense distances or an expanding *Universe*.**

WHAT ARE REDSHIFTS AND BLUESHIFTS IN THE 'OLD UNIVERSE' MODEL?

WHAT ARE REDSHIFTS AND BLUESHIFTS IN THE 'YOUNG UNIVERSE' MODEL?

HOW ARE THE DIFFERENT INTERPRETATIONS IMPORTANT IN DATING THE AGE OF THE UNIVERSE?

Appearance of Age Argument

‘*Young Universe*’ advocates argue that God created the *Universe* and its features **already mature**, **not in their infant state**.

They propose that the *Universe* was created with the **light from distant stars already in transit**.

Advocates of this ‘*appearance of age*’ argument state anything created by God directly and immediately would have the ‘*appearance of an age*’ that it did **not actually have**.

For instance, as Adam was created as a fully-mature adult male, he would appear, presumably, to be at least 18 years old. However, according to ‘*Young Universe*’ theologians’ interpretation of Genesis 1-2, **his actual age would have been only a few hours!**

This view is called the ‘*Omphalos argument*’— a term coined by Philip Gosse in his 1857 book, “*Omphalos: An Attempt to Untie the Geological Knot*.” ‘*Omphalos*’ simply means “*belly button*” in Greek.

The main point was to argue that when Adam (an adult) was created, he obviously would have had a belly button and thereby ‘*appearing*’ as if he’d had at one time an umbilical cord attached to the womb of a woman.

The ‘*Appearance of Age/ Omphalos*’ view argues that the *astrophysical data* and *fossil record* is **not evidence** of an ‘*Old Universe/Earth*,’ but rather is an act of creation inevitably made so that the **world would ‘appear’ to be older than it is**.

‘Old Universe’ Arguments Against the ‘Appearance of Age’ Theory

- **God’s Truthfulness is Undermined:** ‘*Old Universe*’ apologists state the central **theological argument** against creating the *Universe* with ‘*apparent age*’ is that it would be a **deceptive act**. If God created the cosmos to look billions of years old (with apparent ancient stars, rock layers, etc.) but it was actually only thousands of years old, God would be misleading humanity— **it would mean God is a deceiver**.
- **Contradiction with God’s Nature:** The Bible presents God as truthful, and this theory creates a **God who is not truthful** in his creation and the evidence He provides in the natural world
- **Scientific Evidence is Dismissed:** The ‘*appearance of age*’ hypothesis dismisses the validity of all scientific dating methods, suggesting that scientific findings about the *Earth* and *Universe* are ‘**false evidence**’ planted by God.

- **Unfalsifiable:** Critics point out that the mature creation hypothesis is **unprovable** because any evidence can be explained away by saying God “*just created it that way.*”
- **History Is Not History:** If the ‘*Appearance of Age*’ theory is true then **what can be believed?** Can we trust anything in the natural world if God so effectively deceives us? Did you really sit in your chair before reading this or was that just an ‘*appearance of age*’ illusion?

WHAT IS THE “APPEARANCE OF AGE” ARGUMENT?

HOW DOES IT RELATE TO THE AGE OF THE UNIVERSE/EARTH?

IS IT A VALID ARGUMENT? WHY? WHY NOT?

b. **‘Tolman Test’ of ‘Relative Time Dilations’**

This test measures the *decay time* of distant *supernova light curves* and the **duration** of *gamma-ray bursts* to see if there is any ‘*relative time dilation.*’ It’s a concept derived from *Einstein’s Theory of Relativity* that states ‘*time is relative.*’

‘*Time dilation*’ refers to the seemingly odd fact that time passes at different rates for different observers, depending on their relative motion or positions in a *gravitational field.* For example, a car traveling at 60 mph relative to a stationary observer would be seen as moving at 120 mph by a driver going in the opposite direction at the same speed.

The ‘*Tolman Test*’ was first proposed by Richard Tolman in 1930 to demonstrate that radiation from an exploding supergiant star (*supernova*) takes a **certain period of time** to transition from **maximum to minimal brightness.** But it was not until the *Hubble Space Telescope* was launched in 2001 that his **theoretical model was proven to be accurate.**

‘*Old Universe*’ scientists state tests enabled by the *Hubble Telescope* demonstrated convincingly that **the Universe has continually expanded for billions of years** and that the measured ‘*redshifts*’ of the galaxies reliably determine the **rate of cosmic expansion.**

These observations show that the Universe has been continually expanding for at least the past 10 billion years.

'Young Universe' Rebuttal to 'Tolman Test' of 'Relative Time Dilations'

'*Young Universe*' arguments challenge the standard interpretation of the *Tolman Test* by **questioning the premise** of an old, **expanding universe**. Instead of viewing the observed dimming of distant galaxies as evidence for *cosmic expansion* and the associated *time dilation*, these arguments **re-interpret** the data within a **static** or **non-standard cosmological model**, called '*tired-light*' *cosmology* in which **photons simply lose energy over cosmic distances** (see discussion of '*Tired Light*' in previous section).

They claim that *distant starlight* and *time dilation* can be explained through **alternative physics** or by proposing that **our solar system is in a special, time-dilated region of the cosmos**

WHAT DOES THE TOLMAN TEST MEASURE?

WHY DO 'OLD UNIVERSE' PROPONENTS BELIEVE THE UNIVERSE IS EXPANDING?

HOW DO THEY EXPLAIN IT?

WHY DO 'YOUNG UNIVERSE' PROPONENTS BELIEVE THE UNIVERSE IS NOT EXPANDING?

HOW DO THEY EXPLAIN IT?

c. Images of Galaxies at Different Distances

Hubble Space Telescope images demonstrate that *galaxies further away from us* (ie. 10 billion '*light years*' away) are arranged **close together** causing collisions, whereas *galaxies closer to us* (ie. 5 billion '*light years*' away) are spread **farther apart** making collisions much less frequent. A '*light year*' is the time it takes light to travel across the universe.

Note: '*Old Universe*' scientists state that when looking at galaxies we are actually seeing the **very distant past** as measured in '*light years*.' The '*speed of light*' is **186,282 miles per second**. One '*light year*' is approximately **5.88 trillion miles** away (or exactly 9,460,730,472,580.8 km)

Some question the accuracy of past measurements of '*light years*' due to the limitations of using '*indirect*' measurements techniques. **But** recent '*direct*' measurements utilizing arrays of *radio-telescopes* linked together today reach **observably** out to at least 470,000,000 '*light years*' away. These '*direct*' measurements **confirm** astronomers' previous '*indirect*' measurements of the '*speed of light*.'

Astronomers state that the observation of decreasing collision rates of **nearer galaxies** compared to more **distant galaxies** could **only** occur in a *Universe* that has **continually expanded** from a creation event.

Utilizing the **three observations** above (*Spectral Line Shifts*, *Tolman Test*, and *Images of Galaxies at Different Distances*), astronomers can measure and mathematically calculate how long the *Universe* has been expanding. This '*Cosmic Expansion Time*' is stated to be an average of **13.79 +/- 0.06 billion years**.

"Young Universe' Rebuttal to Images of Galaxies at Different Distances Proving 'Old Universe'

Some '*Young Universe*' advocates propose that a '*gravitational time dilation*' may account for the **old appearance** of the *Universe*— causing billions of years to pass in deep space while **only days passed on Earth**.

Additionally, they use a '*decaying speed of light*' argument claiming the '*speed of light*' was much **faster in the past**— allowing distant starlight and evidence of collisions to reach us more quickly. They use this argument to claim the current scientific aging of the universe **invalid**.

They also propose light may have taken '*short cuts*' through space—through an abstract mathematically theorized '*Riemannian space*' ('*curved*' space) instead of the observable '*Euclidean space*' ('*straight-line*' space), thereby allowing the light from stars of our distant past to reach us in **only 15 years!**

'Old Universe' Argument Against 'Speed of Light' Change

'*Old Universe*' advocates argue the **changing** of the '*speed of light*' conflicts with multiple experiments, cosmological data, and the fundamental '*constants*' (laws) of physics. The '*speed of light*' in a vacuum (denoted by '*c*') is a fundamental **physical constant**. Its exact value is **299,792,458 meters per second**.

While light **can slow down** when passing through different transparent media like water or glass, **its speed in a vacuum remains a constant**, universal limit. The **un-changing speed of light** in a vacuum is a **core tenet** of Albert Einstein's '*theory of special relativity*.'

In regard to '*Riemannian space*,' '*Old Universe*' astronomers point out that **curvature only affects the path, not the speed**. The presence of mass and energy warps the geometry of spacetime, and light follows these '*curved*' paths— an effect called '*gravitational lensing*.'

When light from a distant star passes by the sun, it **appears to bend**. However, from the perspective of any local observer along **that light's path, its speed remains exactly '*c*'**.

WHAT IS A LIGHT YEAR?

IS THE SPEED OF LIGHT CONSTANT? HOW DO YOU KNOW?

IS THE SPEED OF LIGHT VARIABLE? HOW DO YOU KNOW?

WHY IS THE SPEED OF LIGHT IMPORTANT IN THE DISCUSSION OF
THE AGE OF THE UNIVERSE?

2. Cosmic Background Radiation Temperatures

Astronomers can calculate how the *Universe* has been **expanding** by measuring the degree to which *radiation* from the ‘*creation event*’ (called the ‘*cosmic microwave background radiation*’ or ‘*CMB*’) has **cooled down**. As the *Universe* expands, the ‘*CMB*’ photons are ‘*redshifted*,’ causing their **wavelength to increase and their energy and temperature to decrease**.

The **temperature** of the ‘*CMB*’ is **inversely proportional to the length of the Universe**, meaning as the *Universe* expands and gets older, it get **colder**. Utilizing specialized telescopes and instruments scientists study the expansion history of the *Universe* by measuring the ‘*CMB*’ temperature at different points in cosmic history and **again conclude the Universe was created 13.79 +/- 0.06 billion years ago**.

‘Young Universe’ Rebuttal to Cosmic Background Radiation Temperatures

‘*Young Universe*’ advocates state the *Universe* was **not** a hot, dense plasma as the *Big Bang theory* suggests, but was **created already mature**, complete with a **mature CMB** that is not from a “*big bang*” event. They claim the *Universe’s* creation involved **physical processes that are distinct from those we observe today**, such as God’s direct creation of the universe over a six-day period, as described in Genesis.

Some ‘*Young Universe*’ advocates propose that the *CMB* is a ‘*veil*’ of radiation that was present from the moment of creation, and its properties do not reflect a history of expansion and cooling.

They additionally point to the ‘*Horizon Problem*.’ The *CMB* is observed to have a nearly uniform temperature across the entire sky, down to one part in 100,000. ‘*Young Universe*’ advocates state that in the standard *Big Bang* model, regions of the *Universe* that are far apart **have not had enough time** to exchange energy and reach thermal equilibrium, **yet they appear to be at the same temperature**.

The standard ‘*Old Universe*’ cosmological model addresses this through the theory of *cosmic inflation*— a period of **hyper-rapid expansion** early in the *Universe’s* history. However, some ‘*Young-Universe*’ proponents argue that this problem challenges the very foundations of the standard model, not just its timescales.

WHAT IS COSMIC BACKGROUND RADIATION?

WHY DO 'OLD UNIVERSE' ADVOCATES SAY IT MEASURES THE AGE OF UNIVERSE?

WHY DO 'YOUNG UNIVERSE' ADVOCATES SAY IT DOES NOT MEASURE THE AGE OF THE UNIVERSE?

3. Stellar Burning / Cooling

'*Old Universe*' scientists claim '*Stellar burning*' rate determination can also indicate the age of the *Universe*. This calculation is made with great precision by knowing the ***mass*** of a star and measuring its ***color*** and ***brightness***.

Astronomers primarily determine the ***mass*** of a star by studying its gravitational interactions with other objects, especially in binary or multiple star systems. By observing the orbital periods and distances of stars in these systems, they apply a mathematical formula known as '*Kepler's Third Law of Planetary Motion*' (along with '*Newton's Law of Gravitation*') to calculate the total ***mass*** of stars.

'*Kepler's third law of planetary motion*' established a mathematical relationship between a planet's orbital period and its distance from the Sun. Historically, it was a significant breakthrough in understanding planetary motion and helped revolutionize our understanding of the solar system. It allows astronomers to predict the positions of planets and **facilitates space travel today**.

Once the ***mass*** of a star is determined, scientists then measure its ***color*** and ***brightness***. Just as a log in a fire eventually changes color as it cools, stars also change ***color*** and ***brightness*** over time. And just as the burn rate of a log can be determined if the type of wood (***mass***) is known and the ***color*** and ***brightness*** of the flame is measured, the ***burn rate*** of stars can also be ascertained from its ***mass, color, and brightness***.

When stars run out of ***nuclear energy***, they cool down and their ***luminosity lessens***. As with embers from a once burning wood, the color and luminosity of the most common burnt-out star tell astronomers how long the cooling has continued. By observing the ***brightness*** and ***color*** of millions of stars with known ***masses***, astronomers have ranked stars from youngest to oldest using their ***stellar burn rate*** as a guide to determine their age. The oldest stars indicate the universe has an age of **13.7 +/- 0.4 billion years**.

'*White Dwarfs*' are the remnants of 'low' to 'medium' dense stars after they've exhausted their ***nuclear fuel***. Essentially, they are the hot, dense cores of stars that have shed their outer layers.

Unlike ‘highly’ dense stars that can become ‘*black holes*,’ ‘*white dwarf*’ stars remain visible for a long time.

‘*Black holes*’ are created when a star with sufficiently high mass exhausts its nuclear fuel and its core can no longer support itself against gravity. This leads to a catastrophic implosion. This collapse can result in the formation of a ‘*black hole*,’ a region of spacetime where gravity is so strong that nothing, not even light, can escape.

The fact that ‘*white dwarf*’ stars exist at all attests to the great age of the universe because a star takes a minimum of **millions of years** to burn up all of its *nuclear fuel* to become a ‘*white dwarf*.’ Astronomers determine the age by measuring the *luminosity* and *color* of the coolest ‘*white dwarf*.’ The ‘*cool-down time*’ for the oldest ‘*white dwarf*’ exceeds **10 billion years**.

‘Young Universe’ Rebuttal to Stellar Burning / Cooling

Some ‘*Young Universe*’ researchers suggest that the **laws of physics**, such as the rate of *radioactive decay*, **may have been different during the Creation week**. For instance, processes of *accelerated nuclear decay* could potentially offer an alternative model for the *Universe’s* early thermal state and subsequent evolution.

Some arguments propose that the *CMB* is not a relic of a hot ‘*Big Bang*’ at all. Instead, it could be the **result of a different mechanism**, such as scattered starlight from distant galaxies that was **somehow converted** into *microwave radiation*. (However, the measured black-body spectrum of the *CMB* is extremely precise and difficult to explain through such an unverified process).

Other use the ‘*Appearance of Age*’ argument to explain the observation of *Stellar Burning / Cooling* rates.

WHAT IS STELLAR BURNING/COOLING?

WHY DO ‘OLD UNIVERSE’ ADVOCATES CLAIM IT IS ANOTHER MEASURE OF THE AGE OF THE UNIVERSE?

HOW DO ‘YOUNG UNIVERSE’ ADVOCATES EXPLAIN STELLAR BURNING/COOLING?

4. Cosmic Abundances of Radioactive Elements

'*Supernovae*' (*super-giant stars* in their final, powerful explosive stage of burning) are the only entities in the *Universe* outside of nuclear physics laboratories with the *matter* and *energy* densities to **produce 'radioisotopes' heavier than iron**. *Iron* is crucial in astrophysics because it marks the endpoint of *nuclear fusion* in massive stars leading to *supernovae* and the creation of heavy elements (such as *gold* and *uranium*).

'*Supernovae*' **occurred more frequently in the past**. This has been determined through the use of '*spectroscopy*' that allows the observation of element abundances in different cosmic environments.

These observations show **lower** abundances of heavier elements, including some *radioactive isotopes*, in the **early Universe**, which have **increased over time** due to *stellar nucleosynthesis* and **newer 'supernovae.'**

Since '*radioactive decay*' proceeds according to well understood **measurable processes** according to the element's '*half-life*' (the amount of time it takes for one-half of the radioactive isotope to decay.), scientists use the relative quantities ('*abundances*') of various radioactive isotopes in the *Universe* to estimate how much *time* has passed since they were produced.

Astronomers obtain their most accurate *radiometric dates* for the *Universe* by measuring the amounts of *uranium* and *thorium* in very '*metal-poor,*' low mass stars. Since metals are manufactured only in '*supernovae,*' the very low metal abundance implies that the star must have been formed at the same time as the first '*supernovae*' eruptions because **newer stars would contain more abundant metal**.

Using the measurements of ratios of *uranium* to *thorium*, *uranium* to *iridium*, *thorium* to *europium*, and *thorium* to *osmium* to establish an age for the star indicates a *Universe* **13.4 +/- 0.8 billion years old**.

This is consistent with determinations of age of the universe based on **(1) cosmic background radiation, (2) cosmic expansion measurements, (3) distribution of luminous red galaxies, (4) stellar burning, and (5) stellar cooling !**

"Seeds of the Galaxy"

Cosmic ripples (also known as *gravitational waves*) are disturbances in the fabric of '*spacetime*' predicted by Einstein's *Theory of Relativity* in 1916. They are similar to how a pebble dropped into a pond of water causes a ripple.

In 1989 NASA launched the \$200 million satellite 'COBE' ('*Cosmic Background Explorer*') that not only found *ripples* demonstrating the explosion and expansion of the *Universe*; but also showed that these *ripples* were so precisely tweaked to cause just enough matter to congregate to allow galaxy formation, but not enough matter to cause the *Universe* to collapse back on itself.

This was later confirmed by NASA's 'Wilkinson Microwave Anisotropy Probe' in 2003. *Cosmic ripples* are today being tracked by the *North American Nanohertz Observatory for Gravitational Waves* and other places throughout the world.

Scientists use sensitive detectors, like 'LIGO' (*Laser Interferometer Gravitational-Wave Observatory*), to measure these incredibly tiny distortions in space and time. The study of 'gravitational waves' allows scientists to probe the *Universe* providing insights into extreme events, the early *Universe*, and the nature of gravity itself.

These infrared pictures (actually pictures from the very distant past) point to the existence of 'matter' from the very early *Universe* that would eventually form galaxies and clusters of galaxies. George Smoot, former NASA Project Leader, called this 'matter' the "***Seeds of the Galaxy.***"

The late Stephen Hawking (English theoretical physicist, cosmologist, and author who was director of research at the Centre for Theoretical Cosmology at the University of Cambridge) and Roger Penrose published a theorem in 1970 that established that a *Universe* containing mass in which general relativity describes the motions of astronomical bodies **must** be traceable back to a '***beginning***' of space and time. This was later confirmed by multiple independent studies.

Thus, an ***atheist*** (Hawking) and an ***agnostic*** (Penrose) implied that **the *Universe* must have been brought into existence by a 'causal agent' who transcends time and space.** Hawking called Smoot's '*Seeds of the Galaxy*' ...

"The most important discovery of the century, if not of all time"

'Young Universe' Rebuttal to Cosmic Abundances of Radioactive Elements

'*Young Universe*' advocates proposes that the rate of ***radioactive decay*** was **much faster in the past**, causing the '***appearance of old ages***' in a young *Universe*. ('*Old Universe*' scientists counter that observations of supernovae have confirmed that decay rates of *radioactive elements* in distant stellar events are consistent with current rates. Drastically different decay rates in the past would also have produced a catastrophic amount of heat that would vaporize the Earth).

'*Young Universe*' scientists claim we do not know the **initial parent-to-daughter ratios** of ***radioactive elements*** when the *Universe* was formed— making age calculations **unreliable**.

WHAT ARE RADIOISOTOPES?

HOW DO 'OLD UNIVERSE' ADVOCATES USE RADIOISOTOPES TO DETERMINE THE AGE OF THE UNIVERSE/EARTH?

WHY DO 'YOUNG UNIVERSE' ADVOCATES REJECT RADIOISOTOPE DATING OF THE UNIVERSE/ EARTH?

Summary

Could the current ‘*Old Universe*’ scientific estimate for the age of the universe (about 13.8 billion years) be **wrong**? Sure, it could be wrong; but it could also be right. There are many good arguments both for and against the premise. This calculation is a precise estimate based on the standard model of cosmology, known as ‘*Lambda-CDM*’ —a mathematical model of the ‘*Big bang Theory*’. If this model or its underlying assumptions are incorrect, **the age could change**.

Despite strong scientific consensus, **certain observations challenge the standard model** and have prompted scientists to investigate whether the *Universe* might be **older or younger** than currently thought.

The field of astrophysics sheds much light on the creation of the *Universe*. The age-dating methods described in this chapter are just a few of many tests indicating an old age of the *Universe*. Using both theoretical mathematics and observational, measurable data collected from the *Universe* itself, *Christian ‘Old Earth’* scientists conclude the *Universe* had a ‘beginning’ **13.79 +/- 0.06 billion** years ago.

But, while the 13.8 billion-year figure is the best estimate based on the current **scientific** consensus, some anomalies point to potential **blind spots** in our understanding. Always remember, an accurate interpretation of the *Bible* trumps speculative science every time!

See Chapter 7 —

“The Science of the Young Universe View”

for more

‘Young Universe’ Scientific Arguments

and

‘Old Universe’ Scientific Rebuttals

CHAPTER FIVE

“THE SCIENCE OF THE OLD EARTH VIEW”

To determine *Earth's age*, scientists primarily use ‘*Radiometric Dating*,’ which measures the **decay of radioactive elements in rocks**, alongside evidence from **geology, astronomy**, and the *fossil record*. This evidence points to *Earth* being approximately **4.54 billion years old**.

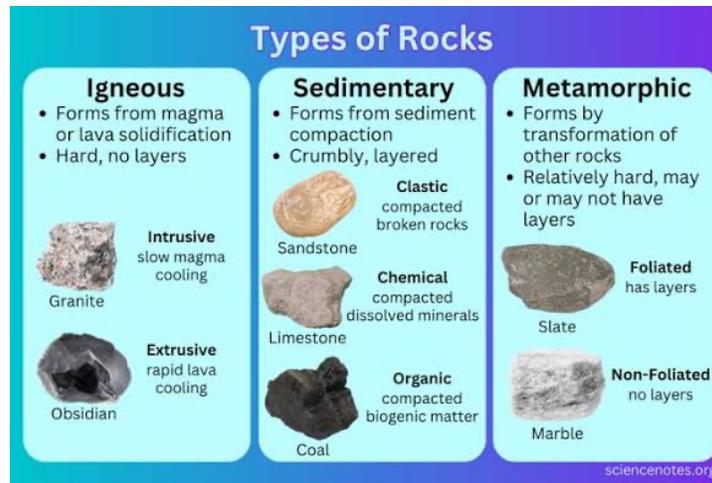
Radiometric dating is thought by secular and ‘*Old Earth*’ scientists to be the most precise method for dating ancient rocks and minerals. **The technique relies on the predictable, constant rate of radioactive decay**— using unstable ‘*parent*’ isotopes that transform into stable ‘*daughter*’ isotopes over a known period called a ‘*half-life*’ (the time taken for the radioactivity of a specified isotope to fall to half its original value).

I. The Radiometric Evidence:

How It Works

- **The process starts with ‘molten rock.’** When rock is in a *molten state* (magma or lava), *radioactive gases* can escape. Once the rock cools and solidifies, the decay products are **trapped inside**.
- **The clock starts ticking.** At the moment the rock hardens, its ‘*radioactive clock*’ begins. Scientists measure the **ratio of parent isotopes to daughter isotopes** in a sample. Based on the known ‘*decay rate*,’ they can calculate how much **time** has passed since the rock formed. The original *daughter age* in *radiometric testing* assumes the initial daughter amount was zero and uses a system where both parent and daughter *isotopes* are present in **multiple samples** from the same source.
- **Example: ‘Uranium-Lead Dating’**— The *uranium-238* isotope decays into lead-206 with a half-life of 4.47 billion years, while *uranium-235* decays into *lead-207* with a **half-life of 704 million years**. Measuring the ratios of these *isotopes* provides a very accurate date for the ancient rock.
- **Rock Cycles**— **One problem** with *radiometric dating* rocks and minerals on *Earth* is the presence of the ‘*rock cycle*.’ During the ‘*rock cycle*,’ rocks are constantly **changing** between forms, going back and forth from *igneous* to *metamorphic* to *sedimentary*. Old rocks may even be destroyed as they slide back into *Earth's mantle*, to be replaced by newer rocks formed by *solidified lava*.

This makes finding an exact age for *Earth* **difficult**, because the original rocks that formed on the planet at the earliest stages of its creation are no longer here. The **oldest rocks** that have been **found** are about **3.8-billion years old**.



— **Extraterrestrial rocks**— To get around the difficulty presented by the ‘*rock cycle*,’ scientists have looked elsewhere in the *solar system* for even **older rock samples**— *extraterrestrial rocks*. They have examined rocks from the **moon** and from **meteorites** (neither of which have been altered by the ‘*rock cycle*’) and subjected them to the same *radiometric testing*:

Meteorites: *Radiometric dating* of *meteorites*, remnants from the formation of the *solar system*, has yielded an age of about **4.5 billion years**. In the 1950s, geochemist Clair Patterson used *lead-lead dating* on several meteorites to establish the current accepted age of **4.54 billion years** for **both** Earth and the solar system.

Lunar samples: Rocks collected from the moon by Apollo astronauts have also been dated *radiometrically* to roughly **4.5 billion years**, confirming the meteorite data.

WHAT IS 'RADIOMETRIC TESTING'?

WHAT ARE 'ROCK CYCLES'?

HOW DO SCIENTISTS CROSS- CHECK RADIOLOGICAL RESULTS? WHY?

II. The Geological Evidence

Scientists also use multiple **geological** and **astronomical** clues to **corroborate *radiometric dating*** and illustrate the immense timescale of *Earth's* history.

- **Annual rock layers:** Geologists study **layered sedimentary rock formations**, called ***varves***, that form **annually**. Studying ***varves*** cross-checks ***radiometric*** testing by using the annual layers of ***sediment (varves)*** to provide a continuous, high-resolution timeline that can be calibrated against ***radiometric*** dates from samples within the ***varve*** sequence.

This comparison verifies the accuracy of both methods, as ***radiometric*** dating can provide absolute ages for specific layers, while ***varves*** provide a year-by-year count for dating the layers in between.

The agreement between the two methods—like matching a ***radioactive decay clock*** to a **physical calendar**—provides strong evidence for the reliability of each technique, especially in cases where the ***varve*** count is extensive and can be linked to other dating methods like ***carbon-14 dating***.

- **Ice cores:** Like ***tree rings***, ***ice cores*** drilled from glaciers contain distinct annual layers. ***Ice cores*** and ***radiometric testing*** are **correlated** by using ***radiometric*** techniques to directly date the ice, creating a timeline that is **cross-referenced** with other methods like **annual layer counting** and **volcanic marker layers**. Scientists have extracted ice with over 160,000 visible annual layers, with ***isotopic*** studies revealing ice that is 740,000 years old or more.
- **Plate tectonics and erosion:** By measuring the slow rate of geological processes today, like the **erosion of mountain ranges** or the **spreading of tectonic plates**, scientists **infer** that these massive changes required hundreds of millions of years.

WHAT ARE ANNUAL ROCK LAYERS? ? HOW ARE THEY USED TO DETERMINE GEOLOGICAL AGE?

WHAT ARE ICE CORES? HOW ARE THEY USED TO DETERMINE GEOLOGICAL AGE?

HOW IS RADIOMETRIC, VARVES, AND ICE CORE DATA CORRELATED TO DETERMINE GEOLOGICAL AGE?

III. The Fossil Evidence

The *geologic time scale* is a timeline of *Earth's* history defined by major events and the appearance or disappearance of certain life forms, as shown in the *fossil record*. The **presence of these fossils in specific rock layers confirms the vastness of geologic time.**

The *fossil record* documents the **appearance and disappearance** of countless *species* over vast stretches of time, with more complex life forms emerging sequentially over millions of years. This includes the first evidence of **land plants approximately 460 million years ago** and the appearance of the earliest **mammals 225 million years ago**.

The earliest evidence of life on *Earth* comes from **3.48-billion-year-old fossilized stromatolites** (lime-secreting cyanobacteria trapped in sediment in Western Australia).

WHAT ARE FOSSILS?

WHAT IS FOSSIL EVIDENCE?

HOW IS FOSSIL EVIDENCE USED TO DETERMINE GEOLOGIC AGE?

IV. Two Methods of Dating Fossils

1. Relative Dating Methods:

These methods establish the sequence of events but **don't give a precise age** for a fossil:

- a. **Stratigraphy (Law of Superposition):** *Sedimentary rock* is deposited in **layers, or strata**, with the oldest layers on the bottom and the youngest on top. *Paleontologists* can determine the relative age of *fossils* by noting their **position within the rock layers**. (Unfortunately, this simple principle can be complicated if geological forces, such as earthquakes, have folded or tilted the rock layers).
- b. **Index fossils (Biostratigraphy):** *Index fossils* are from organisms that were widespread and abundant during a specific, limited time period. If an unknown *fossil* is found in the same rock layer as an *index fossil*, scientists can assume **the two species existed at the same time** and deduce the relative age of the *unknown fossil*.
- c. **Chemical analysis:** For *fossils* found at the same site, chemical analysis can determine relative age. For example, bones absorb chemicals like *uranium* and *fluorine* from the surrounding ground at a relatively constant rate. Comparing the concentration of these elements can establish the relative age of different bones at the site.

d. **Paleomagnetic stratigraphy:** The Earth's *magnetic field* has **reversed polarity** many times throughout its history. Scientists can determine the orientation of the *magnetic field* at the time a rock was formed by examining the **magnetic alignment** of *iron-oxide* minerals within the rock. By matching a site's reversal pattern with a worldwide record of *magnetic reversals*, scientists can deduce the age of *fossils*.

WHAT IS THE LAW OF SUPERPOSITION? HOW IS IT USED TO DETERMINE GEOLOGICAL AGE?

WHAT ARE INDEX FOSSILS? HOW ARE THEY USED TO DETERMINE GEOLOGICAL AGE?

WHAT IS PALEOMAGNETIC STRATIGRAPHY? HOW IS IT USED TO DETERMINE GEOLOGICAL AGE?

2. Absolute Dating Methods :

These methods provide a numerical age, often by dating other materials associated with the *fossil*:

- a. **Radiometric dating:** This is the most common form of absolute dating and relies on the predictable decay of *radioactive isotopes*.
- b. **Radiocarbon dating:** Used for organic materials **less than about 50,000 years old**, this method measures the decay of *carbon-14*. While alive, organisms absorb *carbon-14*. After death, this absorption stops, and the *carbon-14* **decays at a known rate**. Scientists can measure the remaining *carbon-14* to estimate the time since the organism died.
- c. **Potassium-argon (K-Ar) dating:** This method is effective for dating older **volcanic rocks** and **ash layers** ranging from **100,000 years to billions of years old**. When molten rock cools, any *argon* gas trapped within is released, but the *radioactive potassium-40* remains. By measuring the ratio of *potassium-40* to its decay product, *argon-40*, in the rock, scientists can determine when the rock solidified.
- d. **Uranium-lead (U-Pb) dating:** By measuring the decay of *uranium* into *lead*, this method can date minerals in rocks **older than 10,000 years**, with some applications reaching **billions** of years.
- e. **Luminescence dating:** These methods determine **the last time minerals were exposed to heat or light**. Over time, background radiation traps electrons in mineral crystals. Exposing the minerals to light (*Optically Stimulated Luminescence*) or heat (*Thermoluminescence*) releases this energy, allowing scientists to calculate how long the sample has been buried.

- f. **Electron Spin Resonance (ESR):** This technique measures the buildup of trapped *electrons* in a material caused by *radiation*. It can be used to date materials like **tooth enamel** and has a range of up to **several million years**.
- g. **Amino Acid Racemization (AAR):** In a deceased organism, *amino acids* slowly "flip" from one form to another. Measuring the **ratio** of these forms in **organic samples**, such as tooth enamel, can provide a date, though the method is limited to specific time ranges.

HOW IS RADIOCARBON DATING USED TO DETERMINE GEOLOGICAL AGE?

HOW IS POTASSIUM-ARGON DATING USED TO DETERMINE GEOLOGICAL AGE?

HOW IS LUMINESCENCE DATING USED TO DETERMINE GEOLOGICAL AGE?

HOW IS ELECTRON SPIN RESONANCE USED TO DETERMINE GEOLOGICAL AGE?

A Summary Chart
Of Some of the Most Commonly Used Radiometric Dating Methods,
Including the
Parent isotope, Daughter Product, and Half-Life:

| Parent Isotope | Daughter Product | Half-Life | Useful Range |
|----------------|------------------|--------------------|---|
| Carbon-14 | Nitrogen-14 | 5,730 years | 100 years to ~60,000 years |
| Potassium-40 | Argon-40 | 1.25 billion years | 10 thousand years to 4.57 billion years |
| Uranium-235 | Lead-207 | 704 million years | 1 million years to 4.57 billion years |
| Uranium-238 | Lead-206 | 4.5 billion years | 1 million years to 4.57 billion years |
| Thorium-232 | Lead-208 | 14 billion years | >10 million years |
| Rubidium-87 | Strontium-87 | 48.8 billion years | 10 million years to 4.57 billion years |
| Samarium-147 | Neodymium-143 | 106 billion years | Common in very old rocks |

Can Radiometric Testing Be Wrong?

Scientists admit that *radiometric testing* can sometimes be wrong.

Radiometric dating can produce incorrect results if the proper procedures are not followed or if the underlying assumptions are violated. (However, these methods are not inherently flawed, and professional geologists and scientists account for potential errors through extensive **cross-checking** and **rigorous methodology**).

The main sources of **potential error** stem from the *three major assumptions* of *radiometric dating*:

- **Closed System Assumption:** It is assumed that no *parent* or *daughter isotopes* have been added to or removed from the sample since it formed. If the system is not closed, **contamination** can significantly skew the results.
- **Initial Conditions Assumption:** It is assumed that the initial amount of *daughter isotope* is known. In some cases, *daughter isotopes* may have been present from the beginning, leading to an **overestimation** of the sample's age
- **Constant Decay Rate Assumption:** It is assumed that the **rate** of *radioactive decay* is **constant** over time. (While modern scientific understanding considers decay rates to be constant, some 'Young Earth' sources argue this is an unprovable assumption).

Examples of How Radiometric Dating Can Be Wrong

- **Misapplication of a dating technique:** Using the **wrong method** for a sample will yield a meaningless result. For example, *carbon-14 dating* can only be used on **organic materials younger than about 50,000 to 60,000 years** (so it cannot be used to date ancient dinosaur *fossils*)
- **Contamination of the Sample:**
 1. In young samples, **contamination** with older carbon can result in a sample **appearing older than it is**
 2. In older rocks, **contamination** from inflowing groundwater or metamorphic processes can alter *isotopes ratios*, leading to an **inaccurate age**.
- **Geologic Disturbances:** Events such as **heating** can "*reset*" the *radiometric clock* by causing daughter isotopes to **escape** from the rock. **Dating a mineral that has been re-heated would reveal the age of the re-heating event, not the original formation of the rock**

- **Inherited isotopes:** Rocks can incorporate *isotopes* from their source material. An *igneous rock* formed from magma could **inherit older isotopes**, causing it to appear older than it actually is.

IS RADIOMETRIC TESTING RELIABLE? WHY?

CAN RADIOMETRIC TESTING BE WRONG? HOW?

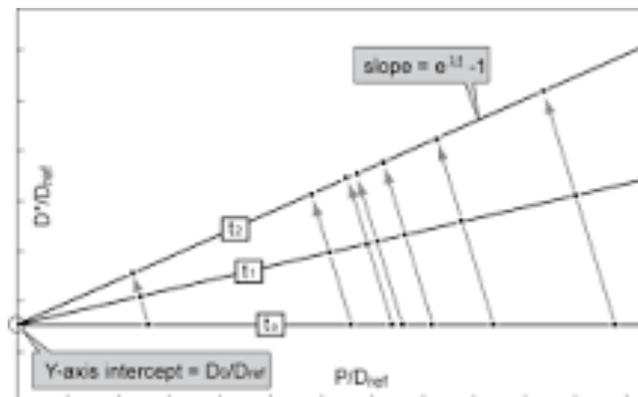
DO YOU TRUST RADIOMETRIC TESTING? WHY? WHY NOT?

V. How Scientists Ensure Radiometric Testing Accuracy

To counter these potential issues and verify results, scientists use a number of techniques:

- **Multiple dating methods:** Scientists often use **different radiometric clocks** on the **same sample**. If two or more independent methods yield the same age, it provides strong evidence that the dates are reliable
- **Isochron Dating:** For methods like *rubidium-strontium dating*, scientists can create an **'isochron plot'** by analyzing **multiple samples**. Relative concentration of present parent and non-radiogenic *isotope* are measured by *mass spectrometry* and plotted against each other in a **three-isotope plot**.

If all data points lie on a straight line, this line is called an **'isochron.'** This technique helps identify the initial amount of the *daughter isotope* and **can detect if the closed-system assumption has been violated**



- **Cross-checking With Other Dating Techniques:** *Radiometric dates* are frequently compared against and calibrated with independent methods. For example, *carbon-14 dating* is cross-checked against *dendrochronology* (tree-ring dating), which provides a reliable, independent confirmation its accuracy over thousands of years
- **Analyzing Multiple Samples:** By dating several different mineral samples from the same rock unit, scientists can look for inconsistencies.

HOW DO SCIENTISTS CROSS CHECK RADIOMETRIC TESTING?

HOW DO YOU CROSS CHECK YOUR WORK?

WHY DO YOU CROSS CHECK YOUR WORK?

Can The Geological Evidence Be Wrong?

Yes, *geological evidence* can be and has been **misinterpreted** or **proven wrong** as new information emerges. While the physical evidence—the "*rocks*"—does not change, the **scientific interpretation** of that evidence is subject to revision and refinement as geological understanding and technology evolve.

Reasons for Misinterpreting Geological Evidence:

- **Reliance on existing paradigms:** For a long time, geologists mapped low-angle normal faults as *thrust faults* because the prevailing theory suggested that low-angle *extensional faults* were mechanically impossible. Compelling evidence was eventually able to **overturn this idea**.
- **Misapplication of Dating Methods:** As mentioned before, absolute dating techniques like *dating* can be prone to error if used incorrectly. Factors such as **sample contamination**, **chemical alteration**, or **inaccurate assumptions** about the sample's history can lead to incorrect age estimates. Geologists use multiple dating methods to verify results and minimize these errors.
- **Human Error and Unconscious Bias:** Scientists, can **misinterpret data** based on their **preconceptions**. The geologist T.C. Chamberlin warned against becoming too attached to a "*ruling theory*" and advocated for keeping alternative hypotheses in mind.

- ***An Incomplete Geological Record:*** The geological record is full of **gaps**, known as ***unconformities***, where rock layers have been eroded away. While geologists can fill in these gaps by correlating layers and *fossils* from different locations, the record is inherently incomplete, especially for organisms that do not *fossilize* easily.
- ***Conflicting Data From Different Fields:*** A field observation can sometimes conflict with data from laboratory analysis or remote sensing. In such cases, geologists must question their interpretations and develop new hypotheses that account for all the relevant evidence.

Examples of Geological Evidence Being Misinterpreted

- ***Redefining the Earliest Geology of Earth:*** New research has challenged the long-held theory that ***plate tectonics*** is responsible for the chemical composition of early continents. A new theory suggests that the earliest crust, or '***protocrust***,' had a unique chemical signature, forcing geologists to reconsider their understanding of *Earth's* earliest processes.
- ***Revising the Formation of the Grand Canyon:*** Newer theories on the formation of the ***Grand Canyon*** suggest it **formed much more rapidly via a catastrophic process**, like the breaching of ancient lakes, rather than a slow process over millions of years. This has led geologists to reconsider long-held interpretations of the canyon's formation.
- ***The origin of Salt Domes:*** Decades of geological thought **assumed** that ***salt domes*** formed as buoyant salt pushed up through overlying rock. However, modern ***seismic and borehole data*** revealed that the ***domal shape*** was often the result of adjacent sediments sinking and displacing the salt sideways.
- ***Misinterpreting Ancient Climate Data:*** Past reconstructions of *Earth's* ancient climates have sometimes missed important updates due to researchers relying on outdated information. The use of more modern, integrated methods has helped produce more accurate historical climate data.

Can the Fossil Record Be Wrong?

Yes, the *fossil record* can be wrong.

- *Fossils* are rarely dated directly using *radiometric* methods because they are often **fragile**, and the methods can be destructive.
- *Fossils* are usually found in **sedimentary rocks, which are often difficult to date directly** (Instead, geologists date associated materials, like volcanic ash, to ‘*bracket*’ the age of the *fossil*)

IS SCIENCE USUALLY RIGHT? HOW DO YOU KNOW?

DO YOU TRUST SCIENTIFIC EVIDENCE? WHY? WHY NOT?

HOW DO YOU DETERMINE WHICH SCIENTIFIC EVIDENCE TO TRUST?

HOW DO YOU DETERMINE WHICH SCIENTIFIC EVIDENCE ABOUT THE AGE OF THE EARTH TO TRUST?

VI. SUMMARY

Using the *cosmological data* described in the previous chapter, and the *radiometric age-dating methods* and *fossil dating* methods described in this chapter, ‘*Old Earth*’ scientists conclude the earth is approximately **4.54 billion years old**.

But, while this figure is the best estimate based on the current **scientific** consensus, *radiometric* and *geological* interpretations are **subject to error**. And again, an accurate interpretation of the *Bible* trumps speculative science every time!

**MUCH MORE ON THE GEOLOGICAL AND FOSSIL RECORDS
IN CHAPTER EIGHT**

CHAPTER SIX

“COMBINING THE THEOLOGY AND SCIENCE OF THE OLD UNIVERSE / OLD EARTH VIEW”

(The ‘Day Age’ / ‘Progressive Creationism’ View)

I. INTRODUCTION

“GENESIS”

Chapter One

1 “In the beginning, God created the heavens and the earth. 2 The earth was without form and void, and darkness was over the face of the deep. And the Spirit of God was hovering over the face of the waters.

3 And God said, “Let there be light,” and there was light. 4 And God saw that the light was good. And God separated the light from the darkness. 5 God called the light Day, and the darkness he called Night. And there was evening and there was morning, the first day.

6 And God said, “Let there be an expanse in the midst of the waters, and let it separate the waters from the waters.” 7 And God made the expanse and separated the waters that were under the expanse from the waters that were above the expanse. And it was so. 8 And God called the expanse Heaven. And there was evening and there was morning, the second day.

9 And God said, “Let the waters under the heavens be gathered together into one place, and let the dry land appear.” And it was so. 10 God called the dry land Earth, and the waters that were gathered together he called Seas. And God saw that it was good.

11 And God said, “Let the earth sprout vegetation, plants yielding seed, and fruit trees bearing fruit in which is their seed, each according to its kind, on the earth.” And it was so. 12 The earth brought forth vegetation, plants yielding seed according to their own kinds, and trees bearing fruit in which is their seed, each according to its kind. And God saw that it was good. 13 And there was evening and there was morning, the third day.

14 And God said, "Let there be lights in the expanse of the heavens to separate the day from the night. And let them be for signs and for seasons, and for days and years, 15 and let them be lights in the expanse of the heavens to give light upon the earth." And it was so. 16 And God made the two great lights—the greater light to rule the day and the lesser light to rule the night—and the stars. 17 And God set them in the expanse of the heavens to give light on the earth, 18 to rule over the day and over the night, and to separate the light from the darkness. And God saw that it was good. 19 And there was evening and there was morning, the fourth day.

20 And God said, "Let the waters swarm with swarms of living creatures, and let birds fly above the earth across the expanse of the heavens." 21 So God created the great sea creatures and every living creature that moves, with which the waters swarm, according to their kinds, and every winged bird according to its kind. And God saw that it was good. 22 And God blessed them, saying, "Be fruitful and multiply and fill the waters in the seas, and let birds multiply on the earth." 23 And there was evening and there was morning, the fifth day.

24 And God said, "Let the earth bring forth living creatures according to their kinds—livestock and creeping things and beasts of the earth according to their kinds." And it was so. 25 And God made the beasts of the earth according to their kinds and the livestock according to their kinds, and everything that creeps on the ground according to its kind. And God saw that it was good.

26 Then God said, "Let us make man in our image, after our likeness. And let them have dominion over the fish of the sea and over the birds of the heavens and over the livestock and over all the earth and over every creeping thing that creeps on the earth."

27 So God created man in his own image, in the image of God he created him, male and female he created them.

28 And God blessed them. And God said to them, "Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth." 29 And God said, "Behold, I have given you every plant yielding seed that is on the face of all the earth, and every tree with seed in its fruit. You shall have them for food. 30 And to every beast of the earth and to every bird of the heavens and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food." And it was so. 31 And God saw everything that he had made, and behold, it was very good. And there was evening and there was morning, the sixth day."

A quick reading of this first chapter of the *Bible* seems to give a straightforward description of the creation of the *Universe* and *Earth* in a '**week's**' time. It states God created everything in six '**days**' and apparently took a nap on the seventh. Case closed. Let's move on to something more controversial.

But hold your horses. Does it really say that or are we just interpreting it that way through our near-sighted eyes? Do we need to pull out our glasses and give it more of our undivided

attention? Apparently many very knowledgeable *Bible* believing scholars think we do. It's impossible to establish an exact number, but it's safe to say that thousands of books, papers, and other publications have been written on Genesis chapter 1 over the centuries.

Genesis 1 has been the subject of much controversy, particularly regarding the interpretation of the '*days*' of creation and the relationship between the *Biblical* account and scientific theories about the age of the *Universe* and *Earth*. Do '*days*' really mean **twenty-four hour periods of time** as we know them today, or do '*days*' refer to **extended periods of time**— maybe even billions of years?

Can these *Biblical* passages be reconciled with astrophysics that seems to indicate the *Universe* is 13.8 billion years old? How about the roughly 1,400 other Bible verses that describe *natural* phenomenon and *natural* history? Should we not try to reconcile science and the *Bible*?

Do **both** the words of the *Bible* **and** the record of '*nature*' provide trustworthy and reliable revelation from God, giving testimony to God's attributes and handiwork? Can God reveal His *Biblical* truth in layers, with different levels of meaning, while never contradicting His truth as history unfolds and advances?

Unfortunately, **science** is not equivalent to the record of '*nature*.' It's the human attempt to **interpret** '*nature*'— past and present. But neither is '**theology**' the same as the words of the *Bible*. It's the human effort to **interpret** the *Bible's* words. Both **science** and **theology** can be faulty. However, '*nature*' and the *Bible* come to us from the **same source**—God. They both point us to Him! Shouldn't we do our very best to pursue a fully integrated understanding of **God's two 'books'**— *Scripture* and '*nature*'? Let's try.

IS THE BIBLE TRUSTWORTHY?

IS NATURE TRUSTWORTHY?

HOW DO YOU USE THE BIBLE TO POINT YOU TO GOD?

HOW DO YOU USE NATURE TO POINT YOU TO GOD?

II. 'OLD UNIVERSE/EARTH'— PREPARING FOR 'DAY' ONE

Genesis 1:1- "In the beginning God created the heavens and the earth"

As mentioned in the previous chapter, no honest scientist, *secular* or *Christian*, seriously claims the *Universe* didn't have a '*beginning*.' Likewise, all *Christian* theologians also agree the *Universe* '*began*'—it has **not** always existed. God exists and acted outside and beyond space-time boundaries to '*create*' the *Universe* and every thing in it.

The Hebrew word for '*created*' is '*bara*.' It means creating something '*new*' out of '*nothing*.' God operated **outside of energy, space, and time** to create *energy, space, and time*. The entire *Universe* came into existence a **finite time ago** by His creative '*word*.'

"By faith we understand that the Universe was created by the word of God, so that what is seen was not made out of things that are visible." (Hebrews 11:3)

As previously mentioned, unlike modern Hebrew, ancient Hebrew consisted of under 10,000 words. Thus, many words had several meanings depending on context. The word '*Shamayim*' ('*heavens*') had **three meanings**:

- (1) the atmosphere where rain comes from (also called '*troposphere*'),
- (2) the abode of the stars and galaxies
- (3) the spirit realm from which God rules.

The word '*Eres*' ('*earth*') had six different meanings:

- (1) soil
- (2) territory or land possessed by an individual, family, tribe, or nation
- (3) a city state
- (4) the territories of all peoples and nations
- (5) the underworld
- (6) the land and water and the foundations that support them (what we call '*earth*' today)

HOW MANY WAYS DO YOU USE THE WORD 'HEAVENS'?

HOW MANY WAYS DO YOU USE THE WORD 'EARTH'?

HOW MANY WAYS DOES THE BIBLE USE THE WORDS 'HEAVEN AND EARTH'?

Ancient Hebrew had no single word for the now familiar concept of a '*Universe*.' Hebrew linguists state that when the two words '*heavens*' and '*earth*' were combined ('*hashamayam we ha'eres*') it became an entirely new '*compound noun*'— a new word that referred to the **totality**

of all *matter, energy, space, and time* (just like ‘fire’ and ‘fly’ combine to form a new word ‘firefly’ that means something totally different than its root words).

In other words, according to ‘Old Earth’ scholars, the **first verse of Genesis does not refer to the ‘heavens’ and the planet ‘Earth’ individually** (or even that they were being created at the very same moment), **but rather collectively as the ‘Universe’ as a whole.** In light of this linguistic understanding, let’s now **re-read** the very first verse in our Bible:

*“In the beginning, God created the **heavens and the earth**”*

or

*“In the beginning, God created “**hashamayam we ha’eres**”*

or

*“In the beginning, God created **matter, energy, space, and time**”*

or

*“In the beginning, God created the **Universe**”*

As we’ll see later, this translation shift is important to the understanding of the ‘Old Universe’ creation narrative order.

WHAT IS THE ‘UNIVERSE’?

WHAT ARE ‘COMPOUND WORDS’?

WHAT DOES THE COMPOUND WORD “HASHAMAYAM WE HA’ERES” REALLY MEAN?

HOW IS THIS IMPORTANT IN UNDERSTANDING THE GENESIS CREATION NARRATIVE?

But before we tackle the rest of Moses’ story of creation, **two important question** need to be answered:

- (1) The ‘**Law of Causality**,’ (a fundamental principle of *science*) states everything that has a ‘*beginning*’ has a ‘*cause*.’ So **Why Does God Not Need A Cause?**

Answer: ‘**Law of Causality**’ says only that everything that “*comes to be*” needs a ‘*cause*.’ But God did not “*come to be*” because God is an *eternal being*— **He did not have a ‘beginning.’** Therefore, God did not have a ‘*cause*.’

GIVE EXAMPLES OF CAUSE AND EFFECT IN SCRIPTURE

CAN THERE EVER BE AN EFFECT WITHOUT A CAUSE?

GIVE EXAMPLES OF GOOD AND BAD CAUSE AND EFFECT IN YOUR LIFE

(2) If God can be *eternal* (without ‘*cause*’), then Why Can't The Universe Be Eternal?

Answer:

There are really only two choices:

a) Either the *Universe* is eternal **or**

b) Something *outside the Universe* (something that ‘*caused*’ the *Universe*) is eternal

Both, science and the Bible tell us that the *Universe* had a ‘*beginning*’— something (or someone) caused it. **It has not been *eternal*.** Therefore, the only option is that something ‘*outside of the Universe*’ is *eternal*— a ‘*first cause*.’

This ‘**first cause**’ must be:

(1) **Self-existent, timeless, non-spatial, and immaterial**— This ‘*first cause*’ created all *time*, *space*, and **matter** where nothing existed before

(2) **Powerful**— This ‘*first cause*’ created the *Universe* **out of nothing**.

(3) **Intelligent**— The *Universe* has been designed with much **precision**.

(4) **Personal**— This ‘*first cause*’ made a person decision to **choose** to convert nothingness into this *time*, *space*, and *matter*

WHAT IS TIME, SPACE, AND MATTER?

WHAT IS OUTSIDE TIME, SPACE, AND MATTER?

WHO IS OUTSIDE TIME, SPACE, AND MATTER?

There are Three Common Proofs Given for the Existence of God:

(1) The '**Cosmological Argument**' (the one used above) states:

- a) Everything that had a beginning had a cause
- b) The *Universe* had a beginning
- c) Therefore, the *Universe* had a cause (creator)

CAN THE UNIVERSE BE ETERNAL?

WHY NOT?

CAN GOD BE ETERNAL?

WHY?

(2) The '**Teleological Argument**' (Design of the *Universe*— '*Telos*'= '*Design*') states:

- a) Every design has a '*designer*'— every watch requires a '*watchmaker*'
- b) The *Universe* has a highly *complex design*— the *Universe* shows even a greater evidence of design than a watch
- c) Therefore, **the *Universe* had a '*designer*'**— the existence of a watch implies a '*watchmaker*'

WHAT IS A DESIGNER?

WHY DO SOME NOT SEE THE NEED FOR A DESIGNER OF THE UNIVERSE?

WHY DO SOME PEOPLE NOT SEE GOD?

“Anthropic Principle”

The *Universe* has been extremely **fine tuned** from the beginning to support life on earth). Just like astronauts in a space ship, we live in such a narrowly defined environment that even slight variations would be fatal to human.

Astrophysicist Hugh Ross lists over **122 Anthropic Constants** (in Physics) **necessary for life** on earth:

1. ***Oxygen level***— 21% of atmosphere is oxygen. If 25%, fire would erupt; if 15%, humans would suffocate
2. ***Gravitational Force***- If gravitational force altered 1 part in 10^{40} (10 followed by 40 zeros), the sun would not exist and the moon would crash into the earth
3. ***Centrifugal Force of Planetary Movement***- If this force did not precisely match gravitational forces, nothing could be held around the sun
4. ***Universe Expansion Rate***- If universe was expanding at a rate one millionth more slowly than it is, the temperature on earth would be 10,000 degrees
5. ***Average Distance Between Stars***- If only a slight variation in the distance between our 100 billion stars (30 trillions miles between each) were to occur, there would be extreme temperature variations on earth
6. ***Speed of Light***- Even a slight variation in the speed of light (186,282 miles a second) would alter other constants and preclude the possibility of life on earth
7. ***Jupiter***- If Jupiter were not in its current orbit, earth would be bombarded with space material (Jupiter’s gravitational force acts as a cosmic vacuum cleaner)
8. ***Earth Rotation***- If earth rotation took longer than 24 hours, temperature differences would be too great between night and day; if shorter than 24 hours, wind velocities would be too great
9. ***Earth’s Crust***- If Earth’s crust were thicker, too much oxygen would be transferred to the crust to support life; if thinner, volcanic and tectonic activity would make life impossible

10. Lightning- If atmospheric discharge (lightning) rate were greater, there would be too much fire destruction; if it were less, than there would be too little nitrogen fixing in the soil

(Plus 112 MORE “**ANTHROPIC PRINCIPLES**” in *Physics alone!*)

The **chances** of these *Anthropic Principles* being met in any of the **10²² Planets** in our *Universe* are

10¹³⁸

Since there are only **10⁷⁰ atoms in the entire universe**, the **chance** that any planet would have **life-sustaining** conditions **without** an *Intelligent Designer* is virtually

ZERO !

Isaiah 40:26-“ *Lift up your eyes on high and see, who created these? He who brings out their host by number, calling them all by name, by the greatness of His might, and because He is strong in power not one is missing*”

Isaiah 45:7-“ *I form light and create darkness, I make well-being and create calamity, I am the Lord, who does all these things*”

Job 12:10-“ *In His hand is the life of every living thing and the breath of all mankind*”

HOW DOES THE BALANCE OF THE UNIVERSE POINT TO GOD?

WHERE DOES MAN FIT INTO THIS BALANCE OF THE UNIVERSE?

WHOSE HANDS HOLD YOU?

(3) The ‘**Moral Argument**’ (‘*Natural Law*’, ‘*Nature’s Law*’, *Conscience*) states:

- a) Every Law has a ‘**Law- Giver**’
- b) There is a ‘**Moral Law**’
- c) Therefore, there is a ‘**Moral Law- Giver**’

This *Moral Argument* has modern ancestry, originating from the works of Immanuel Kant (1724-1804) in his “*Critique of Practical Reason*” But it is better argued by C. S. Lewis in his “*Mere Christianity*” (published in 1952) where he states:

1. There must be a universal ‘**Moral Law**’ or else:
 - a. Moral disagreements would make no sense (as we assume they do)
 - b. All moral criticisms would be meaningless (e.g. “Nazis were wrong”)
 - c. It is unnecessary to keep promises or treaties (as we assume it is)
 - d. We would not make excuses for breaking moral laws (as we all do)

“The Moral Law is not always the standard by which we treat others, but it is nearly always the standard by which we expect others to treat us” (Giesler/ Turek- “I Don’t Have Enough Faith To Be An Atheist”

2. A universal ‘**Moral Law**’ requires a universal ‘**Moral Law- Giver**’ since the *Source* of it:
 - a. Gives moral commands (There is *no legislation* without a *legislature*; every prescription has a prescriber)
 - b. Is interested in our behavior (as moral persons do)
3. This universal ‘**Moral Law- Giver**’ must be absolutely ‘**GOOD**’ because:
 - a. Otherwise all moral effort would be futile since we could be sacrificing ourselves for what is not ultimately right
 - b. The source of all good must be absolutely good, since the standard of all good must be completely good

THEREFORE:

There MUST be an Absolutely ‘GOOD MORAL LAW- GIVER’

“For the Lord is our judge, the Lord is our law-giver; the Lord is our king; He will save us” (Isaiah 33:22)

WHAT ARE LAWS?

HOW/ WHY DO ALL LAWS LEGISLATE MORALITY?

HOW/WHY IS GOD THE ABSOLUTELY GOOD MORAL LAW-GIVER?

Through the ‘*Cosmological,*’ ‘*Teleological,*’ and ‘*Moral*’ arguments, we’ve now established that **there must be a ‘Creator’ who has always existed.** Both **science** and the **Bible** tell us that this ‘*causal agent*’ created the *Universe* from nothing—all *energy, space,* and *time* ‘*began*’ with this creation.

If the first chapter of our Bible ended with its first verse and fast-forwarded to the patriarchs, there would be little to argue about. God created the *Universe*— end of discussion. How He did it is inconsequential. But it doesn’t end with the first verse. Instead, ‘*Old Universe/Earth*’ advocates state God decided to give us a glimpse of His ‘*creative process*’ by allowing us to view some of His creation looking up from the planet we’re most familiar with— *Earth*.

III. ‘OLD UNIVERSE/EARTH’ ‘DAY’ ONE

Genesis 1:2-“The earth was without form and void, and darkness was over the face of the deep. And the Spirit of God was hovering over the face of the waters.”

After first giving us the **general statement** in verse one that God created the ‘*Universe*’ (all *energy, space,* and *time*), Moses will now begin to give us a glimpse as to **how** God actually performed His great feat. He **jumps forward in time** and notes that **at some point** in His ‘*creative process*’ (time frame unspecified here), “*the Earth was without form.*”

This statement marks the **actual beginning of ‘day one’ of the creation narrative of Earth.** Verse one was simply a **summary statement** that God created the *Universe* as a whole. From this point on, we’re being given a glimpse of God’s creation from the **view-point of planet ‘Earth’** on which He will establish His greatest creation— ‘*Man.*’ Everything described in the following ‘*days*’ of creation are divinely coordinated to prepare planet ‘*Earth*’ for the **creation and survival** of ‘*mankind.*’

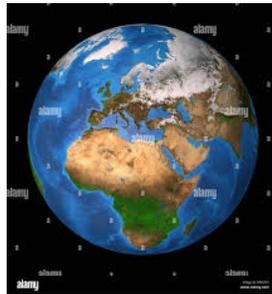
Genesis 1:2 states **three important things**:

- (1) The *Earth* was ‘*without form and void*’ (‘*tohu wabohu*’) — an empty, unproductive, uninhabited space

(2) *‘Darkness was over the face of the deep’*— *‘the deep’* refers to the primordial *‘waters’* that existed before God created the heavens and the earth

(3) *‘The Spirit of God hovered over the face of the water’*

Today we view planet *Earth* from space and see multiple continents separated by vast blue oceans. It’s really quite beautiful.



But our images of *Earth* today are a far cry from its initial state as described in Genesis (and confirmed in astrophysics). It’s described as a *formless void*— a concept describing a state of being without defined shape or structure, often associated with **emptiness** or **nothingness**. The Hebrew words used, *‘tohu’* and *‘bohu,’* translate to "*formless*" and "*void*," respectively, conveying a sense of chaos and emptiness.



Verse two also states that *‘darkness’* was pervasive over the *Earth*. In Job 38 we’re told God once asked Job, *“Where were you when I laid the foundation of the earth... when I made clouds its garment and thick darkness its swaddling band?”*

Opaque matter enshrined the *Earth’s* unformed surface— **no light** from the stars in the *Universe* reached through *Earth’s* primordial atmosphere as the *‘spirit of God hovered over the face of the waters.’* The Hebrew word for *‘hovering’* was *‘rahap.’* This word is seen only one other place in the Bible (in Deuteronomy 32:11) describing an eagle *‘hovering’* over its young.

These *‘waters’* were not necessarily the liquid we know today, but rather a dense, formless, and watery-like **undifferentiated mass** or **void** from which God (*‘hovering’*) would eventually bring order and form. Astrophysicists have observed that planets as massive as *Earth* and as distant from their host star (their *‘sun’*) typically start with a thick, **opaque** (light-blocking) **atmosphere**.

After describing a darkened *Earth*, next God decides to do something about it by flipping the dimmer switch onto its **low** setting. **He lets *light* penetrate *Earth's* dark shroud for the first time.** *Earth's* atmosphere changed from *opaque* to *translucent* (not quite *transparent* yet— that comes on ‘*day*’ 4), but enough to permit *light's* passage.

HOW DID VERSE ONE ACT AS A SUMMARY STATEMENT FOR THE CREATION NARRATIVE?

HOW/WHY DOES THE NARRATIVE SHIFT TO THE VIEWPOINT FROM EARTH IN VERSE TWO?

WHAT DID PRIMORDIAL EARTH LOOK LIKE?

Genesis 1:3-5- “And God said, “Let there be light,” and there was light.

And God saw that the light was good. And God separated the light from the darkness.

God called the light *Day*, and the darkness he called *Night*. And there was evening and there was morning, the first day.”

The Hebrew verb used for ‘*let there be light*’ was ‘*haya*’— meaning ‘to exist, to be, to happen,’ or ‘to come to pass.’ God had created physical ‘*light*’ (*electromagnetic radiation*) in the ‘*beginning*’ when he brought the *Universe* into existence— **the matter and energy of the cosmos included ‘*light*.’**

Now that ‘*light*’ could finally be seen **from** *Earth* as the veil was slightly parted. ‘*Day*’ and ‘*night*’ (here this word ‘*day*’ actually representing a 24 hour period measured by the rotation of the *Earth* on its axis) was finally somewhat discernible on the ‘*first creation day*’ (this ‘*day*’ representing the **long period of time** described from verse 2 through verse 4 — perhaps million of years!).

The thinner atmosphere resulted in **temperature modulation**— no longer were *Earth's* surfaces characterized by extreme, unrelenting cold or heat. But most importantly, with the *Earth's* surface bathed in light, ‘*photosynthesis*’ could eventually begin. ‘*Photosynthesis*’ is the vital process where plants and other organisms convert light energy into chemical energy, producing sugars and oxygen.

‘*Photosynthetic life*’ (organisms that can produce their own food using sunlight, water, and carbon dioxide through the process of *photosynthesis*) would eventually transform large quantities of water and carbon dioxide into food (sugars, starches, and fats) that would be used to support the **complex eco-system created by God.**

WHAT IS LIGHT?

WHERE DID LIGHT COME FROM ON DAY ONE?

WHAT IS THE PURPOSE OF LIGHT ON EARTH?

OUR AMAZING MOON

Astronomers observe that over time '**gravity**' ('*gravitational accretion*') pulls dust and weightier material from the disk **around** a *star* (ie. our '*sun*') **into a star** and **into** forming *planets*. Because of the *Earth's* surface area and distance from the sun, theoretically it should have an atmosphere more than twice as massive (thick and heavy) as the planet Venus. Instead it is 91 times **less massive**. Why is this?

The solution lies with the *Earth's* unique '**Moon.**' Most *moons* originate from the same material that formed its planet (though a few are foreign bodies captured by their planet's gravity). Most *moons* are tiny compared to their planets, but **Earth's Moon is unique**. It's **huge** compared to other planets— **fifty times more massive** (relative to its planet) than any other solar system *moon*.

Lunar meteorites and **Lunar rocks** gathered by Apollo astronauts demonstrate *Earth's Moon* is **chemically distinct** (though similar in oxygen isotopes ratios and mineral compositions) from the *Earth* and is **younger by about 40 million years**. Our *Moon* and *Earth* did **not** form together (at the same time).

Observation data demonstrates that our *Moon* is slowly **spiraling away** from *Earth* and the *Earth's* rotation is also **slowing**. Without getting too deep in the weeds of astrophysics, extensive **theoretical modeling** states that some kind of **collision** or **near collision** occurred causing this. In other words, *Earth* was hit by another very large planet (about the size of Mars) at some time in its history.

Such a collision would have blasted nearly all of *Earth's* original atmosphere into outer space, while the cloud of debris arising from the collision would have orbited *Earth* and eventually coalesced to form our *Moon*. Scientists state this moon-forming event produced a multitude of **life-favoring events**:

- (1) Delivered *Earth* from a life-suffocating atmosphere and yielded a replacement atmosphere thin enough to allow the penetration of *light* and eventually even allow the operation of lungs
- (2) Increased the *mass* and *density* of the *Earth* enough to retain (by gravity) a large amount of *water vapor*

- (3) Elevated the *iron* content of the *Earth's* crust enough to permit a huge abundance of ocean life (*iron* is critical as a nutrient source of *marine algae* needed to sustain the marine food chain)
- (4) Played a significant role in salting the *Earth's* crust, mantle, and core with an abundance of **long-lived radioisotopes** necessary for the **heat** needed to drive the high rates of *tectonics* and *volcanism* required for land formations on *Earth*
- (5) Gradually slowed *Earth's* rotation rate so that a wide variety of lower life-forms could survive long enough to sustain the existence of advanced life-forms which require still slower rotation rates.
- (6) Stabilize *Earth's* *rotation axis tilt*, protecting the planet from *life-extinguishing climatic extremes*.

As Hugh Ross states (in “*Navigating Genesis—A Scientists Guide to Genesis 1-11*”):

“Based on an abundance of **circumstantial** evidence, we can say that this amazing collision appears meticulously orchestrated to transform *Earth* from a ‘*formless*’ and ‘*empty*’ blob into a place where life can not only survive, but thrive. **The number of details fine-tuned to favor life’s possible existence manifested in this one event powerfully argues for the existence and intervention of a divine Creator**”

IV. ‘OLD UNIVERSE/ EARTH’ - ‘DAY’ TWO

Genesis 1:6-8- “**And God said, “Let there be an expanse in the midst of the waters, and let it separate the waters from the waters.”**

And God made the expanse and separated the waters that were under the expanse from the waters that were above the expanse. And it was so. And God called the expanse Heaven.

And there was evening and there was morning, the second day.”

On the **second creation ‘day,’** after having brought order and form to the ‘*waters*’ of primordial *Earth*, God created an ‘*expanse*’ (‘*raqia*’) to **separate ‘waters’ above** from ‘*waters*’ **below**. He called this area ‘*heaven*,’ often translated ‘*sky*’ (‘*shamayim*’). Therefore, there began **atmospheric ‘waters’ above** the ‘*heavens/sky*’ and **surface ‘waters’ below** covering the face of the *Earth*.

This separation of the *waters* was critical. Cyclic **condensation** and **precipitation** would eventually be necessary for life on *Earth*. *Condensation* and *precipitation* are both stages in the ‘**water cycle**,’ but they represent different processes. **Condensation** is the process where *water vapor* in the air cools and turns into liquid water, forming clouds or dew. **Precipitation**, on the other hand, is the process where water (in liquid or solid form) falls from the atmosphere to the *Earth’s* surface, such as rain, snow, or hail.

The ‘**water cycle**’ needed to sustain the future needs of abundant species of life (primitive to advanced) required intricate balancing. Though there are a multitude of other factors, ‘**Solar Energy**’ (the ‘*Sun*’) is the primary driver of the ‘**water cycle**.’ It provides the energy needed for:

- (1) **Evaporation**: The transformation of liquid water into water vapor, primarily from oceans and other bodies of water
- (2) **Sublimation**: The process where ice and snow turn directly into water vapor and
- (3) **Transpiration**: The release of water vapor from plants into the atmosphere

‘**Solar energy**’ production has changed throughout our ‘*sun’s*’ history. By observing the *nuclear burning rate* and maturation of other stars, astronomers claim our ‘*sun*’ is in its ‘**middle age**.’ Stars go through an initial state of **intense burning and luminosity** caused by hydrogen fusing into helium, then a period of **decreasing luminosity** as it loses some of its mass.

This is next followed by a steady recovery and **increase in brightness** due to a variety of factors such as dust dissipation and internal stellar chemical processes. This changing cycle of luminosity perfectly fits **God’s gradual introduction of life-forms**, layer upon layer, in a sequence from **primitive to advanced**.

‘**Gas producing**’ and ‘**gas-consuming**’ *life* would eventually be introduced and eliminated in synchrony with the *Sun’s* changing **luminosity**— some requiring more light and others less to survive. Even today, if this delicate synchronization of the *sun’s luminosity* and *Earth’s biomass* and **biodiversity** falls out of sync by even the slightest amount, the result would be runaway **greenhouse effect** (heating) or **runaway freezing** that would eliminate all **life** on *Earth*.

An interesting factor in the ‘**water cycle**’ is that **Earth’s ‘gravity**’ is not in itself sufficient to hold onto all of *Earth’s ‘atmospheric water*.’ But as discovered in 1980, water rich *extra-terrestrial* materials make up for this loss. Water rich meteorites (carbonaceous chondrites containing 20% water by weight) of all shapes and sizes continually rain down on our atmosphere in precisely the right amount to **maintain the balance** of water needed for the sustenance of life on *Earth*.

“*You are the Lord, you alone. You have made heaven, the heaven of heavens, with all their host, the earth and all that is on it, the seas and all that is in them; and you preserve all of them; and the host of heaven worships you.*” (Nehemiah 9:6)

The Hebrew verb '*asa*' (meaning *made, manufactured, or fabricated*) in the '*day two*' narrative, implies God designed and built *Earth's* atmosphere with its intricately balanced '*water cycle*.' His separation of the waters is a statement of His formation of the '*troposphere*'— the area just above the oceans where clouds form and humidity resides (as opposed to the *stratosphere, mesosphere, and ionosphere* above)

The *stratosphere, mesosphere, and ionosphere* are distinct layers within *Earth's* atmosphere. The *stratosphere* is the second layer from the surface, located above the *troposphere* and below the *mesosphere*. The *mesosphere* is the third layer, situated above the stratosphere and below the *thermosphere*. The *ionosphere* is not a distinct layer but rather a region within the *upper mesosphere and thermosphere* where solar radiation ionizes gases.

The fine tuning required in the development of the '*water cycle*' is a clear indication of a **powerful divine creator**. *Science* has observed the accuracy of God's work. Psalm 148:4 mentions this event stating:

"Praise him, you highest heavens, and you waters above the heavens!"

This verse implies a **separation** between the *waters above the sky* and the *waters on Earth*. With this separation of the '*waters*' complete and the '*water cycle*' established, the stage is now set for the appearance of *dry land* and *vegetative life*.

HOW MANY WAYS IS THE WORD 'HEAVENS' USED IN THE BIBLE?

WHAT IS THE WATER CYCLE? WHY IS WATER CRITICAL?

WHAT IS SOLAR ENERGY? WHY IS SOLAR ENERGY CRITICAL?

DESCRIBE WHAT HAPPENED ON DAY TWO

V. 'OLD UNIVERSE/EARTH'— 'DAY' THREE - Part One

Genesis 1:9-10- "And God said, "Let the waters under the heavens be gathered together into one place, and let the dry land appear." And it was so.

God called the dry land Earth, and the waters that were gathered together he called Seas. And God saw that it was good."

With the atmospheric and surface '*waters*' clearly differentiated, God decided it was time to let the **solid ground underneath rise to the surface** by way of '*plate tectonic*' activity. The *Earth's* '*crust*' and '*upper mantle* (the outermost solid layers of *Earth*) are broken into '*tectonic plates*' that float on a semi-molten layer called the *asthenosphere*. These plates are constantly moving, albeit slowly, at a rate comparable to fingernail growth. The '*crust*' is the thin, outermost layer, while the '*upper mantle*' lies beneath it, extending to a depth of about **410 miles**.

'*Old Earth*' geologists state evidence from '*osmium isotope measurements*' and other data indicates that in the past, the '*crust*' **grew in stages** in a series of '*pulses*' 2.7, 1.9, and 1.2 billion years ago. This harmonizes well with Genesis' placement of a large burst of continental landmass growth at the beginning of '*day three*' (nearly halfway through the creation chronology). Geological research indicates continental growth was most aggressive when the *Earth* was about 2 billion years old (just less than half its calculated age of 4.5 billion years as claimed by '*Old Earth*' scientists.).

Moses accurately described the geophysical history of the *Earth*. But the **book of 'Job,'** the oldest book in our *Bible*, described it first:

"Or who shut in the sea with doors when it burst out from the womb, when I made clouds its garment and thick darkness its swaddling band, and **prescribed limits for it and set bars and doors?**" (Job 38:8-10)

The '**bars and doors**' of '*Job*' differentiates **sea** from **land**. Further *Biblical* mention of these events are found in the book of *Psalms* that speaks of God's separation of waters from the land.

"By the word of the Lord the heavens were made, and by the breath of his mouth all their host. **He gathers the waters of the sea as a heap; He puts the deeps in storehouses.**" (Psalm 33:6-7)

'*Old Earth*' scientists interpret the physical evidence of geology and geography and tell us that over a period of 4.5 billion years, ***Earth's* landmass grew from 0 percent to 29 percent of the planetary surface**. Once landmasses rose above sea level, erosion began to wear them down. But erosion could not keep up— the landmass build-up has continued to exceed the wearing down process.

Psalm 104 implies that though the entire surface of *Earth* was once covered with water, a time came when God sent this water to its assigned location and dry land was here to stay.

“He set the earth on its foundations, so that it should never be moved. You covered it with the deep as with a garment; the waters stood above the mountains.

*At your rebuke they fled; at the sound of your thunder they took to flight. **The mountains rose, the valleys sank down** to the place that you appointed for them.*

You set a boundary that they may not pass, so that they might not again cover the earth.”
(Psalm 104:5-9)

NOTE: Geological evidence indicates that there were various times in *Earth*'s history when virtually all the land came together to form **one contiguous continent**. Three of these supercontinents have been named:

- (1) **Columbia**— dated 1.9 billion years ago
- (2) **Rodinia**— dated 0.9 billion years ago
- (3) **Pangaea**— the most widely known dated 0.25 billion years ago

HOW/WHEN DID DRY LAND APPEAR?

WHAT ARE TECTONIC PLATES?

HOW MUCH OF EARTH IS DRY LAND?

WHEN DID DRY LAND APPEAR?

VI. 'OLD UNIVERSE/EARTH' — 'DAY' THREE — Part Two

The '*day three*' narrative continues with something even more spectacular—the *creation* of '*vegetative life*.'

“Genesis 1:11-13 -“And God said, “Let the earth sprout vegetation, plants yielding seed, and fruit trees bearing fruit in which is their seed, each according to its kind, on the earth.” And it was so.

The earth brought forth vegetation, plants yielding seed according to their own kinds, and trees bearing fruit in which is their seed, each according to its kind. And God saw that it was good.

And there was evening and there was morning, the third day.”

Genesis 1:11 states God commanded the *Earth* to produce *vegetation*. The Hebrew word for ‘*vegetation*’ was ‘*deshe*’— it applies to any ‘*photosynthetic*’ plant. **Three examples** of ‘*deshe*’ are given:

- (1) *Seeds* (Hebrew ‘*zera*’ meaning ‘*semen*’ or ‘*embryo*’)
- (2) *Trees* (Hebrew ‘*es*’ meaning any larger plant containing woody fiber)
- (3) *Fruit* (Hebrew ‘*p ri*’ meaning food and/or embryo of living thing)

Modern science corresponds with the creation of *plant life* on the *Biblical third ‘day.’* ‘*Indirect evidence*’ of plants’ early presence comes from the understanding of the **oxygenation** history of *Earth’s* atmosphere. Because atmospheric oxygen comes from plant *photosynthesis* activity, scientists state that this aggressive plant oxygenation of *Earth’s* atmosphere was required **prior** to future animal life.

Additionally, ‘*direct evidence*’ is also emerging. In 2009 biologists discovered *isotope* evidence indicating ‘*photosynthetic*’ life was abundant over 700 million years ago.

Though the text states the ‘*Earth*’ itself ‘*sprouted*’ and ‘*brought forth*’ *vegetation*, **this does not mean it occurred without *divine* intervention. Life has never been observed to spontaneously occur!**

It’s true that plants appear to possess some capacity for production of new species through natural processes— boundaries between plant species are much less distinct than boundaries between animal species. But human observers have yet to document the development of a plant species remarkably different from a previously existing species— much less one spontaneously appearing on its own.

WHAT ARE PHOTOSYNTHETIC PLANTS?

WHY WERE DAY ONE AND TWO IMPORTANT FOR LIFE TO OCCUR?

HAS ANY ‘LIFE’ EVER ORIGINATED SPONTANEOUSLY?

VII. 'OLD UNIVERSE/EARTH' — 'DAY' FOUR

Genesis 1:14-15—"And God said, "Let there be lights in the expanse of the heavens to separate the day from the night. And let them be for signs and for seasons, and for days and years, and let them be lights in the expanse of the heavens to give light upon the earth." And it was so."

On '*day four*' God decided to **turn up the dimmer switch** to let more light pass onto the surface of *Earth*. Whereas '*day one*' brought *translucency (light diffusion)*, '*day four*' brought *transparency (light transmission)*. The period of *Earth's* history from '*day one*' up to '*day four*' (millions of years per *Christian 'Old Earth'* scientists) was marked by a '*sky*' that resembled the heavy overcast of a stormy day.

Atmospheric particles, air temperature/pressure fluctuation, and volcanic activity contributed to a continual overcast. High carbon dioxide, low oxygenation, and high vapor levels led to high humidity. As these stabilized on '*day four*,' the atmosphere became more *transparent* allowing the *Sun, Moon,* and *stars* to **become more visible** from the surface of the *Earth*.

This *transparency* would be critical for the '*biological clocks*' of more advanced life forms. The vegetation created on '*day three*' did not need to know where the Sun, Moon, and stars were in the sky; but now God allows these celestial objects to be clearly seen from *Earth* "*for signs and for seasons, and for days and years.*" This awareness would guide higher life forms as to the best times to feed, reproduce, migrate, and/or hibernate.

As the vegetation from '*day three*' consumed *carbon dioxide* through *photosynthesis* they released *oxygen* into the upper *stratosphere* (perhaps over millions of years). This produced a thin '*ozone*' layer to protect life from the now intense '*ultraviolet light*' allowed onto the surface of *Earth* due to its newfound '*transparency.*'

NOTE: Too much '*ultraviolet light*' causes damage to crops and to skin. Too little '*ultraviolet light*' leads to plant inhibition and certain vitamin insufficiencies (ie. vitamin D) needed for animal bio-vitality.

'*Ultraviolet light*' is regulated by the '*ozone shield*' layers— the *Troposphere layer* (first 6 miles above *Earth*), *Stratosphere layer* (6-15 miles), and *Mesosphere layer* (15-50 miles).

WHAT IS LIGHT TRANSLUCENCY?

WHAT IS LIGHT TRANSPARENCY?

IS THE LIGHT ON DAY FOUR THE SAME OR DIFFERENT AS ON DAY ONE?

The ‘*day four*’ narrative then continues:

Genesis 1:16-18—“And God made the two great lights—the greater light to rule the day and the lesser light to rule the night—and the stars. And God set them in the expanse of the heavens to give light on the earth, to rule over the day and over the night, and to separate the light from the darkness. And God saw that it was good.”

Genesis 1:1 placed the the existence of the Sun and stars before the first creation ‘*day*.’ The Hebrew word for ‘*made*’ (“*And God ‘made’ the two great lights*”) was ‘*asa*’ meaning a past action. Therefore, God did not re-create the Sun and stars again, but rather allowed them to become more visible from *Earth*. This passage uses ‘*geocentric*’ language, meaning it describes events as they would appear from the perspective of an observer on *Earth*.

WHAT IS GEOCENTRIC LANGUAGE?

HOW IS THE PERSPECTIVE FROM EARTH DIFFERENT THAN THE PERSPECTIVE FROM SPACE?

ACCORDING TO ‘OLD UNIVERSE’ SCHOLARS, WHEN WAS THE SUN CREATED?

ACCORDING TO ‘YOUNG UNIVERSE’ SCHOLARS, WHEN WAS THE SUN CREATED?

Genesis 1:19—“And there was evening and there was morning, the fourth day.”

According to *Christian ‘Old Earth’* scientists, this **phrase repetition** on each of the ‘*days*’ emphasized the structured, cyclical nature of creation— **not** a strict chronological sequence of 24-hour days. ‘*Day five*’ will begin the story of the creation of more advanced life.

HOW DO ‘OLD UNIVERSE/EARTH’ AND ‘YOUNG UNIVERSE/EARTH’ ADVOCATES DIFFER ON MEANING OF ‘AND THERE WAS EVENING AND THERE WAS MORNING’?

HOW IS IT CRITICAL TO THEIR ARGUMENTS?

SUMMARIZE DAY FOUR

VIII. 'OLD UNIVERSE/EARTH'— 'DAY' FIVE

'Days' one through four set the stage for '*day five*.' By the end of '*day four*' planet *Earth* had:

- (1) Light
- (2) Breathable air
- (3) Stable water cycle
- (4) Dry land
- (5) Oceans for habitation
- (6) Vegetation for food
- (7) Visible Sun, Moon, and stars for guidance
- (8) Ozone layer for protection

Genesis 1:20-“**And God said, “Let the waters swarm with swarms of living creatures, and let birds fly above the earth across the expanse of the heavens.”**”

The Hebrew word used for '*swarms of living creatures in the waters*' was '*sheres*' referring to **small creatures that are neither birds or mammals**. It does not specify which kind of '*sheres*' appeared in the waters, but we know that water dwelling '*sheres*' are the most **primitive creatures** that require the visibility of the heavenly bodies for regulation of their '*biological clocks*.'

The word '*sheres*' appears often in the *Pentateuch* (the first five books of the Bible). It generally refers to *amphibians*, *reptiles*, and *insects* when used for land life. When used for fresh or salt water creatures, '*sheres*' typically refers to *mollusks*, *crustaceans*, and *amphibians*.

The '*day five*' narrative continues:

Genesis 1:21-22-“**So God created the great sea creatures and every living creature that moves, with which the waters swarm, according to their kinds, and every winged bird according to its kind. And God saw that it was good. And God blessed them, saying, “Be fruitful and multiply and fill the waters in the seas, and let birds multiply on the earth.”**”

Next are described creatures identified by the Hebrew noun '*napesh*'— creatures with a breath of life capable of expressing yearnings, emotions, passions, and will ('*self-aware*' life-forms). **Birds** and **sea mammals** (land mammals will be created on the '*sixth day*') fit the meaning of '*napesh*' as they have the capacity to form relationships and demonstrate nurturing behavior toward their offspring. Some refer to these creatures as '*soulish*' animals implying that they manifest attributes of mind, will, and emotion.

‘*Soulish*’ animals (not to be confused with God’s later creation, ‘*man*,’ who will have an actual ‘*soul*’) are set apart from the previously mentioned animal species such as *trilobites*— one of the earliest groups of *arthropods* to appear in the fossil record, *Trilobites* are **extinct arthropods**, the animal group that today includes *insects*, *centipedes*, *crustaceans*, *spiders*, *scorpions*, and more. **All *trilobites* lived in the ocean.** Most crawled on the seafloor, but others swam.

Avalon and Cambrian Explosions

“The *fossil record* testifies that for the first 85 percent of life’s history on *Earth* there were no creatures we would refer to as ‘*animals*.’ Then **suddenly**, in shallow seas and on continental shelves, life-form manifesting nearly every conceivable body plan appeared...

In both the ‘*Avalon*’ explosion (575 million years ago) and the ‘*Cambrian*’ explosion (543 million years ago) swarms of diverse sea animals **abruptly** exploded. For the first time in *Earth*’s history creatures sported appendages, limbs, skeletons, and specialized organs. In fact, of the 183 mathematically possible skeletal designs conceivable for physical life, 146 show up in the *fossil record* of the ‘*Cambrian*’ explosion...

The very moment oxygen reached appropriate levels, the *Avalon* and *Cambrian* explosions occurred. The lack of any appreciable gap between the time of oxygen’s rise to life-sustaining levels and the appearance of animals argues strongly for involvement of a purposeful Creator. **Mindless natural processes seem vastly inadequate to explain the *Avalon* and *Cambrian* events**” (Hugh Ross, “*Navigating Genesis- A Scientist’s Guide to Genesis 1-11*”).

The sudden appearance of life forms in the *Avalon* and *Cambrian* explosions poses significant problems for *Darwinian evolutionists*. Even the infamous atheist evolutionist, Richard Dawkins (in “*The Blind Watchmaker*”) states:

“...For example, the Cambrian strata of rocks, vintage about 600 million years, the oldest one in which we find most of the major invertebrate groups. And we find many of them already in advanced state of evolution, the very first time they appear. **It is as though they were just planted there, without any evolutionary history**”

‘Shazaam’!!! Can you say ‘God’???

WHAT HAPPENED DURING THE AVALON AND CAMBRIAN ‘EXPLOSIONS’?

WHAT ARE SEA ANIMALS?

WHAT ARE ‘SOULISH (‘NAPESH’) ANIMALS’?

Genesis 1:23-”And there was evening and there was morning, the fifth day”

Another ‘day,’ another cycle of *Earth’s* history completed. According to *Christian ‘Old Earth’* scientists, God used the billions of years (**a blink of His eye**) from His initial creation of the *Universe* until this time to set the stage for His most unique creation. The ‘*sixth day*’ will bring forth **animals of the land**, but most importantly, God will create ‘MAN’ himself.

HOW/WHY DOES EVERYTHING IN THE CREATION NARRATIVE LEAD TO THE CREATION OF MAN?

HOW/WHY DID GOD DESCRIBE THE CREATION NARRATIVE?

HOW/WHY IS THE CREATION NARRATIVE IMPORTANT IN YOUR UNDERSTANDING OF GOD?

IX. ‘OLD UNIVERSE/EARTH’—‘DAY’ SIX — Part One

The ‘*sixth day*’ narrative begins:

Genesis 1:24-25-”And God said, “Let the earth bring forth living creatures according to their kinds—livestock and creeping things and beasts of the earth according to their kinds.” And it was so. And God made the beasts of the earth according to their kinds and the livestock according to their kinds, and everything that creeps on the ground according to its kind. And God saw that it was good”

Three specific land animals are mentioned:

- (1) **Livestock**— Hebrew ‘*b hema*’— long legged mostly *herbivore* quadrupeds that can be tamed and domesticated
- (2) **Creeping things** — Hebrew ‘*remes*’— ‘creatures that move along the ground’— short legged mammals such as rodents and hares
- (3) **Beasts of the Earth**— Hebrew ‘*hayya*’—long legged *carnivore* mammals that are difficult to tame but can still be useful to humans as pets and helpers

Though this is obviously **not** an all-inclusive list of the land animals created, it represents those that are **strategically important to humans**. **Livestock** (*herbivore* agricultural animals) sustain civilization. **Wild animals** (*carnivores*) maintain the vitality of herbivores by keeping herbivore populations at a healthy level—preying on them, preventing herbivores from overgrazing and damaging ecosystems. ‘**Creatures that move along the ground**’ are important for soil health, seed dispersal, plant regeneration, and food chain support.

Darwinian Evolutionists claim that all living creatures ‘*evolved*’ from less to more complex structures over eons of time. But this is an area where *Christian ‘Old Earth’* scientists **strongly disagree** with their secular counterparts because **the scientific evidence does not support Darwinian evolution of life**.

Unlike the *Universe* and *Earth* where God has apparently left many hints as to His creative process (over the last 13.8 and 4.5 billion years ago respectively according to ‘*Old Earth*’ scientists), **the origin of life is much too recent to be accounted for by any macro-evolutionary process**— it’s contrary to both statistical models and the available scientific evidence!

As previously stated, mathematicians claim that there is just **not enough time** for the development of life within the **Darwinian** model given the timeframe of *Earth’s* history (**even the ‘Old Universe/Earth’ conclusion of billions of years**). Additionally, the *fossil record* seems to indicate that **ocean and land life** had a **sudden** beginning during the *Avalon* and *Cambrian* explosions— **there is no evidence of long, drawn out periods of transitional stages**.

Perhaps now is a good time to examine why the **Darwinian Macro-evolutionary** model of life **FAILS!**

WHY THE DARWINIAN MODEL OF LIFE FALLS FLAT ON ITS FACE !

There are basically **two** ‘*Evolution*’ models of life

(1) ‘**MICRO-Evolution**’

- Changes involving the gradual accumulation of **mutations** leading to new varieties *within a species*

(‘*Species*’ defined as a group of organisms with a shared, closed gene pool that are able to mate with each other and produce a fertile offspring)

- It involves **minor** developmental change observed over a **short amount of time**

(ie. Genetic manipulation to produce different strains of wheat or selective breeding to produce a stronger animal)

- These minor changes **NEVER** produce another **NEW TYPE** of life-form.
(ie. Dogs remain dogs and **do not** become cats)

'MICRO-Evolution' is **Observable** and **Repeatable**

BUT

Darwin used these observations of **MICRO-Evolution** to

EXTRAPOLATE

His theory of

'MACRO-Evolution'

WHAT DOES THE WORD 'EVOLUTION' REALLY MEAN?

WHAT IS MICRO-EVOLUTION?

DOES IT EXIST?

GIVE EXAMPLES

(2) **MACRO-Evolution** ('*Darwinian Evolution*')

- Theory of changes involving the gradual accumulation of mutations leading to **entirely *New Species***
- It represents **major** developmental changes producing an entirely **Different Life-Organism**
(ie. **dog becoming a cat** over time)

- Unfortunately for Darwin, **MACRO-Evolution** has:

- (1) **NEVER** been **Observed** in the *Fossil record* and has
- (2) **NEVER** been **Reproduced** in any *Experimentation*

WHAT IS MACRO-EVOLUTION?

DOES IT EXIST?

GIVE SUPPOSED EXAMPLES

Darwin's Macro-Evolution Model for Life Fails on a Variety of Levels:

(1) Genetic Limitations

- There are *genetic limits* built into basic life forms (ie. breeders **cannot change** a **dog** into a **cat**; a fruit fly (often used in experiments due to their ability to reproduce quickly) never changes into anything but a fruit fly)
- There is an overall **basic flaw** in the concept of '*Natural Selection*' producing *MACRO-evolution*:

The "Second Law of Thermodynamics" or "Entropy"

Left alone, **without intelligent intervention**, most things become **less organized**
(not more organized)

YET

Even when scientists **intelligently manipulate genetics** with an **end in mind** (opposite of the *Darwinian theory*), *MACRO-evolution* (requiring more organization) is **still impossible to replicate!**

WHAT ARE THE LIMITS OF GENETIC MANIPULATION?

HOW DOES THE LIMITS OF GENETIC MANIPULATION AFFECT OUR DAILY LIVES?

HOW DOES IT AFFECT OUR CULTURAL LIVES?

(2) Cyclic Change

- **Observed genetic changes** do **not** direct toward the development of new life forms but rather simply **shift back and forth within a limited range**

Example: Darwin's finches had varying beak sizes depending on the weather conditions—larger beaks to crack harder seeds in droughts and smaller beaks in wet conditions for the softer seeds produced.

The proportion of large beak finches to small beak finches changed depending on the long-term weather conditions

BUT

Finches always remained finches!

- Despite the minor differences in *human races* (ie. skin pigmentation caused by environmental stresses), all men have descended from a common gene pool (DNA) and always remain men

“Natural Selection may be able to explain survival of a species

BUT

it cannot explain the arrival of a species”

(Giesler/ Turek- “*I Don't Have Enough Faith to Be An Atheist*”)

HOW ARE ALL RACES THE SAME?

HOW ARE RACES DIFFERENT?

WHAT BINDS ALL HUMAN RACES?

(3) Irreducible Complexity

- An ***irreducibly complex system*** is “*composed of several well-matched, interacting parts that contribute to the basic function, whereas the **removal** of any one of the parts causes the system to effectively **cease functioning**” (Michael Behe, “*Darwin's Black Box- The Biological Challenge to Evolution*”)*

- Scientific research demonstrates that living things are filled with “*molecular machines*” that perform the numerous functions of life. These “*machines*” are *irreducibly complex* and must be:

completely formed

in the **proper place**

in the **right size**

in **operating order**

at the **same time**

for the machine to **function**

- Within **each** human cell there are **3,000 million** sets of DNA messages. And there are literally **trillions of cell** in the human body, each containing *irreducibly complex systems*
- In other words, critical body mechanisms could **not** develop in the *Darwinian* method because the system could **not survive the transition** (intermediaries would be non-functional)
 - (ie. Without the mechanisms of blood clotting or a cell to carry oxygen, a life-form could not survive transitioning into a different life-form!)

*“The idea of Darwinian molecular evolution is **not based on science**. There is no publication in the scientific literature— in journals or books— that describes how molecular evolution of any real, complex, biochemical system either did occur or even might have occurred.*

*There are assertions that such evolution occurred, but absolutely **none are supported** by pertinent **experimentation** or **calculations**.*

*Since there is **no authority** on which to base claims of knowledge, it can be truly said that the assertion of **Darwinian molecular evolution** is **merely bluster**”*

(Michael Behe, “*Darwin’s Black Box- The Biological Challenge to Evolution*”)

CAN YOU SURVIVE WITHOUT YOUR INTEGRAL PARTS?

HOW COMPLEX IS THE HUMAN BODY?

CAN YOU EXPLAIN THE BASIC FUNCTIONS OF ALL YOUR ORGANS?

CAN AN EVOLUTIONIST REALLY DEFEND 'NATURAL SELECTION' IN THE FORMATION OF THE HUMAN BODY?

(4) Non-Viability Of Transitional Forms

- As previously stated, the *molecular machines* of life would **not survive** a transition into another life form;

BUT NEITHER COULD THE *MACRO LIFE-FORM* SURVIVE THE TRANSITION !

- In other words, a **reptile** evolving **into** a **bird** (as Darwin postulates) could **not survive** transitioning from **scales** to **feathers** (it could neither swim nor fly and thus would be susceptible to **negative environmental factors**)

(5) Molecular Isolation

'Similarity' vs 'Progression' of Genetic Code

(a) **Similarity** — *Darwinists* claim that since there is an 85-95% *similarity* of genetic code (DNA) between humans and primates, this **implies an ancestral relationship**

Evolutionist **Richard Dawkins** states:

“The reason we know for certain we are all related, including bacteria, is the universality of the genetic code and other biological fundamentals”

BUT

Unfortunately for *Evolutionists*

'Similarity' IS NOT THE SAME AS 'Progression'

(b) **Progression**- Just because there is similarity in *genetic code*, this in **no way necessitates** the idea that one life-form *transitioned* into another. That remaining **5-15% variability in genetic code** is what makes each life-form **unique**

(ie. just because a *Volkswagen Beetle* has similar parts to a *Ferrari*, no one would say it could ever '*progress*' into a Ferrari)

- *Genetic similarities* are just a necessity of life in a similar biosphere

(ie. Both the *Volkswagen Beetle* and *Ferrari* have **tires**- a necessity to travel on the same **road** - a *biosphere*)

THE DNA EVIDENCE:

Proteins are the building blocks of life and most proteins are made of over 100 *amino acids*.

Therefore

If all species share a **common ancestry**, we should expect to find *transitional forms* of *protein sequences* to account for **transitions** from **fish** to **amphibian**, or **reptile** to **mammal**

BUT

We instead find that even though all organisms share a common *genetic code* with varying degrees of closeness, the code has ordered the *amino acids* in *proteins* in such a way that the basic types are in

Molecular Isolation from one another.

(There are no transitional forms of sequences)

THERE IS NO EVIDENCE OF PROGRESSION !

HOW ARE VOLKSWAGENS AND FERRARIS SIMILAR?

HOW ARE VOLKSWAGENS AND FERRARIS DIFFERENT?

CAN A VOLKSWAGEN PROGRESS INTO A FERRARI? WHY NOT?

(6) The Fossil Record

- The only **real** evidence **for or against** *The Theory of Evolution* is the *fossil record*.
- Every other argument for *Evolution* is based on “*What could have been*”
- The *fossil record* records “*What actually did happen*”
- **Darwin wrote** (in his “*On the Origin of the Species*”) :

“*Why then is **not** every geological formation and every stratum **full of such intermediate links**? **Geology assuredly does not reveal any such finely graduated organic chain**, and this, perhaps, is the **most obvious and gravest objection which can be urged against my theory**”*

AND YET HE PUBLISHED HIS THEORY ANYWAY?!?

- **Time** has only **worsened** Darwin’s argument for *gradual transition*
- The **actual *fossil record*** does **NOT** show the thousands, if not millions, of *Transitional Fossils* Darwin predicted
- Instead, the *fossil record* demonstrates:

Two Features Inconsistent with ‘GRADUALISM’:

(a) **Stasis**

- Most species appear in the *fossil record* looking much the **same** as when they disappeared
- Morphological **change** is **limited** and **directionless**

(b) **Sudden Appearance**

- In any area, a *species* does **NOT** arise gradually
- It appears **all at once** and **fully formed** (Can you say *Creation*????)
- There is no chain of evolution because nearly **all of the major groups of animals known to exist appear** in the *fossil record* **abruptly and fully** in the *geological strata* from the ‘*Cambrian Period*’ (Christian ‘*Old Earth Scientists*’ estimate this *Cambrian Period* to have occurred between 500 and 600 million years ago)

WHAT WOULD DARWIN SAY ABOUT HIS THEORY TODAY?

WHY DO SO MANY PEOPLE HAND ON TO DARWINIAN THEORY OF EVOLUTION DESPITE THE FOSSIL RECORD?

CAN YOU NOW ARGUE THE DIFFERENCE BETWEEN MICRO AND MACRO-EVOLUTION?

(7) **Skulls and Hominids** ('*human-like*' species)

- Every *Natural History Museum* seems to have a **progression of skulls** supposedly demonstrating **man's progression from apes**
- Unfortunately, as impressive as they display these, it tells almost **nothing about ancestral relationships** because **99%** of the biological makeup in any organism resides in its **soft anatomy** which is **inaccessible in a fossil**

“The illustration of a knuckle-dragging ape evolving through a series of imaginary transitional forms into modern man has appeared so many times in so many places that the picture has evolved into the proof. But, as the corpus of hominid fossil specimens continues to grow, **it has become increasingly evident that there is an unbridgeable chasm between hominids and humans in both composition and culture...**

Moreover, homologous structures (similar structures on different species) do not provide sufficient proof of genealogical relationships: common descent is simply an evolutionary assumption used to explain the similarities...

To assume that *hominids* and *humans* are closely related because both can walk upright is tantamount to saying hummingbirds and helicopters are closely related because both can fly...

Indeed, the distance between an ape, who cannot read or write, and a descendant of Adam, who can compose a musical masterpiece or send a man to the moon, is the distance of infinity” (*Christian Research Institute, “Did Humans Evolve from Hominids?”*)

- Michael Denton (MD, from Bristol University; PhD in Biochemist from Kings College, London), states:

“The *fossil record* is **open to many interpretations** because individual specimens can be reconstructed in a variety of ways, and because the *fossil record* **cannot establish ancestor- descendant relationships...**

Darwinists have been free to **creatively build** entire “*missing links*” from *fossil* remains as trivial as a **single tooth**. (That is why these “*missing links*” are so often later found to be **frauds or mistakes**)”

- Henry Gee, Chief Science writer for “*Nature*”, states:

“To take a **line of fossils** and **claim** that they represent a **lineage** is **not a scientific hypothesis** that can be tested, but an assertion that **carries the same validity as a bedtime story**- amusing, perhaps even instructive, but not scientific”

CONCLUSION

MICRO-EVOLUTION OF LIFE IS FACT

MACRO-EVOLUTION OF LIFE IS FICTION

“Origin of life researchers now know that **life** originated on *Earth* within a **geologic instant of time** without the benefit of pre-biotic building block molecules. No pre-biotic soup and little or no time eliminate the possibility of a naturalistic origin of life on *Earth*.” (Hugh Ross, “*Navigating Genesis— A Scientist’s Guide to Genesis 1-11*”)

The actual age of the earth is debatable

but not needed to disprove

‘Macro-Evolution Of Life’

THE OBJECTIVE EVIDENCE POINTS TO A

“CREATOR”

X. 'OLD UNIVERSE/ EARTH'— 'DAY' SIX — Part Two

Genesis 1:26—"Then God said, "Let us make man in our image, after our likeness. And let them have dominion over the fish of the sea and over the birds of the heavens and over the livestock and over all the earth and over every creeping thing that creeps on the earth."

Finally, God gives the reason for His narrative of the previous '*days*'— they were **preparation** for His creation of '*Man*' (Hebrew '*Adam*') God has existed for eternity— He had (and has) no need for '*Man*,' but decided to create an environment suitable for mankind's existence. Why? I wonder that myself sometimes, but I'm certainly appreciative that He did.

'*MAN*' would be unique—God would give '*MAN*' '*dominion*' over His *Earthly* creation. '*MAN*' would **not evolve** from the lower forms of life he would rule.

'*MAN*' would be granted **authority**, but God would also demand **accountability**. '*Man*' was to **reflect God's character in a way no other aspect of His creation could**— not even the angelic world. '*Man*' would be created directly by God to represent Him on *Earth* and have dominion over every other creation in His name (Genesis 1:26–28).

DOES GOD NEED MAN?

WHY DID GOD CREATE MAN?

DOES MAN NEED GOD?

Genesis 1:27—"So God created man in his own image, in the image of God he created him,"

God made '*Man*' in His '*image*' ('*Imago Dei*'). But what does this '*image*' actually look like? The *Hebrew* word for '*image*' ('*tselem*') and the *Hebrew* word for '*likeness*' ('*demut*') referred to something that is **similar but not identical** to the thing it represents. Our likeness with God is not a physical resemblance.

Instead, '*imaging*' God denotes our capacity to rule over His creation and to exercise reason, intelligence, speech, moral consciousness/accountability, creativity, rationality, and choice. We were made like Him so that we could be in special relationship with Him.

God's purpose in creating man was completely realized in the person of Christ. He is the undistorted image of God. In Jesus we see human likeness to God as it was intended to be.

Col 1:15- "*He is the **image of the invisible God**, the firstborn of all creation.*"

“Experiments suggest that the ‘**human mind**,’ including capacities identified as spiritual, manifests attributes non-existent to **any** degree in any bird or other mammalian species. Given the observational data and fundamental principle of cause and effect (effects can not necessarily be greater than their causes), **the necessity of supernatural intervention seems inescapable...**

The spirit of God (that was) ‘*breathed*’ into **Man** (Hebrew ‘*adam*’) made this **new life-form** profoundly different. Throughout the rest of Genesis and all of Scripture, as well as throughout human cultural history, we see that difference as it’s expressed in these uniquely human qualities:

- (1) Consciousness of a self
- (2) Concerns about death and about life after death
- (3) A propensity to worship and desire to communicate with a higher being
- (4) An innate awareness of right and wrong
- (5) Capacity for abstract thought, including a drive to discover truth and absolutes...

These traits find expression in every human being regardless of time and place and intellectual level. Even infants and people with severe intellectual mental or emotional impairment may express them to a limited extent (Hugh Ross, *Navigating Genesis—A Scientists Guide to Genesis 1-11*)

WHAT DOES 'IMAGIO DEI' REALLY MEAN?

HOW ARE HUMANS DIFFERENT FROM OTHER LIFE FORMS CREATED BY GOD?

HOW ARE YOU LIKE GOD??

HOW ARE YOU DIFFERENT FROM GOD?

Material (Physical) vs Immaterial (Spiritual)

“Genesis 1:26–27 indicates that God created mankind distinct from all the other creatures. Scripture clearly teaches that ‘*Man*’ is intended to experience intimate relationship with God, and, therefore, He created us as a **unity** of both **material** (physical) and **immaterial** (spiritual) aspects (Ecc 13:7, Mat 10:28, 1 Corinthians 5:5, 2 Corinthians 4:16; 7:1, James 2:26).

The **material** component of humans is obviously that which is tangible and temporal: the physical body. The **immaterial** aspects are intangible: soul, spirit, intellect, will, conscience, mind, emotions, etc. **These exist unendingly beyond the lifespan of the physical body”**

Biblical scholars agree we all have a **physical body** and an **immaterial (spiritual)** aspect of our being. But there has been much debate as to whether the immaterial aspect consists of a **separate soul and spirit** or if the two are different names for the same thing.

These two *Biblical* schools of thought are referred to as:

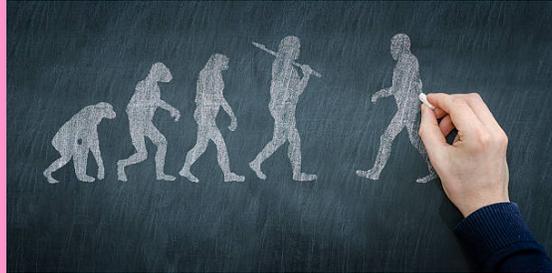
(1) **Trichotomy**- *Body, soul, and spirit*

(2) **Dichotomy**- *Body, soul / spirit*

“**Trichotomy** vs. **dichotomy** of man—which view is correct? It would seem that it is unwise to be dogmatic. **Both theories are Biblically plausible.** Neither interpretation is heretical. This is perhaps an issue we are unable to fully grasp with our finite human minds.

What we can be certain of is that the human nature is comprised of **a body, a soul, and a spirit.** Whether the *soul* and *spirit* are **one**, or are somehow **distinct**, is not an issue God chose to make abundantly clear in His Word.” (Gotquestions.org)

Hominids vs Humans



The term ‘*hominid*’ denotes primates that habitually walked upright on two legs. Many *non-Christians* (and some ‘*Young Earth Christians*’) equate some ancient *hominids* with a human ancestral relationship.

“There is great debate over what makes a ‘*modern human*.’ Archeological evidence indicates that human-like creatures (*hominids*) as far back as a million years ago buried their dead, made tools, and collected pretty things. Of course, we see animals today doing the same things. Elephants mourn their dead, monkeys use tools, and birds collect colorful objects. Despite the similarities, the evidence still indicates that ‘*modern humans*’ appear suddenly, with greatly expanded brain capacity, language, and culture” (David Snoke, “*The Biblical Case For An Old Earth*”).

Most ‘*Old Earth Christian*’ scientists believe *hominids* were **distinct animals**. They state that though there may be some biological similarities between *hominids* and *modern humans* (*Homo sapiens sapiens*), the two groups were **distinct populations without common ancestors**. They state mitochondrial and Y chromosome DNA analysis confirms that *Homo sapiens sapiens* is a species distinct from other *hominids*. Additionally, the *fossil record* shows relative *stasis*, not change, within any of the *hominid* species during their time on *Earth*.

‘*Old Earth Christians*’ believe *hominids* (like *Neanderthals*, *Homo erectus*, and others) were **non-spiritual animals** created by God but with enough intelligence to assemble crude tools and even adopt some level of culture—**but they were not spiritual beings made in God's image—a status reserved for Adam, Eve, and their descendants**.

They state great distinctions between *modern humans* and the *hominids* can be seen in their cognitive capacity, behavior patterns, technological development, and culture, especially artistic and religious expression.

‘*Young Earth Christians*’ explain *hominid fossils* in one of two ways— (1) they are either extinct ape species or (2) perhaps descendants of Adam and Eve (such as *Neanderthals* who, **after the Flood**, may have dispersed from the *Tower of Babel*).

How Old Is Man?

Irish **Archbishop James Ussher** is the person most famously associated with calculating the age of humanity from **Biblical genealogy**. He used the *chronological data* in Genesis 5 and 11 to **calculate** the time from **Adam to Abraham**.

Ussher then combined this with historical records and other **Biblical** timelines to work backward from known historical events, such as the destruction of Jerusalem in 587 BC. **He concluded that creation (and humanity a few days later) began at dusk on:**

October 22, 4004 B.C.

Ussher's chronology was widely adopted and printed in the margins of many English-language *Bibles* for centuries, becoming the most well-known of the *Biblically* based timelines.

While Ussher's chronology is the most famous, he was not the first person to make such a calculation. Others had performed similar analyses much earlier. For instance, scholars using the *Septuagint* version of the *Bible* had dated the creation of humanity around **5500 BC** for centuries.

“While the **bipedal primate species** (*‘hominids’*) that **preceded** *‘Homo sapiens sapiens’* (anatomically modern humans) used only primitive tools and exhibited no advancement in tool technology during their lengthy sojourn on Earth, the **arrival of humans** brought a huge and rapid leap in tool technology— axes, awls, needles, hammers, barbed fishhooks, shovels, harpoons, and more. The arrival of *humans* also launched the first clothing and jewelry industries. Dates for these cultural big bangs all cluster around **10,000 to 45,000 years ago**...

Using (*Biblical* overlapping) **genealogical data alone**, the date for the creation of **Adam and Eve** would seem roughly between about **10,000 and 100,000 thousand years ago**.” (Hugh Ross, *Navigating Genesis— A Scientists Guide to Genesis 1-11*)

Genesis continues:

Genesis 1:27-“male and female He created them.”

The fact that God created **two distinct persons as male and female** (rather than just one man) is part of being made in the ‘*image of God.*’ It reflects to some degree the **plurality of the Trinity.** Just as there was shared fellowship, communication, and glory among members of the *Trinity* before the world was made, God made **man** and **woman** in such a way they would share love, communication, and honor in their relationship.

And, just as the members of the *Trinity* are equal in importance, men and woman were been created by God to be **equal in their personhood.** Men and women are made **equally in God’s image.** One sex was not created to be better or worse than the other. But, like members of the Trinity, they would **perform different roles.**

WHAT IS A MALE?

WHAT IS A FEMALE?

ARE THERE ANY OTHER SEXES?

WHY DID GOD CREATE TWO SEXES?

Genesis then states:

Genesis 1:28-“And God blessed them. And God said to them, “Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth.”

“Analysis of ‘*mitochondrial DNA*’ (which provides insight into the origin of the maternal lineage) indicates that humanity traces back to a single ancestral sequence that could be interpreted as a **single woman.** Likewise, characterization of ‘*Y-chromosomal DNA*’ (which provides insight into the origin of the paternal lineage) indicates that all men trace their origin back to a single ancestral sequence that could be interpreted as a **single man**” (Fazale Rana, “*Were They Real? The Scientific Case for Adam and Eve,*” reasons.org).

God said to them, “*Be fruitful and multiply and fill the earth and subdue it.*”

“God assigned them as caretakers of all *Earth’s* resources. To carry out their responsibilities, they would need helpers, and they would need to spread out. This job was big! But was it too big?...

Though the numbers that follow may seem incredible, they can be checked on any pocket calculator. If Adam and Eve and their progeny had reproduced at the **rate of one child every four years** during the years of their long life-span-equivalent to the childbearing years of today’s average life span, they **could** have produced as many as **17 billion** offspring and still have had many years to enjoy before their 900th anniversary” (Hugh Ross, *Navigating Genesis— A Scientists Guide to Genesis 1-11*”).

Of course, there’s no indication that the population actually reached these numbers in their lifetime. But the fact remains that, even with genetic obstacles pointed out by skeptics, the statistical probability remains that not only did a real Adam and Eve exist, but that they were indeed fruitful, multiplied, and filled the earth.

WHO WAS ADAM?

WHO WAS EVE?

DID THEY REALLY EXIST?

COULD THEY HAVE REALLY POPULATED THE EARTH? HOW DO YOU KNOW?

The Genesis 1 narrative concludes:

Genesis 1:29-31- “And God said, “Behold, I have given you every plant yielding seed that is on the face of all the earth, and every tree with seed in its fruit. You shall have them for food.

And to every beast of the earth and to every bird of the heavens and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food.” And it was so.

And God saw everything that he had made, and behold, it was very good. And there was evening and there was morning, the sixth day.”

Many (but certainly not all) *Biblical* scholars (both ‘*Old Earth*’ and ‘*Young Earth*’) conclude from these verses that God gave Adam and Eve (and their offspring) **only vegetative life for food** (excluding animals) until after the *Flood*. They point to Genesis 9:1-4 that later states:

*“And God blessed **Noah** and his sons and said to them, “Be fruitful and multiply and fill the earth. The fear of you and the dread of you shall be upon every beast of the earth and upon every bird of the heavens, upon everything that creeps on the ground and all the fish of the sea. Into your hand they are delivered.*

Every moving thing that lives shall be food for you. And as I gave you the green plants, I give you everything. But you shall not eat flesh with its life, that is, its blood.”

But many other scholars point out that *animal death* clearly preceded the Flood:

“God killed an animal to make clothes in Genesis 3:21, and Abel’s sacrifice of an animal is accepted by God in Genesis 4:4...

The fact that Abel raised sheep also seems to indicate that **he ate them**, since this would be typical behavior for a shepherd. Also, since many hundreds of years passed between Adam and Noah, it is fair to say that the world would have quickly overpopulated with animals if they had not died....

The fact remains that teaching that human beings and animals did not eat meat before the fall is nowhere explicitly states in Scripture. It is a deduction based on one or two verses that have alternative interpretations” (David Snoke, “*The Biblical Case For An Old Earth.*”).

WHAT IS ANIMAL DEATH?

WAS THERE NO ANIMAL DEATH BEFORE THE 'FALL'?

WAS THERE ANIMAL DEATH BEFORE THE 'FALL'?

HOW DO YOU KNOW?

More on this controversy when we study ‘No Animal Death?’ (before Adam and Eve) later in the study!

XI. 'OLD UNIVERSE/EARTH'— 'DAY' SEVEN

Genesis 2:1-3-“Thus the heavens and the earth were finished, and all the host of them. And on the seventh day God finished his work that he had done, and he rested on the seventh day from all his work that he had done. So God blessed the seventh day and made it holy, because on it God rested from all his work that he had done in creation.”

The Hebrew word for ‘rest’ is ‘*sabbat*’ meaning ‘to cease,’ ‘to rest,’ or ‘to desist from labor.’ It indicates God ‘paused’ His creation **not** because He was tired, but because **nothing more was needed for the physical support of human existence.**

Though frequent introductions and extinctions occurred in the *fossil record* before ‘Man,’ the introduction rate of life after ‘Man’ plummeted to virtually zero. **No new mammal species has appeared during the human era** (meanwhile, half of all mammal species present in the *fossil record* from the time of our origin have gone **extinct**).

As mentioned previously, the theologian Augustine (354-430 AD) in his “*Confessions*” noted that for the **seventh ‘day,’** Genesis makes no mention of an ‘*evening*’ and a ‘*morning*.’ He **deduced** from this omission that God’s sanctified the **seventh ‘day,’ making it an epoch extending onward into eternity.**

“The **seventh day** began, from an *Earthly* perspective, after the creation of Adam and Eve and extends through the present era to a future time. Revelation 21 tells us that the **seventh day** will eventually end for us, when God’s purpose for this cosmos have been fulfilled and God unveils an entirely ***new Heaven and Earth*** for us, **a new creation with new physical laws**, appropriate, as always, to the fulfillment of His divine purposes and plans for life beyond cosmic time” (Hugh Ross, “*Navigating Genesis- Scientists Guide to Genesis 1-11*”).

HOW LONG IS 'DAY' SEVEN?

WHAT'S HAPPENED DURING 'DAY' SEVEN?

WHATS HAPPENING DURING 'DAY' SEVEN?

WHEN WILL IT END?

CHAPTER SEVEN

“THE THEOLOGY OF THE YOUNG UNIVERSE/EARTH VIEW”

I. OVERVIEW- ‘DAYS’ 1-7

We’ve explored the rationale for the ‘*Old Universe/Earth*’ viewpoint (with push-back from ‘*Young Universe/Earth*’ proponents). It’s now time to give the more well known, **traditional ‘*Young Universe/Earth*’** view its turn to make its case (with push-back from ‘*Old Universe/Earth*’ advocates sprinkled in).

The ‘*Young Universe/Earth*’ theology is based on a simple, **literal interpretation** of the book of Genesis— **God created everything in six literal 24 hour ‘days.’**

- Day 1: God created light, separating it from darkness.

Gen 1:1-5-“In the beginning, God created the heavens and the earth.

The earth was without form and void, and darkness was over the face of the deep.

And the Spirit of God was hovering over the face of the waters And God said, “Let there be light,” and there was light.

And God saw that the light was good. And God separated the light from the darkness. God called the light Day, and the darkness he called Night.

And there was evening and there was morning, the first day”

— ‘*Day*’ one of creation refers to the very **first of six consecutive, 24-hour days** in which God created the *Heavens* and the *Earth* from a state of darkness and emptiness.

According to this literal interpretation of Genesis 1, this day involved God creating *light*, separating it from *darkness* to create *day* and *night*, and establishing the cycle of *evening* and *morning*. This is seen as **the initial act of creation**, with all subsequent events occurring within the **same six-‘day’ period**.

However, there is a common question— ‘**How there could be ‘*light*’ on the first day of Creation when the sun was not created until the fourth day?**’ ‘*Young Earth*’ advocates answer that question like this:

- **God was the Source:** Many interpretations state that **God's own presence** or **glory** was the **source of the 'light' on the first day**. This demonstrates that God is the ultimate source of all **light**. The Bible describes God as **light** —“*God is light; in Him there is no darkness at all*” (1 John 1:5) and states that in the future **New Heaven** and **New Earth**, there will be no need for a sun or moon because “*the Lord God will give them light*” (Rev 22:5), showing He can provide **light** independently of the sun.
 - **Day One Light Not the Sun:** This first **light** was **not the sun**, which was created later on **day four** to ‘*rule the day*’ and ‘*light the earth.*’ This emphasizes that the celestial bodies are created instruments of God, not the ultimate or only source of **light** (a point that contrasted with the sun-worshipping cultures of the ancient Near East).
 - **Special Light:** The **light** created on day one is described as a unique or **special light** that marks the beginning of creation. Some traditions suggest it was a **temporary light** that was **hidden from humanity** because of their future sinfulness, with the **sun replacing it later**.
- Some believe God created **light** as a physical reality (photons or the entire **electromagnetic spectrum**) without a concentrated source like the sun at first, later gathering this **light** into the celestial bodies on Day 4.
- **Allows for day and night:** Even without the sun, this **light** was sufficient to create a cycle of ‘*evening and morning,*’ indicating that the **Earth** was already rotating and the **light** was directional.

WHAT IS THE DAY ONE 'LIGHT' ACCORDING TO 'YOUNG UNIVERSE/EARTH' ADVOCATES?

WHAT IS THE DAY ONE 'LIGHT' ACCORDING TO 'OLD UNIVERSE/EARTH' ADVOCATES?

WHEN DID GOD CREATE THE HEAVENS AND THE EARTH?

- Day 2: God created the sky and the waters, establishing an expanse between them

Gen 1:6-8—“And God said, “Let there be an expanse in the midst of the waters, and let it separate the waters from the waters.”

And God made the expanse and separated the waters that were under the expanse from the waters that were above the expanse. And it was so.

And God called the expanse Heaven.

And there was evening and there was morning, the second day."

— The **second 'day'** of creation involves God separating the "**waters above**" from the "**waters below**" by creating a "**firmament**," often interpreted as a solid, dome-like structure or a water vapor canopy in the sky. This creation separates the **upper waters** from the **lower waters**, allowing for the **creation of the sky** for birds and the **atmosphere**. This division was called '**Heaven**,' and it may have provided the space where the sun, moon, and stars would be placed on the fourth day.

Some (but not all) '*Young Universe/Earth*' advocates believe this **firmament** to have held the '**waters above**' until the '**Great Flood**,' when it supposedly collapsed to produce the rain mentioned in the *Biblical* account.

— **Hebrew Word:** The English word "**firmament**" (used in the King James Version and other older translations) comes from the Latin '**firmamentum**' (meaning a '**firm**' or '**solid**' object), which translated as *stereōma* in the Greek *Septuagint*. The original Hebrew word is *raqia* (רָקִיעַ), derived from a root meaning '**to beat or spread out thinly**,' like hammering a metal sheet into an expanse.

— **Modern Translations:** Newer *Bible* translations often use terms like '**expanse**,' '**sky**,' or '**vault**' instead of '**firmament**' to better reflect the sense of **space** or a **stretched-out** area, rather than a solid dome, and to avoid confusion with ancient Near Eastern cosmological beliefs that envisioned a literal solid dome.

— **Function:** God created the *raqia* to establish order in the *Universe* by creating a **space** that separates the "**waters under the firmament**" (*Earthly* waters like seas, lakes, and rivers) from the "**waters above the firmament**" (often interpreted as clouds, atmospheric moisture, or celestial waters beyond the atmosphere— space)

— **Location of Celestial Bodies:** Later, on the **fourth 'day'** of creation, God placed the **sun**, **moon**, and **stars** in the **firmament** of the heavens to give **light** to the earth and to mark seasons, days, and years.

WHAT IS THE FIRMAMENT/EXPANSE/HEAVEN OF 'DAY TWO?'

WHAT DID EARTH LOOK LIKE BEFORE AND AFTER 'DAY' TWO?'

WHAT DID SPACE LOOK LIKE BEFORE AND AFTER 'DAY' TWO OF THE YOUNG UNIVERSE VIEW?'

- Day 3: God gathered the waters to reveal dry land and created vegetation

Gen 1:9-13—“And God said, “Let the waters under the heavens be gathered together into one place, and let the dry land appear.” And it was so.

God called the dry land Earth, and the waters that were gathered together he called Seas. And God saw that it was good.

And God said, “Let the earth sprout vegetation, plants yielding seed, and fruit trees bearing fruit in which is their seed, each according to its kind, on the earth.” And it was so.

The earth brought forth vegetation, plants yielding seed according to their own kinds, and trees bearing fruit in which is their seed, each according to its kind. And God saw that it was good.

And there was evening and there was morning, the third day”

— On ‘*day*’ three, God performed **two major creative acts**, which are considered to have occurred within a single, **literal 24-hour period**, approximately **6,000 to 10,000 years ago**:

1. Separation of Land and Water: God commanded the **waters** that were under the heavens to be **gathered into one place**, and the **dry land** appeared. This involved the **instantaneous** formation of **mountains, valleys, plains, oceans, lakes, and rivers**. The dry land was called ‘*Earth*,’ and the gathered waters were called ‘*Seas*’.

2. Creation of Vegetation: God created all forms of *plant life*, including grass, herbs yielding seed, and fruit trees bearing fruit, each designed to reproduce after its own **kind**. The plants were created as **mature**, functioning organisms— **not** as **seeds** that would take time to grow.

A key point within the ‘*Young Earth*’ view is that this plant life was created on day three, **before the sun, moon, and stars were created on day four**. This is often highlighted to emphasize God's power and that **He is not bound by the natural processes** (such as *photosynthesis* requiring the sun) which He later established as the norm.

The plants were created as fully **mature organisms** with '*built-in age*' and the ability to reproduce '*according to their kind*' (implying variation within a species, but **no evolution between different kinds of organisms**)

HOW LONG DID IT TAKE FOR MOUNTAINS, VALLEYS, PLAINS, AND OCEANS TO APPEAR ACCORDING TO THE 'YOUNG EARTH' VIEW OF CREATION?

HOW LONG DID IT TAKE FOR MOUNTAINS, VALLEYS, PLAINS, AND OCEANS TO APPEAR ACCORDING TO THE 'OLD EARTH' VIEW OF CREATION?

WHAT WAS THE IMPORTANCE OF PHOTOSYNTHESIS IN EACH VIEW?

- Day 4: God created the sun, moon, and stars to be visible from Earth

Gen 1:14-19—"And God said, "Let there be lights in the expanse of the heavens to separate the day from the night.

And let them be for signs and for seasons, and for days and years,

and let them be lights in the expanse of the heavens to give light upon the earth."

And it was so.

And God made the two great lights—the greater light to rule the day and the lesser light to rule the night—and the stars.

And God set them in the expanse of the heavens to give light on the earth,

to rule over the day and over the night, and to separate the light from the darkness.

And God saw that it was good.

And there was evening and there was morning, the fourth day."

— God supernaturally and **instantly** created the **sun, moon, and stars**, placing them in the **firmament of the heavens**.

- **Purpose:** The celestial bodies were created specifically to serve functions related to the *Earth* and its future inhabitants, not as part of a long naturalistic process. Their **primary roles** are to:
 - Divide the day from the night
 - Serve as signs for appointed times and religious festivals.
 - Mark out seasons, days, and years, forming the basis of Earth's calendar
 - Provide light upon the Earth

- **Light before the Sun:** A common question is how *light*, *day*, and *night* existed on ‘*days*’ **one through three** if the sun was not created until ‘*day*’ **four**.

‘*Young Universe/Earth*’ advocates explain that God created a **general source of light** (*’or*) on ‘*day*’ **one**, independent of the sun, to illuminate the Earth. On ‘*day*’ **four**, specific ‘*light-bearers*’ (*mā’ôr*), the **sun, moon, and stars**, were created and given the specific function of **governing** and **regulating** this *light*.

- **Supernatural creation:** The creation of these *celestial bodies*, even those billions of light-years away, is considered a **supernatural act of God's infinite power**, which means it **cannot be fully explained within current natural laws of physics**. This addresses the ‘*light travel time*’ issue often raised by opponents of the ‘*Young Earth*’ view.

WHEN WERE THE SUN, MOON, AND STARS CREATED ACCORDING TO THE ‘YOUNG UNIVERSE’ VIEW?

WHEN WERE THE SUN, MOON, AND STARS CREATED ACCORDING TO THE ‘OLD UNIVERSE’ VIEW?

HOW DOES EACH EXPLAIN THEIR POSITION?

- Day 5: God created fish and birds.

Gen 1:20-23—“And God said, “Let the waters swarm with swarms of living creatures, and let birds fly above the earth across the expanse of the heavens.”

So God created the great sea creatures and every living creature that moves, with which the waters swarm, according to their kinds, and every winged bird according to its kind. And God saw that it was good.

And God blessed them, saying, “Be fruitful and multiply and fill the waters in the seas, and let birds multiply on the earth.”

And there was evening and there was morning, the fifth day.”

- On ‘*day*’ five, God created **all the creatures** that live in the **sea** and the **air**, including fish, sea monsters, and birds, in a literal 24-hour period. This account from Genesis 1 states that God commanded the **waters** to be filled with **living creatures** and the **sky** to be filled with **birds**, blessing them to **multiply** and **fill the earth**.

God created these creatures by *divine command* (*‘ex nihilo’* for their essence, or from existing raw materials,—but **through a supernatural act**, not naturalistic processes like *evolution*). This refutes the idea of life *‘spontaneously generating’* or *‘evolving’* over millions of years.

- **Diversity of ‘Kinds’:** God created a vast diversity of creatures, including fish, whales, dolphins, birds, and even flying reptiles, all of which were made to reproduce *‘according to their kind’* (Genesis 1:21), meaning one *‘kind’* of animal would never produce another *‘kind’*
- **A ‘Very Good’ World:** *‘Young Earth’* creationists emphasize that this creation was part of a brand new, **perfect world** that God called *‘good’*. They argue that the existence of **death and decay** (which an *‘Old-Earth’* view would require for millions of years of animal life) would **not** be considered *‘very good’* by God, thus supporting the *‘Young-Earth’* perspective that **death did not exist until after Adam's sin** on Day 6 ([much more on this later](#)).

WHAT ARE SEA CREATURES AND BIRDS?

HOW IS ‘YOUNG EARTH’ DAY FIVE AND ‘OLD EARTH’ DAY FIVE SIMILAR?

HOW ARE THEY DIFFERENT?

- Day 6: God created land animals and humans

Gen 1:24-31—"Then God said, "Let us make man in our image, after our likeness.

And let them have dominion over the fish of the sea and over the birds of the heavens and over the livestock and over all the earth and over every creeping thing that creeps on the earth."

So God created man in his own image, in the image of God he created him; male and female he created them.

And God blessed them. And God said to them, "Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth."

And God said, "Behold, I have given you every plant yielding seed that is on the face of all the earth, and every tree with seed in its fruit. You shall have them for food.

And to every beast of the earth and to every bird of the heavens and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food." And it was so.

And God saw everything that he had made, and behold, it was very good. And there was evening and there was morning, the sixth day."

- This *Biblical* account states that God formed **land animals** and then **created humans** (*Adam* from the **dust** and *Eve* from Adam's **rib**) **in His image**. This day also included the initial setup of the *Garden of Eden*, with **God creating the plants** and **placing Adam there**. This '*day*' is seen as the **culmination of the creation process for all living creatures**
- **Creation of Land Animals:** God commanded the *Earth* to bring forth all *kinds* of **land animals**, including livestock, wild animals, and creatures that move along the ground (which '*Young Earth*' proponents interpret to include dinosaurs). These animals were created instantly, "**after their kind**," meaning they were designed with the ability to **reproduce within their kind** but **not to evolve** into different kinds.
- **Later on the same day:** After creating **Adam**, God recognized that it was not good for man to be alone. He caused a deep sleep to fall upon Adam, took one of his ribs, and fashioned the first woman (**Eve**) from it.

- **Purpose and Dominion:** God blessed **Adam** and **Eve** and gave them the mandate to be fruitful, multiply, fill the earth, and have **dominion over all other living creatures** and the Earth itself
- **Original Diet:** According to ‘*Young Earth*’ advocates both **humans** and **all animals** were originally **vegetarian**, eating only plants and fruits— a dietary restriction that proponents argue points to an initial state of **perfection without death** or struggle for existence
- **Declaration of ‘Very Good’:** At the conclusion of the sixth day, with all creation complete, God observed everything He had made and called it ‘*very good*,’ indicating a **perfect world without sin, suffering, or physical death.**

HOW IS ‘YOUNG EARTH’ DAY SIX AND ‘OLD EARTH’ DAY SIX SIMILAR?

HOW ARE THEY DIFFERENT?

WHY DID GOD CREATE ADAM?

WHY DID GOD CREATE EVE?

- Day 7: God rested from his work

Gen 2:13-“Thus the heavens and the earth were finished, and all the host of them.

And on the seventh day God finished his work that he had done, and he rested on the seventh day from all his work that he had done.

So God blessed the seventh day and made it holy, because on it God rested from all his work that he had done in creation.”

- The **seventh ‘day’** is a literal 24-hour period in which God rested after creating the world in six, 24-hour days. Those who hold this view see God's work of creation as **complete**, which is **distinct** from His ongoing work of **sustaining the Universe** or performing **miracles**.

They claim that God **finished creation** in six literal days and **entered into a perpetual, ongoing rest.**

— God *'rested'* (God ceased from His specific work of creation), **not because He was tired** (as God is omnipotent), but to set a **divine example** and established the **pattern** for the weekly *Sabbath*. This day is also seen as **sanctifying 'rest' from 'work'** and setting a **holy time for worship**.

Our **seven-'day' week**, including the *Sabbath*, is directly based on the pattern of creation. The **fourth commandment** in **Exodus** is a direct reference to **God resting on the seventh 'day'**:

Ex 20:5-11- "*Remember the Sabbath day, to keep it holy. Six days you shall labor, and do all your work, but the seventh day is a Sabbath to the Lord your God. On it you shall not do any work, you, or your son, or your daughter, your male servant, or your female servant, or your livestock, or the sojourner who is within your gates. For in six days the Lord made the heavens and the earth, the sea, and all that is in them, and rested on the seventh day. Therefore the Lord blessed the Sabbath day and made it holy.*"

WHAT IS THE SABBATH?

HOW LONG WAS 'DAY' SEVEN ACCORDING TO 'YOUNG EARTH' ADVOCATES?

HOW LONG IS 'DAY' SEVEN ACCORDING TO 'OLD EARTH' ADVOCATES?

WHY ARE WE INSTRUCTED TO 'REMEMBER THE SABBATH'?

II. GENERAL TENETS of 'YOUNG EARTH' THEOLOGY

'Young Universe/Earth' theology holds that the **universe and all life were created by God in six literal, 24-hour days**:

- **Interpretation of "day"**: This view maintains that "*day*" (*'yom'*) in Genesis 1 refers to **six consecutive 24-hour periods**. Proponents argue that the use of "*evening and morning*" and **sequential numbering** with *'day'* solidifies this interpretation

(See Discussion of *'Day'* in Chapter Three)

- **Age of the Earth**: Based on *Biblical genealogies* and *chronologies*, *'Young Universe/Earth'* theology estimates the age of the Earth to be approximately **6,000 to 10,000 years**.
- **Creation method**: All life was created **instantaneously** in its current form (or "*kinds*") within the six-day period. Speciation and **limited adaptation** within created *'kinds'* (***'micro-evolution'***) are **accepted**, but ***'macro-evolution'*** (*Darwinism*) is **rejected**.

- **Death before the Fall:** ‘*Young Universe/Earth*’ theology argues that there was **no death, suffering, or disease among animals or humans before Adam and Eve's sin**. All ‘negative’ aspects of nature are believed to have originated as part of the ‘*curse*’ after the ‘*Fall*.’
- **Scientific findings:** ‘*Young Universe/Earth*’ theology **rejects the scientific consensus** on the age of the *Earth*, arguing that modern science is **flawed** by naturalistic assumptions.

They propose **alternative interpretations** of data, such as a **worldwide flood** (‘*Noah's Flood*’) as the primary event responsible for shaping the *Earth's crust*, burying *fossils*, and forming the **rock layers**, or *geologic column*. (Much more on this in the next chapter),

WHAT ARE THE MAIN TENETS OF THE ‘YOUNG EARTH’ THEOLOGY?

WHAT ARE THE MAIN TENETS OF THE ‘OLD EARTH’ THEOLOGY?

III. GENEALOGICAL DATING OF THE AGE OF THE UNIVERSE AND EARTH

The Bible does not state the age of the Earth directly. The commonly cited ‘*Young Earth*’ age of approximately **6,000 to 10,000 years** is a **calculated estimate** based on a **literal interpretation of the genealogies** and events described in the *Old Testament*, particularly **Genesis 5 and 11** (the Genesis 5 genealogy connects Adam to Noah, and Genesis 11 connects Noah to Abraham). Additional *genealogical* data can be found in I and II Chronicles and gleaned from Judges, I & II Kings, Daniel, Acts, and other books.

Archbishop James Ussher (1581-1656) famously used this method in the **17th century** to date creation to **October 22, 4004 BC**, resulting in an age of under **6,000 years**. ‘*Young Earth*’ advocates argue that there are **no significant gaps** in the Genesis 5 and 11 *genealogies*. They claim that *Biblical* evidence, such as Jude 14 (“*Enoch, the seventh from Adam*”), supports a complete record, preventing the insertion of millions of years.

“*Of course the genealogies only begin with the creation of Adam, so the question of time before Adam remains*” (John D Morris, PhD, *Institute For Creation Research*, “*How Old Is The Earth According To The Bible?*”). But ‘*Young Earth*’ apologists do not see this as an obstacle to dating as they interpret ‘*days*’ in Genesis to be literal 24 hour periods of time (Adam created on ‘*day*’ six) — thus, **the few ‘days’ before the creation of Adam are insignificant in their calculations of the origin of the Universe/Earth.**

| <u>Name</u> | <u>Age when son born</u> | <u>Age of death</u> |
|-------------|--------------------------|---------------------|
| Adam | 130 | 930 |
| Seth | 105 | 912 |
| Enosh | 90 | 905 |
| Kenan | 70 | 910 |
| Mahalalel | 65 | 895 |
| Jared | 162 | 962 |
| Enoch | 65 | 365 |
| Methuselah | 187 | 969 |
| Lamech | 182 | 777 |
| Noah | 500 (502) | 950 (Gen 9:29) |
| Shem | 100 | 600 |
| Arpachshad | 35 | 438 |
| Shelah | 30 | 433 |
| Eber | 34 | 464 |
| Peleg | 30 | 239 |
| Reu | 32 | 239 |
| Serug | 30 | 230 |
| Nahor | 29 | 148 |
| Terah | 70 | 205 |
| Abram | | 175 |

However, many *Biblical* scholars disagree with the literalist interpretation of the **Genesis genealogies**. They argue that *Biblical genealogies are not always complete* as ancient genealogies could **skip generations**. They state that the *Biblical* purpose of genealogies was often **thematic** and **not strictly chronological**. They claim that the purpose of *Biblical genealogy* was to show ancestral **descent—not dating**.

The Hebrew word ‘*yalad*,’ often translated as ‘*begat*’ or ‘*fathered*,’ can refer to a more distant ancestral relationship rather than a direct father-son link. This broader meaning can allow for **gaps** in the timeline.

Several *Biblical genealogies* do contain **gaps**— Matthew’s record of Christ’s genealogy is probably the most obvious. Matthew 1:8 states that Joram was the **father** of Uzziah, yet 1 Chronicles 3:11–14 reveals that Joram was actually the **great-grandfather** of Uzziah (a.k.a. Azariah).

Indeed, **omissions** are made in a number of genealogies in Scripture (Matthew 1; Numbers 3:19, 27, 28; 1 Chronicles 26; Ezra 7:1-5; and Ezra 8:1-2). It was a perfectly acceptable practice to call one’s grandfather “*father*” or grandson, “*son*.”

In a 1800’s rebuttal to Ussher’s timeline based on genealogies, Dr. William Henry Green, Professor of *Old Testament* at Princeton Theological Seminary, published in *Bibliotheca Sacra*:

“It can scarcely be necessary to adduce proof to one who has even a superficial acquaintance with the genealogies of the *Bible*, that they are **frequently abbreviated by the omission of unimportant names**. In fact, **abridgment is the general rule**, induced by the indisposition of the sacred writers to encumber their pages with more names than were necessary for their immediate purpose. This is so constantly the case, and the reason for it so obvious, that the occurrence of it need create no surprise anywhere”

‘*Young Earth*’ apologists counter that just because gaps exist in some genealogies does not mean that they must occur in the Genesis genealogies.

Additionally, they state that **even if slight gaps do occur in the genealogies, this does not get ‘Old Earth’ advocates anywhere close to the billions of years they need for science’s accepted age of the earth.**

As Dr. R. C. Sproul (founder of *Ligonier Ministries* and president of Reformation Bible College) once said:

“If we take the *genealogies* that go back to Adam, however, and if we make allowances for certain gaps in them (which could certainly be there), **it remains a big stretch** from 4004 BC to 4.6 billion years ago” (Sproul, “*Gallileo Redux*” in *Tabletalk* 25).

The ‘*Old Earth*’ *Christian* rebuttal to this is that they only claim **the earth is 4.6 billion years old— not man**. Using **genetics** and **archaeology** they place the **creation of Adam and Eve in the broad range of 6,000 to 100,000 years ago.**

IS BIBLICAL GENEALOGICAL DATING OF THE EARTH ACCURATE?

WHY?

WHY NOT?

IV. INSTANTANEOUS CREATION

The ‘*Young Earth*’ view holds that God created the first **animate and inanimate things supernaturally and instantly**— sometimes referred to as ‘*Fiat Creationism*.’ The term ‘*Fiat creationism*’ describes the **method** of creation, while ‘*Young Earth Creationism*’ defines the **timing** of creation.

The word "*fiat*" comes from the Latin for ‘*let it be done*.’ ‘*Fiat creationism*’ is the belief that God created the *Universe, Earth*, and all life **instantly by divine command**, ‘*speaking*’ each element into existence exactly as described in Genesis.

It **rejects** the idea that creation happened through any naturalistic, gradual processes over billions of years, in favor of **a series of instantaneous, miraculous acts**. It emphasizes God's **omnipotence and direct involvement**, forming a fully functional world from the very beginning

For example, **plants, animals, and people** were created **mature adults** ready to **reproduce naturally** “*after their kinds*.” When God said “*let there be . . .*” He did not have to wait millions of years for things to come into existence. He ‘*spoke*’ and things happened **immediately**.

Psalm 33:6-9- “*By the word of the Lord the heavens were made, and by the breath of his mouth all their host. He gathers the waters of the sea as a heap; he puts the deeps in storehouses.*”

Let all the earth fear the Lord; let all the inhabitants of the world stand in awe of Him

For he spoke, and it came to be, He commanded, and it stood firm.”

Hebrews 11:3- *By faith we understand that the universe was created by the word of God, so that what is seen was not made out of things that are visible.”*

Jeremiah 32:17- “*Ah, Lord God! It is You who have made the heavens and the earth by Your great power and by Your outstretched arm! Nothing is too hard for You.”*

a. Central Theological Emphasis of Fiat Creationism

“*Fiat Creationism* rests upon a conviction that God’s Word is authoritative and that He has the power to bring forth reality simply by ‘*speaking*.’ This underscores key attributes of God:

- **Omnipotence:** The ability to create out of nothing (‘*ex nihilo* ’).
- **Sovereignty:** Command over all things, from subatomic particles to entire galaxies

- **Purposeful Design:** Everything in creation bears **intentional structure and order**

b. Philosophical and Behavioral Considerations of Fiat Creationism

- **Human Significance:** If humans are formed purposefully and uniquely by God (Genesis 2:7), life gains distinct **meaning** and inherent **worth**
- **Moral Foundations:** Divine creation establishes **objective moral truths** anchored in God's character. When God '*spoke*' the cosmos into existence, He similarly decreed **moral laws** that reflect His nature
- **Purpose and Accountability:** Recognizing God as Creator fosters **personal responsibility**, encouraging believers and inquirers alike to reflect on their relationship with Him" (*Bible hub.com*).

WHAT IS FIAT CREATIONISM?

ACCORDING TO THE 'YOUNG UNIVERSE/EARTH' VIEW, OVER WHAT PERIOD OF TIME DID GOD CREATE THE UNIVERSE, EARTH, AND LIFE?

DOES THE 'PROGRESSIVE CREATIONISM' VIEW BELIEVE IN FIAT CREATIONISM OF LIFE?

HOW IS THE 'PROGRESSIVE CREATIONISM' VIEW OF CREATION OF LIFE DIFFERENT THAN THE 'YOUNG UNIVERSE/EARTH VIEW'?

V. NO DEATH BEFORE THE FALL

Rom 5:12-15- "*Therefore, just as sin came into the world through one man, and death through sin, and so death spread to all men because all sinned— for sin indeed was in the world before the law was given, but sin is not counted where there is no law. Yet death reigned from Adam to Moses, even over those whose sinning was not like the transgression of Adam, who was a type of the one who was to come. But the free gift is not like the trespass. For if many died through one man's trespass, much more have the grace of God and the free gift by the grace of that one man Jesus Christ abounded for many.*"

1 Corinthians 15:21- "*For as by a man came death, by a man has come also the resurrection of the dead.*"

‘*Young Earth*’ apologists believe **no animal death** occurred before Adam's Fall. They interpret Romans 5:12 and 1 Corinthians 15:21 to say that **Adam's brought all death into the world** (this includes **all forms of death— human and animal**). They argue God originally created a perfect world that He called "*very good*" (Genesis 1:31)— this original world did **not** include physical death, disease, or suffering for humans **or** animals.

Belief in ‘*no death before the Fall*’ is a necessary consequence of the ‘*Young Earth*’ interpretation of the Genesis **timeline**. In this view, **fossils** cannot represent millions of years of life and death, because that would contradict their *Biblical* timeline. Instead, ‘*Young Earth*’ geologists argue that the ‘*fossil layers*’ were created during a single, catastrophic global event— the ‘*Flood*.’

If the ‘*fossil record*’ is understood as existing **only after the Fall**, then the **geological ages must be recent** (which contradicts the current scientific data indicating immense animal death over millions of years). Of course, any discussion regarding the **timing between the creation of Adam and the ‘Fall’** is only **speculative** as **the Bible does not address this**.

We’ll delve much more into the ‘*Fossil Record*’ and the ‘*Flood*’ in Chapter Eight—
‘Science of the Young Earth View’

a. Key Tenets of ‘No Death Before The Fall’ View

- **Goodness of God and Creation:** The central argument is that a good and all-powerful God would **not** have created a *Universe* filled with **death, suffering, and predatory behavior**
- **The Fall's Cosmic Impact:** The **fall of Man** was a cosmic event that **introduced** physical death into the world, affecting all of creation, **including the animal kingdom**.
- **No Animal Death Before Sin:** **Death and predation** in the animal world (including the presence of dinosaurs) are believed to have been introduced **after the Fall**
- **Vegetarian Pre-Fall World:** In the original creation, animals and humans are believed to have been *herbivores*, coexisting **peacefully** without any threat or aggression
- **Restoration of the New Earth:** The *Bible* speaks of a future state in the ‘*New Heaven*’ and ‘*New Earth*’ where thorns and thistles, poisons, and predatory behavior are **absent**. ‘*Young Earth*’ proponents argue that if the original creation was free from these, it's more consistent that they would **also be absent before the fall**.

b. Why 'No Death Before The Fall' is Important to the 'Young Earth' View

- **Biblical Integrity:** This position is considered a **cornerstone** by many 'Young-Earth' creationists, as they see it as a more decisive argument for their stance on the age of the *Earth*
- **The foundation of Atonement:** The *Christian* message is that Christ's death was a substitutionary **atonement** to pay the penalty for **human sin**. If death was already a natural part of creation and not a result of sin, then Christ's death on the cross loses its foundational meaning as the solution to sin and death.
- **Restoration:** The future hope of *Christianity* is a '**New Heaven**' and a '**New Earth**' where there will be "*no more death or mourning or crying or pain*" (Rev 21:4). 'Young Earth' advocates argue this is a **restoration to the original perfect, deathless state of Eden**. If death was always part of creation, there is no paradise state to be restored to.

'Old Earth' Counterargument — Death of Humans, Not Animals!

Opponents of the '*No Death Before The Fall*' view ask an important question:

What Kind Of Death Came Into The World When Adam Sinned?

They point out that Paul states in Romans 5:12, "*death spread to all men because all sinned.*" 'Old Earth' proponents claim this passage clearly refers primarily to the **death of humans— not animals**.

'Old Earth' theologians state reading *animal death* into these passages (Rom 5:12-15 and 1 Cor 15:21) is an **unnecessary, incorrect extrapolation** of the passages:

"If physical death was impossible to **any** animal life before the sin of Adam and Eve, then why did Adam and Eve need to eat from a special '**Tree of Life**' to have **eternal life**? Would not all animals, including Adam and Eve, have already been immortal? The discussion of the '**Tree of Life**' seems to clearly indicate that eternal physical life was a blessing given **only to humans, not to animals**.

This is further supported by passages like Ecclesiastes 3:18-20 and Psalm 49:12,20 that state part of the curse on unbelievers is that "*he is like the beasts that perish.*" In other words, animals naturally die, but humans should be different (David Snoke, "*The Biblical Case For An Old Earth.*").

"(Romans 5:12) addresses **death through sin, not death in general**... Of all the kinds of life God created on Earth, **only one kind, namely the human race, is capable of sinning**...

Therefore, Romans 5:13 tells us when **human death began, not when the death of plants and animals began**... Nowhere does the *Bible* claim that plants and animals did not die before Adam sinned (Hugh Ross, *Navigating Genesis— A Scientists Guide to Genesis 1-11*”).

A **second argument** against the ‘*No Death Before The Fall*’ view is that only in *Eden* was a perfect world described. But *Eden* was only a small part of the entire Earth. The opening chapters of Genesis depict *Eden* as a **limited geographic place** somewhere in *Mesopotamia*, set apart from the wild lands outside of the garden.

Genesis 2:8-14-“*And the Lord God planted a garden in Eden, in the east, and there he put the man whom he had formed. And out of the ground the Lord God made to spring up every tree that is pleasant to the sight and good for food. The tree of life was in the midst of the garden and the tree of the knowledge of good and evil.*

*A river flowed out of Eden to water the garden, and there it divided and became four rivers. The name of the first is the Pishon. It is the one that flowed around the whole land of Havilah, where there is gold. And the gold of that land is good; bdellium and onyx stone are there. The name of the second river is the Gihon. It is the one that flowed around the whole land of Cush. And the name of the third river is the Tigris, which flows east of Assyria. And the fourth river is the Euphrates. **The Lord God took the man and put him in the garden of Eden to work it and keep it.**”*

These verses tell us that in the large world God created, there was a place called *Eden*, and somewhere in that place, there was a **garden** where **He put the first Man** (and with him the first woman). Significantly, this means **that the garden paradise God made for Adam and Eve didn’t encompass the entire world**. Indeed, after Adam’s sin, God sent Adam and Eve out of *Eden* into the **hostile land** surrounding it.

Genesis 3:22-24-“*Then the Lord God said, “Behold, the man has become like one of us in knowing good and evil. Now, lest he reach out his hand and take also of the tree of life and eat, and live forever—” **therefore the Lord God sent him out from the garden of Eden to work the ground from which he was taken. He drove out the man,** and at the east of the garden of Eden he placed the cherubim and a flaming sword that turned every way to guard the way to the tree of life.”*

God told them, “*Be fruitful and multiply, and fill the earth and **subdue it***” (Genesis 1:28). If the entire world was already a paradise, why would mankind have to **subdue it**? Wouldn’t it already have been subdued for them? This implies that the paradise God created for mankind didn’t encompass the entire world. Rather, it was only part of the world, and the rest of it was an **untamed wilderness**

The lands outside of the *garden* could certainly have been a place where **death** (and **predation**) occurred as a warning to Adam and Eve of what would happen if they disobeyed. **Without this visible illustration of what it meant to die, God’s statement that they would certainly die if they disobeyed could have been meaningless to Adam and Eve.**

A **third argument** against the ‘*No Death Before The Fall*’ view is that ‘*Young Earth*’ advocates **assume** that in the *pre-Fall* world, God was only glorified by **herbivores that never died**—suggesting a **lack of carnivorous activity** (hunting and killing other animals). They believe Genesis 1:29-30 indicates that **only plant-life was given for food** because ‘*animal death*’ would not be comparable with God declaring all He had made as being “*very good.*”

But **opponents** of ‘*No Death Before The Fall*’ view ask, ‘**who says animal death doesn’t fit with God declaring His creation ‘*very good*?’** They point out that in the Scriptures, ‘*predation*’ is portrayed as something that often **glorifies** God. In the book of Psalms, **God is credited for giving lions their prey:**

Psalm 104:21- “*The young lions roar for their prey, seeking their food from God*”

And, in the same chapter of Job where God speaks about the creation of the world, He first asks,

Job 38:4-7- “*Where were you when I laid the foundation of the earth? Tell me, if you have understanding. Who determined its measurements—surely you know! Or who stretched the line upon it? On what were its bases sunk, or who laid its cornerstone?*”

He then **He takes credit** for supplying ravens with their prey:

Job 38:41- “*Who provides for the raven its prey, when its young ones cry to God for help, and wander about for lack of food?*”

As David Snoke (“*A Biblical Case For An Old Earth*”) states:

“The forces of nature are not ‘*evil,*’ even powerful forces that threaten us. We tend to personify nature, but **thunderstorms and animals do not sin**. They become ‘*evil*’ only in relation to us, when God uses them as forces of judgement against us... God is proud of His handiwork, including carnivorous animals like the lion and the leviathan (large ferocious sea creature), glorifying them in passages like Job 38-41 and Psalm 104.”

SUMMARY

The basic argument for the ‘*Young Universe/Earth*’ view is fairly straight-forward— **God created everything in six ‘*days*’ and rested on the seventh.** Besides the *literal reading* of the creation account in Genesis, a number of *theologic arguments* are also offered in support of this view. However, this is not the only evidence ‘*Young Universe/Earth*’ advocates use to defend their position. We’ll next examine their ‘*scientific proofs*’ offered for a ‘*Young Universe/Earth.*’

CHAPTER EIGHT

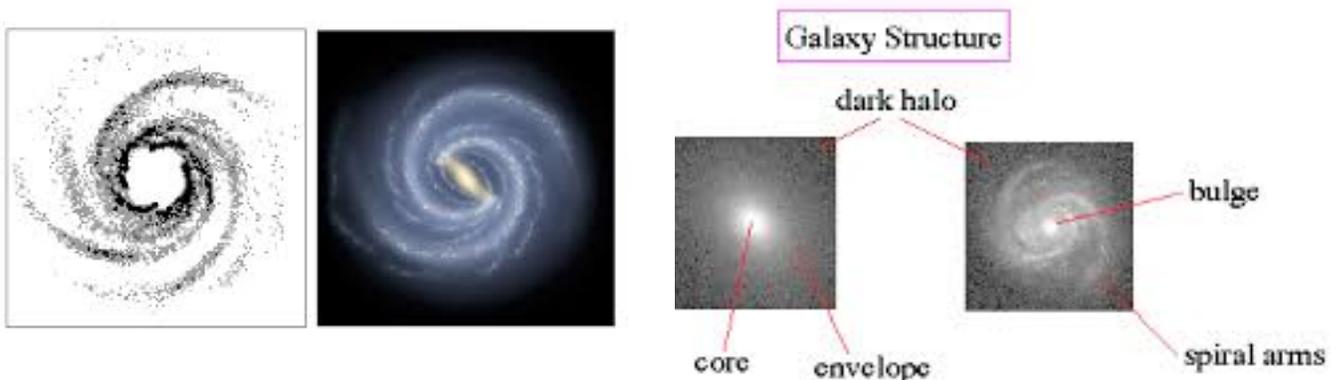
"THE SCIENCE OF THE YOUNG UNIVERSE VIEW"

Putting aside the '*Young Universe/Earth*' argument of '*Appearance of Age*' for the moment (see Chapter 4 for discussion of '*Appearance of Age*'), '*Young Universe*' scientists point to a number of phenomena in *astrophysics* that they say indicate the *Universe* must be much younger (no more than 10,000 years old) than stated by '*Old Universe*' advocates (13.8 billion years old).

These include:

- Spiral Galaxies
- Blue Stars
- Short-lived Comets
- Lack of Meteoritic Dust on the Moon
- Faint Sun Paradox
- Presence of Magnetic Fields on Uranus and Neptune
- Methane on Titan, Saturn's largest moon
- Speedy Stars
- Absence of Population III Stars
- Lunar Recession

1. Spiral Galaxies— '*Spiral arms*' are regions of higher density within a galaxy's disc, where stars, gas, and dust bunch up as they orbit, triggering star formation



‘*Young Universe*’ scientists use the ‘*winding-up dilemma*’ as an argument for a ‘*Young Universe*’. Their argument states that if a *galaxy* was billions of years old, its ‘*spiral arms*’ would be **wound so tightly** that the structure would be **erased**. Advocates of a ‘*Young Universe*’ argue that the structure of ‘*spiral galaxies*’ is evidence **against a billions-of-years-old cosmos**:

- **Stars Orbit at Different Speeds:** They point out that stars and other visible matter **closer** to the *galactic center* orbit much **faster** than matter at the *spiral arms*’ outer edges. ‘*Young Universe*’ advocates claim that **over billions of years, this differential rotation should cause the distinct spiral patterns to dissipate and disappear**.
- **Density Waves:** ‘*Young Universe*’ advocates contend that the ‘*Old Universe*’ scientists’ **proposed solution** (that *spiral arms* are maintained by ‘*density waves*’ rather than being fixed objects) is an **unproven conjecture** (see *Old Universe* rebuttal at end of this section regarding ‘*density waves*’).
- **Mature Distant Galaxies:** ‘*Young Universe*’ advocates also claim that observations from the *James Webb Space Telescope* demonstrate the presence of **mature spiral galaxies** at distances that, according to standard (‘*Old Universe*’) cosmology, depict the *Universe* when it was still very young.

Because of this, ‘*Young Universe*’ advocates argue this is a **challenge** to the standard ‘*Big Bang*’ model, **as galaxies should not have had enough time to form such mature structures**.

The ‘*Young Universe*’s ‘*Institute for Creation Research*’ (in “*Guide to Creation Basics*”) states about *Spiral Galaxies*:

“*Spiral galaxies* are comprised of **hundreds of billions of stars** organized into ‘*arms*’ that **twist** around the *disk*. Their inner regions rotate faster than the outer regions, so the *spiral structure* must necessarily get ‘*tighter*’ every year...

The *rotation rate* is slow enough that the *spiral structure* **could** persist for as long as 100 million years. **But** once we get to a **billion years**, the spiral arms would be **twisted beyond recognition**”

Danny Faulkner PhD, Astrophysics, (in the movie “*Is Genesis History*”) gives another ‘*Young Universe*’ view of ‘*spiral galaxies*’:

“In *Andromeda Galaxy* we talked about a *spiral galaxy* (as our own is), and **the inside of the galaxies should spin faster than the outside of the galaxy**. So after a few rotations you ought to have wound up or smeared out those spiral pattern, and **they would have to disappear after a few rotations...**”

Now most (*‘Old Universe’*) astronomers think that *‘spiral galaxies’* are **10 billion years old**, so **why do we still see spiral patterns? You should not see those.** And it’s been recognized as a pattern”

Faulkner also stated:

“This specific structure in the *Universe* (*spiral galaxy*) is **at most** 100 million years old”

Note, the *‘Institute for Creation Research and Faulkner* both seem to **admit** here that the *Universe* **can** be up to **100 million years old**— seemingly **contradicting** their own assertions that the *Universe* is only **10,000 years old!**

‘Old Universe’ Rebuttal to ‘Young Universe’ Position on Spiral Galaxies

An *‘Old Universe’* **rebuttal** to the *‘Young Universe’* position regarding *spiral galaxies* is given by Casper Hesp (*‘Are Spiral Galaxies Evidence Against an Old Universe?’*):

“In fact, under the current *cosmological standard model*, *spiral arms* are not just plausible, **they are necessarily present in an ancient Universe**. Faulkner is therefore seriously mistaken in his statement that *spiral galaxies* still present a problem for mainstream astronomy. **On the contrary, it would be a problem if we did not observe these structures abundantly...**

How do galactic *spiral arms* remain stable over hundreds of millions of years, without getting all jumbled up? As it turns out, *spiral arms* are actually “*density waves*” of stars, comparable to **traffic jams**. Individual cars enter and leave a traffic jam continuously, but the location of the traffic jam itself can remain surprisingly stable. The same applies to *galactic spiral arms*— they remain stable, even when **individual stars move in and out...**

The formation and stability of *galactic spiral arms* is not only possible, but **necessary** under the current standard model of cosmology, called *Lambda-CDM*. In the *simulations* astronomers found that both the formation *and* stability of *spiral arms* are neatly explained by *‘dark matter’* (an invisible, hypothetical substance that makes up about 85% of the *Universe’s* total mass and does not interact with light or other electromagnetic radiation)...

(Dark matter) gravitational attraction can disturb large *galactic discs*, introducing **differences in density** that eventually lead to *spiral arms*..

We can again compare this picture to **traffic jams**, which can be quickly triggered by a disturbance (e.g., a closed lane after an accident). After the initial formation of *spiral arms*, the more diffuse **dark matter** helps to **stabilize** their shape.

As such, the observed abundance of *spiral galaxies* actually **supports** the picture of the ‘*Big Bang*’ instead of undermining it.”

Another **summary** of the **counter-argument** from ‘*Old Universe*’ scientists regarding *spiral galaxies* goes like this:

- **Spiral Density Wave Theory**: This model, first developed in the 1960s, proposes that *spiral arms* are **not fixed physical structures** but **regions of greater density**. These ‘**traffic jams**’ of stars and gas move at a different speed than the stars themselves. As matter passes through these waves, the increased density triggers **star formation**, creating the **luminous appearance** of a *spiral arm*. This allows the *spiral structure* to be a long-lasting pattern even as the stars within it change.
- **Galaxy Formation Models**: *Cosmological models* and simulations show that *spiral structures* can form relatively **quickly in the early Universe**, which is **consistent** with recent *James Webb Space Telescope* observations.
- **Dark Matter and Galactic Rotation**: *Spiral galaxies* actually provide strong evidence for ‘*dark matter*’:

When astronomers plot the orbital speed of stars against their distance from the *galactic center*, they find that the **speeds remain constant far out from the center**. However, according to *Newtonian gravity*, speeds should **decrease** with distance in the outer regions where there is less visible mass.

This observation suggests the presence of a massive, invisible ‘*dark matter halo*’ that extends far beyond the *visible spiral*, providing the necessary *gravitational force* to keep the outer stars from flying away

WHAT ARE SPIRAL GALAXIES?

HOW DO ‘YOUNG UNIVERSE’ SCIENTISTS USE SPIRAL GALAXIES TO DEFEND THEIR POSITION?

HOW DO ‘OLD UNIVERSE’ SCIENTISTS USE SPIRAL GALAXIES TO DEFEND THEIR POSITION?

2. Blue Stars— *Blue stars* are some of the **hottest**, most **massive**, and **brightest** stars in the universe

‘*Young Universe*’ scientists use the existence of ‘*blue stars*’ to argue for a ‘*Young Universe*,’ pointing out that these massive, brilliant stars burn through their nuclear fuel **very quickly**. They contend that **if the *Universe* were billions of years old, these brilliant, fast-burning stars would have long since exhausted their fuel supply and died out.**

‘YOUNG UNIVERSE’ EXPLANATION OF ‘BLUE STARS’

- **Rapid fuel consumption:** *Blue stars* are the hottest and brightest main-sequence stars, but this comes at the cost of a much **shorter lifespan**. Because they burn through their nuclear fuel so quickly, **the largest blue stars could not last more than a few million years** (not 13.8 billion years)
- **Prevalence in the Universe:** *Blue stars* are found in abundance throughout *spiral galaxies*, including our own *Milky Way*. ‘*Young Universe*’ advocates state **the sheer number of blue stars we observe is powerful evidence that the *Universe* cannot be 14 billion years old.**

The ‘Old Universe’ Counter-Arguments Regarding Blue Stars

‘*Old Universe*’ scientists **refute** the ‘*Young Universe*’ interpretation of *blue stars*, explaining that they are **found in star-forming regions of galaxies** and their continued existence is **consistent** with ongoing *stellar evolution* over **billions of years**:

- **Ongoing star formation:** Scientific observations show that *galaxies*, particularly the *spiral arms* of *galaxies* like the *Milky Way*, are **active sites of star formation**. The **blue light** from these areas is considered **evidence of new, massive stars being born**.
- **Stellar nurseries:** Star-forming regions, also known as *stellar nurseries*, are observed in *nebulae* and *molecular clouds*. Astronomers can observe different stages of this process, even if they have not seen the initial collapse of a gas cloud.
- **Population II Stars :** The existence of **older, metal-poor** ‘*Population II*’ stars in the galactic *halo* and *globular clusters*, and the **more metal-rich, younger** ‘*Population I*’ stars in the *galactic disk*, is also cited as **evidence for a long history of stellar evolution**.

WHAT ARE BLUE STARS?

HOW DO 'YOUNG UNIVERSE' SCIENTISTS USE BLUE STARS TO DEFEND THEIR POSITION?

HOW DO 'OLD UNIVERSE' SCIENTISTS USE BLUE STARS TO DEFEND THEIR POSITION?

3. Short-Lived Comets— *Short-lived comets*, also called '**short-period comets**,' are comets that take less than 200 years to orbit the Sun

A *comet* spends most of its time far from the sun in the deep freeze of space. But **once each orbit, a comet comes very close to the sun**, allowing the sun's heat to evaporate much of the *comet's* ice and dislodge dust to form a beautiful tail. **Comets have little mass, so each close pass to the sun greatly reduces a comet's size, and eventually comets fade away.** 'Young Universe' advocates state that **they can't survive billions of years**— yet they still exist.

Two other mechanisms can destroy *comets* — *ejections* from the solar system and *collisions* with planets. *Ejections* happen as *comets* **pass too close to the large planets** (particularly *Jupiter*) and the **planets' gravity kicks them out of the solar system**. While *ejections* have been observed many times, the first observed collision was in 1994, when *Comet Shoemaker-Levi IX* slammed into *Jupiter*.

'Young Universe' advocates state that given the *loss rates*, it's easy to compute a **maximum age of comets**. That **maximum age is only a few million years**. 'Young Universe' advocates state **their prevalence makes sense if the entire solar system was created just a few thousand years ago, but not if it arose billions of years ago**.

The 'Old Universe' Counter-Argument Regarding Short-Lived Comets

The 'Old Universe' rebuttal to the 'Young Universe' argument regarding *short-lived comets* explains that *comets* **are not primordial objects from the solar system's beginning**. Instead, they are **continuously re-supplied** from distant, massive **reservoirs** of icy bodies— the *Kuiper Belt* and the *Oort Cloud*. The 'Young Universe' argument that *comets* would have all disintegrated by now is therefore based on an **incorrect premise**.

The Kuiper Belt— Source of Short-Period Comets

- **What it is:** A disc-shaped ring of icy bodies, including dwarf planets like *Pluto*, located beyond the orbit of *Neptune*.
- **How it works:** Gravitational interactions, particularly with *Neptune*, occasionally disturb these

Kuiper Belt Objects (KBOs), causing them to fall into the *inner solar system* and become *short-period comets*.

- **Evidence:** The *Kuiper Belt* is an **observed** and **confirmed** structure. *NASA's New Horizons probe*, which flew past Pluto and other KBOs, has provided detailed information about this region. **The existence of numerous *Kuiper Belt Objects* and their ability to become *comets* was predicted before observational confirmation.**

The Oort Cloud— Source of *Long-Period Comets*

- **What it is:** A vast, spherical halo of trillions of icy objects thought to encircle the solar system at distances far beyond the *Kuiper Belt*.
- **How it works:** *Gravitational perturbations* from passing stars or the *galactic tide* occasionally **dislodge** an object from the *Oort Cloud's* loosely-bound orbit, sending it on a path toward the inner solar system as a '*long-period comet*.' Today over 400 '*long period comets*' have been observed that exceed a hundred times *Earth's* distance from the sun (greater than 9 billion miles away)
- **Evidence:** Whereas in the past the *Oort Cloud's* existence was only **inferred** from decades of observations of *long-period comets*, today (using *supercomputer imaging telescopes*) it has been confirmed by observation. Their random orbital inclinations indicate a spherical source region rather than a flat one like the *Kuiper Belt*.

The existence of the **Kuiper Belt** and the **Oort Cloud** provides a mechanism for continuously **replenishing** the population of comets. '*Old Universe*' advocates state **this re-supply system explains why *comets* are still observable billions of years after the formation of the solar system**

WHAT ARE 'SHORT-LIVED COMETS'?

HOW DO 'YOUNG UNIVERSE' SCIENTISTS USE 'SHORT-LIVED COMETS' TO DEFEND THEIR POSITION?

HOW DO 'OLD UNIVERSE' SCIENTISTS USE 'SHORT-LIVED COMETS' TO DEFEND THEIR POSITION?

4. Lack of Meteoritic Dust on the Moon

'*Young Universe*' advocates once argued that if the Moon were billions of years old, it would have accumulated a very thick layer of space dust. **The *Apollo* landings found only a thin layer, which was once cited as proof of a young age.**

'Old Earth Counter-Argument Regarding Lack of Dust on the Moon

Unfortunately this argument was based on **flawed assumptions** about the **rate of dust accumulation**. By the 1970s, '*Young Universe*' scientists acknowledged that the **actual amount of lunar dust is consistent with an old Moon**. The dust layer's thickness is influenced by factors like *radiation* and *micrometeorites*, and more sophisticated research has **rendered the argument invalid**

WHY IS THIS ARGUMENT NOT USED ANYMORE BY 'YOUNG UNIVERSE' SCIENTISTS?

5. Faint Sun Paradox- *Faint Sun Paradox* is the apparent contradiction between the scientific understanding that the young Sun was about 25-30% dimmer than today and geological evidence showing that early *Earth* had liquid water and was warm enough for life to emerge.

'Young Universe/Earth' Argument Regarding Faint Sun Paradox

Evidence supports astronomers' belief that the **sun's power** comes from the **fusion of hydrogen** into **helium** deep in the sun's core, **but there is a huge problem**. As the hydrogen fuses, it should change the composition of the sun's core, gradually **increasing the sun's temperature**.

If true, **this means that Earth was colder in the past**. In fact, *Earth* would have been below **freezing 3.5 billion years ago**, when life supposedly evolved according to '*Old Universe/Earth*' advocates.

The rate of nuclear fusion depends upon the temperature. As the sun's core temperatures increase, the sun's energy output should also increase, causing the sun to brighten over time. **Calculations show that the sun would brighten by 25 percent after 3.5 billion years**. This means that an early sun would have been fainter, warming the earth 31°F (17°C) less than it does today. **That's below freezing!**

But '*Old Earth/Universe*' scientists acknowledge that there is **no evidence of this in the geologic record**. They even call this problem the '*faint young sun paradox*'.

While this isn't a problem over many thousands of years, **it is a problem if the world is billions of years old!**

The '*faint young sun paradox*' is the apparent **contradiction** between the sun's dimness in its early life and the evidence of **liquid water** on a young *Earth*. When the sun was about 25–30% dimmer, *Earth* should have been frozen, but evidence shows it was warm enough for oceans to exist. '*Young Universe*' advocates state this necessitates a '*Young Universe*.'

'Old Universe/ Earth' Counterargument Regarding Faint Sun Paradox

'*Old Universe/Earth*' advocates state the '*faint young Sun paradox*' is solved primarily by the presence of high concentrations of **greenhouse gases** like **carbon dioxide** and **methane**, which **trapped heat in *Earth's* early atmosphere**, warming the planet despite the dimmer Sun.

Contributing Factors to a Warmer early *Earth*:

- **Increased Greenhouse Gases:** A thicker early *Earth* atmosphere with higher concentrations of greenhouse gases like CO₂ or methane could have **trapped more heat**, warming the planet and preventing it from freezing.
- **Lower Albedo:** Early *Earth* may have had lower overall *albedo* (less reflectivity), meaning less sunlight was bounced back into space and more was absorbed by the planet's surface and oceans.
- **Volcanic Activity:** Volcanic activity could have released gases that contributed to a greenhouse effect and possibly even created *lava pools* that released more heat.
- **More Solar Volatility:** Some theories suggest that more frequent solar eruptions, such as *coronal mass ejections* (large eruption of plasma and magnetic fields from the Sun's corona that can travel through space at high speeds) could have delivered enough energy to kick-start chemical reactions and warm the planet.

WHAT IS THE 'FAINT SUN PARADOX'?

HOW DO 'YOUNG UNIVERSE' SCIENTISTS USE THE 'FAINT SUN PARADOX' TO DEFEND THEIR POSITION?

HOW DO 'OLD UNIVERSE' SCIENTISTS USE THE 'FAINT SUN PARADOX' TO DEFEND THEIR POSITION?

6. Presence of Magnetic Fields on Uranus and Neptune

'*Young Universe*' advocates use the '*magnetic fields*' of Uranus and Neptune to argue against the '*Old Universe*' timeline, asserting that **the rapid decay of planetary magnetic fields indicates a young solar system.**

Their argument is that the observed strength of these fields is **incompatible** with their supposed age of billions of year. They state that that the '*planetary dynamo theory*,' which suggests that planets' '*magnetic fields*' are sustained by '*convective fluid motion*,' is **flawed.**

'*Dynamo*' theory proposes a mechanism by which a celestial body such as the *Earth* or a star generates a '*magnetic field*.' The theory describes the process through which a **rotating, convecting, and electrically conducting fluid** can maintain a '*magnetic field*' over astronomical time scales

Using **field strength** as a **proxy for age**, '*Young Earth*' advocates base their argument on a decay model that **assumes** the fields were **initially stronger** and **have been decaying ever since Creation.** Because the '*magnetic fields*' of Uranus and Neptune are **still present**, they argue the **planets cannot be billions of years old**, as the fields would have decayed to a much weaker state by now or completely disappeared.

This '*Young Universe*' argument is based on a specific model of '*planetary magnetic fields*' proposed by '*Young Universe*' advocates, John D. Baumgardner and Russell Humphreys. The core of their argument is as follows:

- ***Decay of magnetic fields:*** They **propose** that planetary *magnetic fields* are a **result of decaying electrical currents** from the planet's **formation.** This decay is a measurable process.
- ***Predicting planetary magnetic fields:*** Using this decay model, Humphreys **made predictions** about the *magnetic field strengths* for Uranus and Neptune prior to the Voyager 2 fly-bys in the 1980s
- ***Voyager 2 data:*** When the Voyager 2 spacecraft **measured the magnetic fields** of Uranus (1986) and Neptune (1989), the results showed that their **magnetic field strengths were relatively strong**
- ***The 'Young Universe' Conclusion:*** '*Young Universe*' advocates argue that the observed *magnetic field* strengths were consistent with their '*Young-Universe*' model, but **not** with the '*Old Universe*' model.

They claim that if the planets were billions of years old, their *magnetic fields* would have long since **decayed to a much weaker state or disappeared entirely**

"Old Universe" Counter-Argument regarding the Magnetic Fields on Uranus and Neptune

'Old Universe' science provides robust explanations for the *magnetic fields* of Uranus and Neptune that do not support the 'Young Universe' view:

— **Misunderstanding of the dynamo effect:** 'Old Universe' advocates claim the 'Young Universe' argument relies on a **flawed understanding** of the *dynamo theory*, which **does not require a constant decay of the magnetic field**. 'Planetary dynamos' are complex systems **driven by a planet's internal heat and rotation** and can experience **reversals, collapses, and periods of stability**

— **Flawed "decay" assumption:** The "*decaying current*" model is a simplification that fails to account for the physical processes inside planets that **continuously regenerate the magnetic** A field that is continuously generated, not simply decaying, **can exist for billions of years.**

The strength of a 'magnetic field' is not a reliable indicator of a planet's age. It is instead a dynamic property governed by complex, ongoing processes within the planetary interior.

— **Misrepresenting scientific expectations:** 'Old Universe' scientists **did not predict** that Uranus and Neptune would have no *magnetic fields*. While there was uncertainty about the exact nature and strength (and the Voyager fly-bys revealed some surprising and complex aspects of their fields), the **existence of a magnetic field was not a contradiction to established planetary science.**

'Old Universe' scientists claim the 'Young Universe' argument **selectively** focuses on one model's prediction of *magnetic strength*, **while ignoring that the model cannot explain other magnetic characteristics**, such as the fields' complex and non-dipolar structure.

The chaotic nature of the fields, with their significant tilt and offset from the planet's rotational axis, provided crucial data for refining models of **how ice giants generate 'magnetic fields.'** Scientists continue to study this unique morphology to better understand the internal structure of these planets.

HOW DO 'YOUNG UNIVERSE' SCIENTISTS USE THE 'MAGNETIC FIELDS' OF URANUS AND NEPTUNE TO DEFEND THEIR POSITION?

HOW DO 'OLD UNIVERSE' SCIENTISTS USE THE 'MAGNETIC FIELDS' OF URANUS AND NEPTUNE TO DEFEND THEIR POSITION?

7. Methane on Titan— Saturn's largest moon

The ' *Young Universe* ' argument for Titan's **methane** is that the presence of features like **tropical methane lakes**, which should have evaporated long ago, is evidence **against a very old age**. Proponents of this view suggest these features are more consistent with a **young age**, possibly thousands of years

- **The puzzle of methane stability:** The chemical processes occurring in Titan's atmosphere, driven by solar UV radiation, **should have converted all the original methane into heavier hydrocarbons**, like ethane, within a timeframe of tens of millions of years. Yet, *Cassini-Huygens mission* data shows that methane is **still a significant component** of Titan's atmosphere, leading ' *Young Universe* ' advocates to conclude **the moon is young**
- **A "too-clean" surface:** If Titan were billions of years old, ' *Young Universe* ' advocates contend that its surface should be covered by thick, deep seas of ethane, the end product of methane photo- dissociation. The *Cassini mission* did **not** find these vast, deep hydrocarbon seas, suggesting that the chemical processes have **not** been running for billions of years
- **Equatorial methane lakes:** The presence of small *methane lakes* and *ponds* near Titan's equator is another point in the argument. While methane is expected to exist near the poles, scientists have found that equatorial lakes **should have evaporated in a matter of a few thousand years**. ' *Young Universe* ' proponents suggest that their continued existence points to a young surface.

'Old Universe' Counter Argument Regarding Methane on Titan

' *Old Universe* ' scientists do **not** view Titan's methane as evidence for a young solar system. Instead, they theorize that the **methane is being replenished by geological activity occurring within Titan**

- **Evidence of Cryo-Volcanism:** Modern planetary science proposes that *methane* is **constantly replenished** from a reservoir beneath Titan's icy *crust*. ' *Cryo-volcanism*, ' a process where a liquid mixture of water, ammonia, and methane erupts from the interior, could **bring fresh methane to the surface**
- **Methane clathrate reservoir:** A vast reservoir of methane *clathrate*, a cage-like structure of water ice trapping *methane gas*, is believed to exist beneath Titan's surface. *Tectonic* or *volcanic activity* could destabilize these clathrates and **release methane into the atmosphere**

- **Ongoing Replenishment:** Recent studies suggest that even modest **internal heating** can trigger the release of *methane*, providing a consistent supply to the atmosphere over long timescales
- **Explaining Equatorial Lakes:** The presence of *equatorial lakes*, which should have evaporated over time, is explained by **localized or sporadic replenishment from subsurface pockets of methane**.
- **Reinterpreting the surface:** Observations from the *Cassini mission* showed complex geological processes at work, such as *surface erosion*, *sedimentary transport*, and *seasonal methane cycles*, **that constantly reshape Titan's surface and erase evidence of older features**. The relatively low number of impact craters also points to a *geologically* active, and therefore *geologically* 'young' surface, **not** a *young* solar system.

WHAT DOES THE PRESENCE OF METHANE ON TITAN MEAN?

HOW DO 'YOUNG UNIVERSE' SCIENTISTS USE METHANE ON TITAN TO DEFEND THEIR POSITION?

HOW DO 'OLD UNIVERSE' SCIENTISTS USE THE METHANE ON TITAN TO DEFEND THEIR POSITION?

8. Speedy Stars / Globular Clusters—

Globular clusters are dense, spherical collections of tens of thousands to millions of old stars, gravitationally bound and often found in the halos of galaxies (like our Milky Way).

The 'Young Universe' argument concerning '*speedy stars*' asserts that the rapid motions of certain stars and star systems are **inconsistent** with the immense timescale of a billions-of-years-old *Universe*. Proponents of this argument claim that such **high speeds would have caused these systems to disperse in a much shorter period**, thereby **pointing to a recent, rather than ancient, creation**

- **Speedy Stars:** These high-velocity or hypervelocity stars and can travel at speeds of over a *million miles per hour*, with some on a trajectory to leave the galaxy entirely.
- **Globular Clusters:** *Globular clusters* are dense, spherical collections of tens of thousands to millions of old stars, gravitationally bound and often found in the halos of galaxies (like our Milky Way).

‘The Institute for Creation Research’ highlights the ‘*neutron star retention problem*’ in *globular clusters*. *Neutron stars* are believed to be formed by *supernova explosions* and can be ejected at **high speeds**. Given the billions of years these *clusters* are supposedly old, the **high speeds** of these ejected stars should have **cleared the clusters of neutron stars** long ago.

Yet, some clusters still contain them. Since they haven’t, the *Globular Clusters* must be *younger* than thought by mainstream *astrophysics*.

The Speedy Star/ Globular Clusters Argument breaks down like this:

- **Rapid Stellar Motion:** Some stars, particularly those found in *dwarf galaxies* (A *dwarf galaxy* is a small galaxy composed of about 1000 up to several billion stars, as compared to the Milky Way's 200–400 billion stars), move at speeds of *10–12 kilometers per second* relative to one another...
- **Gravitational Escape:** At these high velocities, the stars should have **dispersed and escaped** the galaxy's *gravitational pull* over time.
- **Time Discrepancy:** If these stars have been moving at their current speeds for the purported 14.8 billion-year age of the universe, the **dwarf galaxies should no longer be gravitationally bound.**
- **Conclusion:** Therefore, the existence of these ‘*speedy stars*’ within bound galaxies suggests that the *Universe must be much younger than billions of years*, allowing insufficient time for the *stellar systems* to dissipate.

‘Old Universe’ Counter- Argument Regarding ‘Speedy Stars’

‘*Old Universe*’ scientists state that the ‘*Young Universe*’ arguments are based on **flawed assumptions** and **incomplete information**. ‘*Speedy stars*’ refer to a specific type of ‘*hypervelocity star*’ moving faster than the *Milky Way's escape velocity*.

The existence of ‘high-velocity stars’ is not a mystery in mainstream astrophysics:

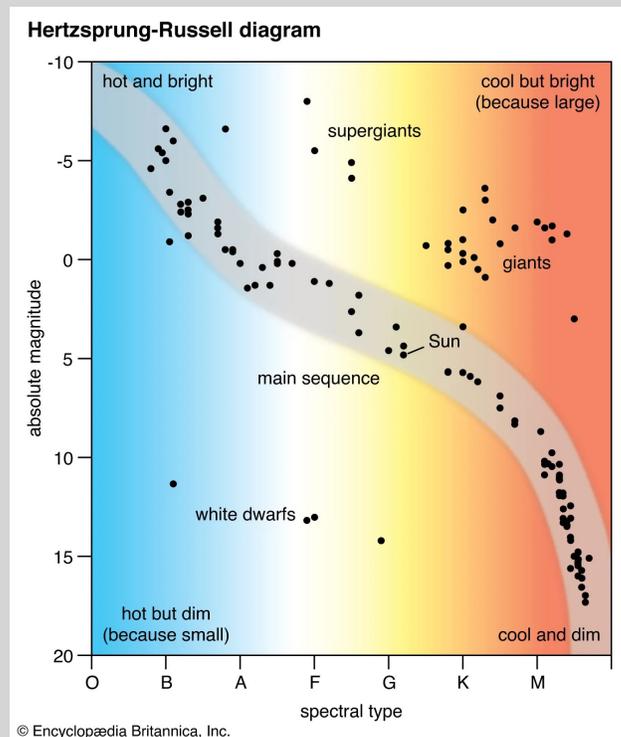
- **Mechanisms for Acceleration:** Modern astronomy has identified several **natural mechanisms** that can **accelerate stars to very high speeds over short time-frames.**

These mechanisms include:

- **Galactic Center Interactions:** When a *binary star system* (a pair of stars gravitationally bound to each other, orbiting a common center of mass) passes close to the **supermassive ‘black hole’** at the center of a *galaxy*, the **gravitational interaction** can **fling** one of the stars away at an extremely high velocity.

These are known as ‘*hypervelocity stars.*’ Their specific ejection mechanisms are consistent with an ‘*Old Universe.*’

- **Supernova Explosions:** An asymmetrical *supernova explosion* in a *binary system* can give the companion star a powerful ‘**kick**’ that sends it hurtling away at high speeds .
- **Old Star Clusters:** Astronomers calculate the age of *star clusters* by observing their properties. *Star clusters* are groups of stars that are *gravitationally bound* and formed from the same giant cloud of gas and dust. The composition and distribution of stars in a **cluster**, particularly the “*main-sequence turnoff*” on a *Hertzsprung–Russell diagram*, reliably indicates the **age of the cluster**.



The “*main-sequence turnoff*” is the point on a *Hertzsprung–Russell (H-R)* diagram where stars leave the ‘*main sequence*’ after exhausting the hydrogen fuel in their core. The ‘*main sequence*’ is a prominent band on the *Hertzsprung–Russell diagram* where about 90% of stars, including our Sun, are found.

The ‘*main-sequence turnoff*’ is a crucial indicator of a *star cluster's age*—the higher the turnoff point on the diagram, the *younger* the cluster, because more massive, hotter stars have shorter lifespans and are the first to evolve off the ‘*main sequence.*’

Globular clusters are confirmed to be billions of years old by analyzing the stars within them using this "*main sequence turn-off*" point, which indicates the age of the stars based on their mass and how long they have been burning fuel.

— **Local Group dynamics:** The '*speedy stars*' in *dwarf galaxies* of the '*Local Group*' (the '*galaxy group*' that includes the *Milky Way*, where Earth is located) are explained by the group's dynamics and recent interactions— **not as an overall age marker for the Universe.**

'*Old Universe*' proponents state that the existence of '*speedy stars*' is **fully compatible** with an **ancient Universe** when a more complete understanding of *astronomical physics* is applied.

WHAT ARE SPEEDY STARS AND GLOBULAR CLUSTERS?

HOW DO 'YOUNG UNIVERSE' SCIENTISTS USE SPEEDY STARS AND GLOBULAR CLUSTERS TO DEFEND THEIR POSITION?

HOW DO 'OLD UNIVERSE' SCIENTISTS USE SPEEDY STARS AND GLOBULAR CLUSTERS TO DEFEND THEIR POSITION?

9. **Absence of Population III Stars:** '*Young Universe*' advocates state that the **absence of Population III stars today** is a **flaw** in the currently accepted '*Old Universe*' model.

Population III stars are believed to be **the very first stars** formed after the '*Big Bang*.' They were composed solely of **primordial hydrogen** and **helium** and **lacking heavier elements.**

'*Young Universe*' advocates state the fact that **all observed stars today contain heavier elements** presents a **flaw** in the '*Old Universe*' model.

'Old Universe' Counter Argument Regarding Absence of Population III Stars

'*Old Universe*' advocates state that these massive, short-lived stars **burned out quickly.** While they have **not been directly observed** (because of their short life span and extreme distance from us), '*Old Universe*' *astrophysicists* argue evidence like the **chemical composition** of ancient stars and the detection of **ionized helium** from distant galaxies by the *James Webb Space Telescope* (JWST) provide strong **indirect evidence** of their existence.

Composed exclusively of **hydrogen** and **helium** (the only elements present after the ‘*Big Bang*’) **Population III stars** are believed to be **very massive**, (potentially up to 1,000 times the mass of the Sun) and **extremely short-lived**— lasting only a few million years before **ending in supernovae** producing heavier elements (particularly during their death throes).

This enriched material then mixes with gas and dust, forming **new nebulae** from which new stars and planetary systems form containing heavier elements. The fact that stars **contain heavy elements** is **direct evidence** of multiple generations of stars that have lived and died, enriching the **cosmos over billions of years**.

WHAT ARE POPULATION III STARS?

HOW DO ‘YOUNG UNIVERSE’ SCIENTISTS USE POPULATION III STARS TO DEFEND THEIR POSITION?

HOW DO ‘OLD UNIVERSE’ SCIENTISTS USE POPULATION III STARS TO DEFEND THEIR POSITION?

10. Lunar Recession:

Lunar Recession refers to the **Moon’s movement away from the earth** due to transfer of angular momentum from *Earth* as a consequence of the **tidal interaction** of the ‘*Earth-Moon system*.’ **Tidal interactions** are the *gravitational* influences between celestial bodies that cause them to deform, leading to effects like ocean tides and the stretching of galaxies.

Core Argument

Current Recession Rate: Laser-ranging experiments show the moon is **moving away from Earth** at approximately **3.8 cm per year** due to *tidal interactions* and the conservation of *angular momentum*.

Backward Extrapolation: ‘*Young Earth*’ creationists argue that if this rate is **extrapolated backward** using the relevant physics equations (which indicate a faster recession rate when the moon was closer), the moon would have been **catastrophically close to or touching the Earth only about 1.2 to 1.5 billion years ago**.

The Age Conflict: This calculated maximum age of ~1.5 billion years is significantly *younger* than the secular scientific estimate of 4.5 billion years for the moon's age.

Conclusion: ‘*Young Earth*’ advocates present this as evidence that the moon cannot be billions of years old, but rather fits within the *Biblical* timeframe of a creation approximately 6,000 years ago, at which point the moon would have been only about 1,000 feet (300 m) closer to Earth

‘Old Universe’ Counter- Argument Regarding Lunar Recession

The scientific consensus acknowledges that the recession rate was different in the past. Scientific models and data from *tidally laminated sediments (rhythmites)* and *fossil coral growth patterns* indicate that the *tidal friction* and associated recession rate have varied significantly over *geological* time due to factors such as:

Continental Configuration: The arrangement of continents greatly affects *tidal dissipation*. A single *supercontinent configuration*, which has occurred multiple times in Earth's history, results in much less *tidal torque* and a **slower recession rate** compared to the current configuration. (*Tidal torque* is the rotational force exerted by a celestial body on another, which is caused by a *tidal force*. It is most notably responsible for slowing the *Earth's* rotation while increasing the Moon's orbital distance, leading to a phenomenon known as *tidal locking*).

Ocean Dynamics: *Tidal friction* and *energy dissipation* occur in deep oceans as well as shallow seas, and these dynamics have changed over time.

These data points provide independent evidence that **the average recession rate over Earth's history was much lower than the current rate**, making the 4.5-billion-year age of the Earth-Moon system consistent with physical laws and geological evidence.

WHAT IS LUNAR RECESSION?

HOW DO ‘YOUNG UNIVERSE’ SCIENTISTS USE LUNAR RECESSION TO DEFEND THEIR POSITION?

HOW DO ‘OLD UNIVERSE’ SCIENTISTS USE LUNAR RECESSION TO DEFEND THEIR POSITION?

'Time Dilation' Model of Creation

An alternative 'Young Universe/Earth' proposal for *Creation* is the '*Time Dilation Model of Creation*,' most famously associated with Rabbi Nissan Dovid Shiloach, that attempts to reconcile the scientific age of the *Universe* with a literal, 6-day Biblical creation account. It does this by using *Einstein's 'theory of time dilation,'* which states that **time passes at different rates** depending on *gravitational* or *velocity* differences.

Time dilation itself is a well-established and experimentally verified phenomenon described in Einstein's theories of *Special* and *General Relativity*. It is a fundamental principle used in practical applications like the *GPS system*, which **must correct for the slight time differences experienced by orbiting satellites**.

Time dilation is the difference in **elapsed time** as measured by **two clocks**, either because of a relative *velocity* between them (*special relativity*), or a difference in *gravitational potential* between their locations (*general relativity*).

The model states that the intense *gravitational* and *velocity* differences in the early universe caused **time to pass much more slowly for the rest of the cosmos compared to the time experienced on Earth**—making six 24-hour days on *Earth* equivalent to billions of years in the rest of the *Universe*. In this model, the *Universe* began with a **Big Bang** and has been expanding ever since.

This view tries to offer an explanation for the current observations of astrophysics and geology while insisting that the *Bible* should be interpreted literally, including the six-day creation account. Since we have no real calendar prior to the arrival of Man, the '*calendar*' we experience today begins with the creation of Adam. For dates prior to this event, advocates of this view state it's necessary "to leave our Newtonian view of the world and enter into Einstein's universe of relativity." (Gerald Schroeder, Ph.D., "*Genesis and the Big Ban- The Discovery of Harmony Between Modern Science and the Bible*").

How It Works

- **Early Universe conditions:** The model suggests that during the early *Universe*, the immense energy density and high velocities would have created powerful *gravitational* and *velocity*-based *time dilation* effects.
- **Earth's accelerated time:** According to the theory, time on *Earth* passed much **faster** than time for distant objects in the universe.
- **Result:** This means that while God's 'six days' were literal 24-hour days, the *Universe* outside of *Earth's* frame of reference experienced a much longer time period, corresponding to the billions of years observed by science.

Two Models

- **Russell Humphreys' "White Hole" Cosmology:** This model, detailed in his work "*Starlight and Time*," suggests the *Universe* emerged from a "**white hole**" (the theoretical opposite of a **black hole**) with the *Earth* near the center of the mass.

In this scenario, extreme *gravitational time dilation* during the initial, rapid expansion of space would have caused clocks on *Earth* to tick much **slower** than those in the outer regions of the *Universe*. Thus, billions of years of star formation and light travel could occur in cosmic time while only days passed on *Earth*.

- **Gerald Schroeder's Expanding Universe Model:** Schroeder, an Orthodox Jewish physicist, reconciles the two timelines by invoking *time dilation* based on the expansion of space itself (*cosmological time dilation*). His model uses a specific reference frame tied to the initial expansion of the *Universe*, where the entire age of the *Universe* (approximately 13.8 billion years) equates to just six 24-hour days when viewed from that unique, non-local perspective.

Arguments Against 'Time Dilation' Model of Creation

- **Quantitative Problems:** Critics argue that these models often require specific, ad hoc conditions (e.g., a static *Universe* with pressure during a specific phase, followed by a rapid burst of expansion) that lead to predictions inconsistent with observed data, such as *galactic redshifts*.
- **Observational Evidence:** Astronomical observations of distant phenomena like *supernovae* and *quasars* show expected *time dilation* consistent with standard cosmology, which contradicts some 'Young Universe/Earth' models' predictions of how time should appear to flow faster in the distance from an *Earth* perspective.
- **Frame of Reference:** To work as intended for 'Young Universe/Earth' advocates, the models require that the *Biblical* narrative use a **non-Earth reference** frame to measure the '*days*' of creation, which some argue contradicts the text's emphasis on *Earth*-based markers of time (*evening and morning*).

CHAPTER NINE

“THE SCIENCE OF THE YOUNG EARTH VIEW”

I. INTRODUCTION

“*Young-Earth*’ advocates believe that the creation days of Genesis 1 were **six literal (24-hour) days**, which occurred **6,000–12,000 years ago** (not 4.6 billion years ago). They believe that about **2,300–3,300 years before Christ**, **the surface of the *Earth* was radically rearranged by *Noah’s Flood***. All land animals and birds not in *Noah’s Ark* (along with many sea creatures) perished, many of which were subsequently buried in the *Flood* sediments...

Therefore, (‘*Young Earth*’) creationists believe that this ***Global (catastrophic) ‘Flood’* was responsible for most** (but not all) **of the rock layers and *fossils*** (i.e., some rock layers and possibly some *fossils* were deposited before the *Flood*, while other layers and *fossils* were produced in ***postdiluvian*** (post flood) localized catastrophic sedimentation events or processes)” (Dr. Terry Mortenson, Answersingenesis.org,” “*Young-Earth Creationist View Summarized And Defended*”).

FLOOD LEGENDS INDICATE A CATASTROPHIC FLOOD

The fact that some sort of historical, catastrophic *Flood* once upon a time affected mankind is undisputed. Across the globe, numerous cultures and religions feature *Flood* myths that share common themes of divine judgment, a chosen survivor, and the repopulation of *Earth* after a great deluge. Besides the *Bible*, the earliest known flood narratives originate from ancient *Mesopotamia*.

- **Epic of Gilgamesh (Babylonian)**: In this epic, the gods, led by Enlil, decide to destroy humanity because their noise is disturbing the gods' sleep. The god Ea (Enki) warns the man Utnapishtim in a dream and instructs him to build a boat (a circular coracle in some descriptions) to save his family, craftsmen, and all animals. After the flood, Utnapishtim sends out a dove, a swallow, and a raven to check for dry land. He then offers a sacrifice to the gods, who, gathering "like flies" around the offering, grant Utnapishtim and his wife immortality.
- **Epic of Atrahasis**: This older version of the story from the 18th century BCE also describes the gods sending a flood to manage human overpopulation. The hero Atrahasis is warned by

the god Enki and builds a boat to survive. The gods later establish measures like disease and barrenness to control population growth.

- **Sumerian Flood Story (Ziusudra)**: The oldest version, in fragments, features the hero Ziusudra, a pious king, who is warned by a god and builds a large boat to save himself and various animal
- **Greek Mythology (Deucalion)**: Zeus, angered by humanity's wickedness, sends a great flood. The Titan Prometheus warns his son, Deucalion, who builds an ark and survives with his wife, Pyrrha. Their boat lands on Mount Parnassus. To repopulate *Earth*, they are instructed to throw stones over their shoulders, which turn into people.
- **Hinduism (Manu)**: In the Matsya Purana, the first man, Manu, is visited by a small fish, an avatar of the god Vishnu, who warns him of an impending flood. Manu builds a boat and ties it to the fish's horn, which guides him to safety on a mountaintop. He then performs a sacrifice, from which a woman is born, and together they repopulate the earth.
- **Aztec Mythology (Coxcox and Xochiquetzal/Tata and Nena)**: After a god warns the man Tata and his wife Nena of a flood, they hollow out a cypress tree to survive. In some versions, other people who survived the flood were turned into fish, and Tata and Nena were turned into dogs for disobeying instructions not to eat fish.
- **Chinese Legends (Yu the Great/Miao myth)**: Chinese traditions speak of a "Great Flood" that lasted for generations. In some versions, a brother and sister survive in a large gourd and repopulate the world. Another legend focuses on Emperor Yu, who tamed the floodwaters through extensive dredging, an achievement that led to the founding of the Xia dynasty.
- **Norse Mythology**: The Norse flood story is unique in that the world is flooded by the blood of the giant Ymir when he is killed by Odin and his brothers. A single frost giant, Bergelmir, and his wife survive in an ark made of wood and are the progenitors of a new race of giants
- **Quran (Story of Nuh)**: The Prophet Nuh (Noah) is instructed by Allah to build an ark and save the believers and pairs of animals

AND MANY MORE EXAMPLES !

WHAT FLOOD LEGENDS HAVE YOU DISCOVERED?

WHY DID GOD SEND THE 'FLOOD'?

WHY WAS THE FLOOD IMPORTANT TO MANKIND?

**The 'Young Earth'
Timeline of the Biblical Flood
Begins in the
600th year, 2nd Month, 17th Day of Noah's Life
and Spans 371 Days in Total**

- **The Flood begins-** 1,656 years after Adam, “*All the fountains of the great deep were broken up and the windows of heaven were opened*” (Gen 7:11), causing water to burst forth from the earth and rain to fall torrentially.
- **40 Days-** Heavy rain continues
- **150 Days (ending 7th Month, 17th Day)-** The waters prevail on the earth, covering the highest mountains. The *Ark* comes to rest on the **mountains of Ararat**
- **Another 150 Days-** The waters gradually recede
- **10th Month, 1st Day-** The tops of the mountains become visible
- **40 Days Later-** Noah sends out a raven, then a dove
- **Successive 7-day Intervals-** Noah sends out the dove two more times, the last time it does not return, indicating the ground is drying
- **Year 601 of Noah's Life, 1st Month, 1st Day-** The surface of the ground is dry, and Noah removes the Ark's cover
- **Year 601 of Noah's Life, 2nd Month, 27th Day** The earth is completely dry, and God commands Noah, his family, and the animals to exit the Ark

Unlike many ‘*Old Earth*’ proponents who advocate that the *Biblical ‘Flood’* was actually only **regionally confined to Mesopotamia** (much more on the next chapter), ‘*Young Earth*’ advocates claim the explicit language of Genesis and other *Biblical* texts demands a ***Global, not Local, Flood***. Their basic argument goes like this:

- **Coverage of Mountains:** The *Bible* states the waters covered **all the high mountains** under the whole heaven, to a **depth of fifteen cubits**. Water seeks its own level, so if even one mountain was covered, the flood must have been *Global*.
- **The Ark's Purpose:** A local flood would not necessitate the monumental effort of building a massive ark (approximately 450 feet long, 75 feet wide, and 45 feet high) to preserve human and animal life— Noah and his family could have simply migrated to a safe area.

- **God's Promise:** God promised never to send another *Flood* of "*this kind*" again. Since local and regional floods have occurred many times since Noah's day, the original *Flood* must have been **universal**, otherwise, God would have broken His promise.
- **New Testament Testimony:** *New Testament* writers, such as Peter (2 Peter 3:3-7) and Jesus (Matthew 24:36-39), refer to the *Flood* as a historical, universal event that serves as a basis for a future universal judgment.
- **Global Destruction of Life:** The text repeatedly states that "*all*" land animals and "*all*" of the human race (outside the ark) perished, which **implies a geographically universal flood**

In their classic 1961 book, "*The Genesis Flood— The Biblical Record and its Scientific Implication*," John C. Whitcomb and Henry M. Morris contended that conventional '*uniformitarian*' geology (the idea that *geological* processes have remained largely constant over immense periods) was based on **flawed pre-suppositions** and that the *geological evidence* better supports a **single, recent, Global catastrophe**.

- **Rejection of the Geological Column:** They argued that the *fossil-bearing strata* were primarily laid down during the *Flood*. The sequence of *fossils* was attributed to factors like the varying habitats of the organisms (marine life first, humans last as they fled to higher ground), their mobility, and hydrodynamic sorting— rather than millions of years of evolution.
- **Evidence of Cataclysm:** They claimed that widespread sedimentary "*strata blankets*" containing *marine fossils*, found even on **high continents**, provided critical evidence that the ocean once covered the entire earth during a **Global Flood event**.
- **The "Vapor Canopy" Theory:** To explain the immense volume of water required, they proposed a '*vapor canopy*' (waters above the firmament) in the pre-flood atmosphere, which created a uniform, moderate climate and then collapsed as rain.

Note: This '*Vapor Canopy*' theory is **no longer widely used** or advocated by leading '*Young-Earth*' creationist organizations and scientists. Major '*Young Earth*' organizations, such as *Answers in Genesis* (AiG) and the *Institute for Creation Research* (ICR), have published articles explicitly advising **against** the use of the '*vapor canopy theory*.' The theory was popular in the late 20th century, but most modern '*Young Earth*' proponents have abandoned it due to significant **scientific and Biblical problems**:

- **Scientific Obstacles (Heat Problem):** The primary reason for the theory's decline is the latent heat problem. A *vapor canopy* thick enough to provide sufficient water for a **Global Flood** (40 days of intense rain) would create a runaway **greenhouse effect**, raising the Earth's surface temperature to levels that would boil the oceans and kill all life

— **Biblical Interpretation:** Many modern ‘*Young Earth*’ advocates have reassessed the relevant *Biblical* passages (such as "waters above the firmament" in Genesis 1:6) and concluded that they do not necessitate a *vapor canopy*. The references to "waters above" appear in post-Flood descriptions as well, suggesting they were not the waters that fell during the ‘*Flood*.’

— **Dismissal of Mainstream Dating:** They dismissed conventional dating methods (like carbon-14) that suggest an ‘*Old Earth*,’ arguing that the pre-Flood environment was different and that such methods were unreliable (see Chapter Four regarding *radiometric dating*)

WHY IS A GLOBAL FLOOD IMPORTANT TO THE ‘YOUNG EARTH’ MODEL?

HOW DO ‘YOUNG EARTH’ ADVOCATES EXPLAIN THE GEOLOGICAL STRATA?

WHY IS THE VAPOR CANOPY THEORY NO LONGER USED?

II. ‘Young Earth’ Explanation of the Geological and Fossil Record

1. Plate Tectonics-

‘*Young Earth*’ proponents point to a model known as *Catastrophic Plate Tectonics (CPT)*, which proposes that *plate movement* was extremely **rapid** and **catastrophic** during and after a **Global Flood** (not over millions of years). This model suggests that a single *supercontinent* broke apart suddenly, causing the **rapid formation of continents and mountains** in a short, *Biblical* timescale.

Catastrophic Plate Tectonics (CPT) and its Geological Outcomes:

- **Timeline:** CPT posits that nearly all the *Earth's* current *geological* features (typically attributed by mainstream science to millions of years of gradual change), were formed within the **single year of the *Biblical Flood*** (approximately **4,500 to 6,000 years ago**).
- **Mechanism:** This model suggests that the *Flood* was initiated when slabs of the pre-*Flood* ocean floor **broke loose** and rapidly subducted along continental margins. This process, possibly facilitated by the lubricating effects of high-pressure water and the sudden release of *gravitational potential energy*, led to ‘*runaway subduction*’ where **plates moved at speeds of meters per second** (rather than centimeters per year as observed today).

- **Continental Sprint:** The rapid movement and collision of continental plates caused the swift formation of **mountain ranges** and **deep ocean trenches**.
- **Global Flood:** The new, hot oceanic *crust* generated at mid-ocean ridges was less dense and floated higher, displacing vast amounts of ocean water onto the continents, which, along with rain, caused the **global inundation**
- **Geological Record:** The **rapid sedimentation** during the *Flood* is used to explain the extensive layers of *fossil-bearing rock strata* found across the continents
- **Post-Flood Slowdown:** After all the original ocean lithosphere was consumed, the process slowed down to the current, residual rates of a few centimeters per year, and the new, cooler ocean basins were able to contain the water, allowing it to recede from the land

'Old Earth' Counter-Argument

The 'Young Earth' proposed rapid *Plate Tectonic Movement* (5,000 to 8000 miles or 125-200 feet per minute) in the approximately 150 day timeline would be equivalent to unleashing **42,000 magnitude 11 earthquakes**.

The main argument from 'Old Earth' *geology* against the 'Young Earth' model of *Catastrophic Plate Tectonics* (CPT) is the enormous amount of **heat** that would be generated. Rapid subduction and movement of plates at speeds of **meters per second** would release a tremendous amount of energy through friction and the cooling of new oceanic lithosphere. **This heat would vaporize the oceans and crust, a scenario incompatible with the survival of humans and animals on the Ark, or life on Earth in general.**

'Old Earth' scientists state *Catastrophic Plate Tectonics theory* requires the **suspension of most known laws of science** and faces significant challenges, particularly in explaining how the **immense heat** generated by such rapid friction would have dissipated **without boiling the oceans**.

The *Catastrophic Plate Tectonics* model also necessitates continued, massive *geological* activity (intense volcanism, massive earthquakes, rapid mountain building and erosion) for **hundreds of years after the Flood** as the new ocean floor **cooled**.

'Old Earth' proponents argue that the **survival of human populations** and the **development of civilizations** during such a period would be **highly improbable**.

WHAT IS 'CATASTROPHIC PLATE TECTONICS' THEORY?

HOW DO 'YOUNG UNIVERSE' SCIENTISTS USE 'CATASTROPHIC PLATE TECTONICS' THEORY TO DEFEND THEIR POSITION?

WHY DO 'OLD EARTH' SCIENTISTS REJECT 'CATASTROPHIC PLATE TECTONICS' THEORY?

2. The Fossil Record-

The '*No Death Before the Fall*' tenet is used to explain the billions of *fossils* found in *sedimentary rock layers* around the world. In this view, the *fossils* cannot represent millions of years of life and death, because that would contradict their *Biblical* timeline. Instead, *Flood* geologists argue that the *fossil layers* were created during a single, catastrophic, powerfully destructive *Global* event causing rapid burial and stratification.

- a. **Rapid burial-** The theory posits that all air-breathing life not on Noah's Ark was swept away and **buried in sediment** as the floodwaters inundated the continents. This **rapid, catastrophic burial** is used to explain how *fossils* formed, as it would prevent a creature's remains from decomposing over time.

“When solid rock is **bent**, it normally cracks and breaks. Rock can only bend without fracturing when it is softened by extreme heating (which causes re-crystallization) or when the sediments have not yet fully hardened. There are numerous locations around the world (including the famous *Grand Canyon*) where we observe massive sections of *strata* that have been tightly folded, **without evidence of the sediments being heated...**

This is a major problem for evolutionists who believe these rock layers were laid down gradually over vast eons of time, forming the *geologic record*. However, it makes perfect sense to creationists who believe these layers were formed rapidly in the global, *catastrophic Flood* described in Genesis 1” (*Answersingenesis.org*).

Tightly folded rock strata without evidence of heating or metamorphism indicate the sediments were still soft and wet when deformed, **consistent with rapid burial**

'Old Earth' Counter-Argument

The **bending of rock layers** is understood as a natural process that can occur over **long periods under immense pressure**, while other features, like those in the *Grand Canyon*, are interpreted as a result of **erosion** through vast periods of time.

Rock layers can **bend over long periods** due to *tectonic forces* like *compression*, a process called '*folding*.' If the stress is applied **slowly** and under **high pressure** and **heat**, rocks behave in a ductile manner and **bend instead of breaking**. This bending creates geological features like '*anticlines*' (upward arches) and '*synclines*' (downward troughs).

WHAT IS THE FOSSIL RECORD?

HOW DO 'YOUNG EARTH' SCIENTISTS USE THE 'FOSSIL RECORD' TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS USE THE 'FOSSIL RECORD' TO DEFEND THEIR POSITION?

b. **Stratification**—The observed **order** of *fossils* and *rock layers*, which mainstream science interprets as a long geological timeline, is explained by *Flood* geologists as a **result of the floodwaters covering different 'ecological zones' sequentially**.

Ecological zones are areas of land or water with similar climate, geologic, and hydrological conditions, and plant and animal communities.

The observed order in the *fossil record* (simpler organisms in lower strata, more complex in upper) is explained by some '*Young Earth*' advocates through this '*ecological zonation*,' suggesting that **floodwaters destroyed different habitats sequentially**, with deep-sea communities being buried first, followed by coastal and then inland life. *Trace fossils* found within these layers are interpreted within this rapid-burial, *zonation* framework.

'Old Earth' Counter-Argument

The sorting of sediment and the types of minerals present in the layers are consistent with **natural deposition over long periods**, not a catastrophic flood.

Mainstream geology argues that the distinct layering of the *geologic column*, with **older marine fossils consistently found below younger layers** with different organisms, points to a slow sequence of **deposition over millions of years**.

A single, rapid, global flood event and *Catastrophic Plate Tectonics* would likely result in a **jumbled mix of fossils** (hydrologic sorting issues) and **sediments**, rather than the ordered, complex stratification observed worldwide.

WHAT IS STRATIFICATION?

HOW DO 'YOUNG EARTH' SCIENTISTS USE THE 'STRATIFICATION' TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS USE THE 'STRATIFICATION' TO DEFEND THEIR POSITION?

3. Marine Fossils on Mountains-

The discovery of *marine fossils* on **all seven continents** and **high on mountains** is cited as evidence that the oceans once **covered all land**, consistent with a *Global Flood*. This model posits that a **catastrophic flood** rapidly buried marine life, and then the waters receded, leaving the *fossils* on the high-altitude rock layers.

According to 'Young Earth' Creationism, **mountains were not as high before the *Flood* as they are today:**

- **Lower Elevation:** The *pre-Flood* world is often described as having **shallower seas** and **lower, more uniform topography**, possibly a **single supercontinent** (*Pangaea* or similar) with gentle hills or low mountains.
- **Post-Flood Formation:** The massive mountain-building processes (*orogeny*), driven by rapid catastrophic plate tectonics, thrust up the current high mountain ranges as the floodwaters were receding.
- **Geological Evidence:** The presence of marine *fossils*, such as seashells and crustaceans, at the summits of modern high mountains (including *Mount Everest*) is cited as evidence that these rock layers were once below sea level and were later uplifted.
- **Water Volume:** If the *pre-Flood* mountains were as high as they are now, a significantly larger amount of water would have been required to cover them completely (Genesis 7:19-20 states the waters covered the highest mountains by over 22 feet or 15 cubits), which poses physical challenges to the *Flood model*. A **flatter pre-Flood earth** makes a *Global Flood* with the current amount of water on *Earth* more plausible within this framework.
- **Climate:** The lack of mention of ice or snow in *Biblical* descriptions of the *pre-Flood* world suggests a generally **warmer, more uniform climate**, which would likely have been impossible with high mountain ranges causing major elevation and climate differences

'Old Earth' Counter-Argument

'Old Earth' advocates point out that vast regions of the continents and larger islands **lack any fossils** (or sedimentary layers). Likewise, **fossil fuel deposits** are found on just a **small percentage** of Earth's landmasses— thus indicating the **flood** was not worldwide.

They state that **marine fossils** are found on mountains due to ancient **plate tectonics**, where sea-floor sediments containing marine life were **uplifted** to form mountains over millions of years.

The process involves **tectonic plates** colliding, causing the oceanic crust to **buckle and push upwards**, creating mountains and exposing **fossils** from ancient seabeds (such as the *Himalayas* which were caused by the ocean floor between the Indian subcontinent and the Asian plate buckling upward).

This rising piece of ocean is **still measurably rising at a rate of 15 mm annually**— carrying **marine fossils** upward with it.

HOW DO 'YOUNG EARTH' SCIENTISTS EXPLAIN FINDING MARINE FOSSILS ON MOUNTAINS?

HOW DO 'OLD EARTH' SCIENTISTS EXPLAIN FINDING MARINE FOSSILS ON MOUNTAINS?

4. Presence of Organic Material:

The discovery of **soft tissues, blood cells, and DNA** in **dinosaur fossils** is cited as evidence that the remains are **only thousands of years old**.

According to evolutionists, these **dinosaur tissues** are more than 65 million years old, but 'Young Earth' proponents state that **laboratory studies** have shown that there is no known way—and likely none possible—for biological material to **last more than thousands of years**. The argument goes like this:

- **Rapid Degradation:** 'Young Earth' advocates argue that organic materials like **proteins** (e.g., collagen), **blood vessels**, and **DNA** are inherently **unstable** and would naturally **degrade** completely within a few thousand, or at most a few hundred thousand, years under any known conditions.
- **Implausibility of Long-Term Preservation:** Therefore, the discovery of such materials in **fossils** that mainstream science dates to millions of years (e.g., in dinosaur bones dated to 66 million years old) is seen by 'Young Earth' proponents as highly implausible within the conventional 'Old-Earth' timeline.

- **Consistency with a Young Earth:** They contend that the excellent preservation of these materials is entirely consistent with a *Global Flood* event occurring just a few thousand years ago (as described in the *Biblical* narrative), which rapidly buried organisms and facilitated quick *fossilization* within a ‘*Young-Earth*’ timeframe.

‘Old Earth’ Counter-Argument

The presence of *soft tissue* is explained by the unique *fossilization process*. *Soft tissue fossilization* (including *mummified tissue*) is a rare process that requires specific, unusual conditions to prevent the rapid decay and scavenging of an organism's soft parts after death.

These processes **preserve the form of the original tissue**, often by **mineral replacement**, or in exceptional cases, **the original organic material itself** is preserved by desiccation or other chemical processes.

Mineral replacement is a common form of *fossilization* where minerals in groundwater **fill the pores and spaces** within the tissue (*permineralization*) or **completely replace** the organic material with minerals like *apatite* (calcium phosphate), *pyrite* (iron sulfide), or *silica*. The rapid precipitation of these minerals, often facilitated by the chemical conditions created by **anaerobic decay microbes**, allows for the preservation of fine cellular details.

WHAT IS DEOXYRIBONUCLEIC ACID (DNA)?

HOW DO ‘YOUNG EARTH’ SCIENTISTS USE DNA TO DEFEND THEIR POSITION?

HOW DO ‘OLD EARTH’ SCIENTISTS USE DNA TO DEFEND THEIR POSITION?

5. ‘Polystrate’ Fossils-



Features like *upright, petrified tree trunks passing through multiple sedimentary layers* are cited as evidence of rapid deposition during a single, catastrophic event, rather than millions of years of slow accumulation—as slow burial over millions of years would allow them to rot.

Key points of the argument go like this:

- **Rapid Burial:** ‘*Young Earth*’ proponents argue that the presence of **intact, upright tree trunks** (or other *fossils*) across **multiple layers** of sediment shows they must have been buried very **quickly**, before the exposed parts could rot and fall over.
- **Evidence Against Deep Time:** The fact that a single organism can span layers supposedly representing millions of years of slow sedimentation is seen as a direct refutation of the conventional geological timescale and an ancient *Earth*.
- **Global Flood Mechanism:** The immense, sediment-laden floodwaters described in the *Book of Genesis* would have created the necessary conditions for rapid, large-scale sedimentation and burial of organic matter on a global scale.
- **Log Mat Model:** A specific model used by creation scientists suggests that floating mats of trees, similar to those observed after the *Mount St. Helens* eruption, were caught in the floodwaters and became waterlogged, sinking to the bottom in an upright or inclined position and buried quickly by sediment layers
- **Catastrophism:** ‘*Young Earth*’ theory promotes a ***catastrophic model of geology***, where the vast majority of the *Earth’s* sedimentary layers were laid down rapidly in the single **one-year *Genesis Flood*** event, **rather than** by slow, uniform processes over eons.

‘Old Earth’ Counter-Argument

‘*Old Earth*’ explanations describe ***polystrate fossils*** as being preserved through **rapid, localized burial events**, not a single *Global Flood*. These events include local **volcanic eruptions, floods, or deltas**, where a tree can be rapidly covered and buried by sediment, keeping it upright.

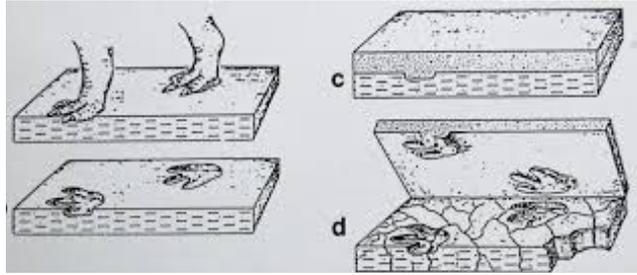
Scientists explain the *fossil’s* vertical orientation as a result of trees falling and being buried by the same event or through a series of rapid depositions over a relatively short period. Some ***polystrate fossils*** can also be explained by a slow, gradual process where a forest is buried in stages, with new trees growing on top of the old ones before they completely decay.

WHAT ARE POLYSTRATE FOSSILS?

HOW DO ‘YOUNG EARTH’ SCIENTISTS USE POLYSTRATE FOSSILS TO DEFEND THEIR POSITION?

HOW DO ‘OLD EARTH’ SCIENTISTS USE POLYSTRATE FOSSILS TO DEFEND THEIR POSITION?

6. Trace Fossils-



Fossilized animal tracks found in sedimentary layers below where the body *fossils* of those animals appear are explained by suggesting the creatures left tracks on temporarily exposed sediment during the *Flood* before being buried later in the event (see section on **Fossil Record Stratification**)

'Old Earth' Counter-Argument

Slow Sedimentation Rates: *Trace fossils*, such as burrows and footprints, are typically found in fine-grained sedimentary layers that **accumulated slowly over time in stable environments**, such as ancient sea bottoms or lake margins.

The existence of numerous, distinct layers, each containing its own specific assemblage of traces, indicates **successive, often cyclical, periods of deposition**, animal activity, burial, and hardening, which would require immense spans of time

Preservation Conditions: The process of preservation itself requires sufficient time for minerals to infiltrate the impressions and for the sediment to become rock (lithification) before erosion or other processes destroy the delicate structures. **This process is not instantaneous but occurs over thousands to millions of years.**

WHAT ARE TRACE FOSSILS?

HOW DO 'YOUNG EARTH' SCIENTISTS USE TRACE FOSSILS TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS USE TRACE FOSSILS TO DEFEND THEIR POSITION?

7. Rapid Canyon Formation-

Receding floodwaters from the *Flood* is proposed as an reason for the *Grand Canyon's* formation:

- **Rapid, catastrophic deposition:** ‘*Young Earth*’ scientists proposes that features of the *Rapid Canyon Formation* (part of the *Grand Canyon's* sedimentary layers) were laid down rapidly by high-energy, hurricane, and tsunami-driven currents during the *Global Flood*.
- **Soft-sediment deformation:** The rock layers were bent and folded while still soft and *unlithified*. This rapid deformation would be consistent with massive *Earth*-moving events during a *Global Flood*, rather than the brittle fracturing that would occur if the rock layers were bent slowly after hardening over millions of years.
- **Lack of reworking:** Microscopic analysis of the limestone is used to argue that the sediment was rapidly deposited, with no time for the grains to be rounded or sorted as they would be during slow, gradual deposition over long time periods.
- **Fossil evidence:** The presence of *fossils* within the formation, such as *trilobites* and *worm trails*, is viewed as consistent with organisms being rapidly buried during the *Flood Event*. These creatures would have been buried before they could be destroyed or decomposed.
- **Late-Flood channelized erosion:** This ‘*Young Earth*’ hypothesis suggests that as the floodwaters receded from the continent, they transformed from a broad sheet flow into massive, high-velocity channels that carved formations like the *Grand Canyon*.
- **Post-Flood dam breach:** This ‘*Young Earth*’ model proposes that massive lakes formed during or after the *Flood*. The natural dams holding back these lakes eventually breached catastrophically, unleashing torrents of water that rapidly carved canyons.

‘Old Earth’ Counter-Argument

Geologists find evidence of significant **pauses in sedimentation** within the rock layers, such as *mudcracks* and *trace fossils*, which indicate much **slower deposition rates** than proposed by ‘*Flood Geology*.’ Many features point to the formation occurring **over long periods** rather than from a single, catastrophic event. They claim that the overwhelming majority of evidence, including *radiometric dating* and *stratigraphic analysis*, supports an ancient *Earth*.

They describe the formation of the 'Grand Canyon' like this:

- **Deposition:** The many layers of rock at the *Grand Canyon* were deposited over hundreds of millions of years from ancient seas and other environments
- **Uplift:** Around 70 million years ago, the entire *Colorado Plateau* was uplifted, creating a high-elevation plateau.
- **Down-cutting:** This uplift provided the necessary elevation for the *Colorado River* to begin carving its path downwards through the rock layers.
- **Erosion:** The river's momentum, increased by **seasonal floods**, carried rocks and sediment that scraped and tore away at the riverbed over millions of years, deepening the canyon.
- **Widening:** The canyon's walls are continuously widened by weathering from rain, gravity pulling rockfalls down steep slopes, and other erosional forces.

WHAT IS THE GRAND CANYON?

HOW DO 'YOUNG EARTH' SCIENTISTS USE THE GRAND CANYON TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS USE THE GRAND CANYON TO DEFEND THEIR POSITION?

8. Earth's Magnetic Field-

The measured rapid decay of the *Earth's magnetic field* is cited as an indicator that the planet is only thousands of years old. Based on the magnetic field strength of a typical magnetic star (which exceeds any conceivable value for *Earth's*) and on the observed rate of weakening, some 'Young Earth' scientists have calculated that the weakening process began on *Earth* no more than 20,000 years ago (thus the *Earth's* age cannot be greater than 21,000 years).

- **Rapid decay as evidence:** 'Young Earth' advocates point to measurements showing the *magnetic field's energy* is decaying, suggesting it has a "half-life" and could **not** be billions of years old.
- **Past field strength:** They argue that if the field were to have been decaying for billions of years, its strength in the past would have been unimaginably powerful, which they believe is not physically possible

- **Free decay model:** Some proponents suggest the *magnetic field* is caused by a simple, decaying electric current in the *core*, not the more complex *dynamo theory*.

'Old Earth' Counter-Argument

The 'Old Earth' explanation for *Earth's magnetic field* is the '*geo-dynamo theory*,' where the motion of *molten iron* in the **outer core** creates electric currents that generate a *magnetic field*

- **Core motion:** As *Earth's* inner core solidifies, it releases heat that drives convection in the surrounding liquid outer core, which is made of molten iron alloys.
- **Convection:** The swirling and mixing of this molten iron creates powerful electric currents.
- **Magnetic field:** These electric currents generate the planet's *magnetic field*, which extends far into space and protects *Earth* from harmful solar wind and cosmic rays.

The *Earth's magnetic field decay* is a natural result of the planet's *internal dynamo*, which generates the field from the **movement of molten iron in the outer core**. This process isn't static; **it's subject to natural fluctuations**, including periods of weakening and strength changes, and has undergone reversals throughout its history.

The idea that the field would decay entirely in a few thousand years if the current rate were extrapolated backward is based on a **simplicistic, linear model** of "*free decay*" that doesn't account for the ongoing energy input from the *Earth's* core. 'Old Earth' models understand the *magnetic field* as having a history of **strengthening** and **weakening**, not just a constant decline from an initial state.

Proof for this pattern of fluctuating magnetic field is found in *geologic strata* found throughout the world. Over the past 400,000 years *Earth's magnetic field* strength has varied with cycles ranging from 10,000 to 100,000 years. Over the last 12,000 years *Earth's magnetic field* strength has varied between 85% and 150% of its current value.

WHAT ARE EARTH'S MAGNETIC FIELDS?

HOW DO 'YOUNG EARTH' SCIENTISTS USE EARTH'S MAGNETIC FIELDS TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS USE EARTH'S MAGNETIC FIELDS TO DEFEND THEIR POSITION?

9. Lack of Significant Erosion of Soil Layers Between Strata-

The boundaries between major, flat-lying sedimentary layers (e.g., in the *Grand Canyon*) often appear perfectly **flat** and **sharp** over large distances, with little to **no evidence of the extensive erosion** or developed soil layers that would be expected if hundreds of thousands or millions of years had passed between deposition events.

Additionally, erosion measurements show that continents are lowered by wind, rain, hail, waves, and living creatures' activities at a rate of about 0.05 millimeters per year. At this rate, the continents (which average about 800 meters in elevation) would have disappeared in 16 million years. Since continents still have considerable elevation, *Earth* must be *younger* than 16 million years.

'Old Earth' Counter-Argument

The lack of significant erosion or soil layers (*paleosols*) between rock strata is explained by several geological processes:

- **Periods of Non-deposition (Diastems):** A sharp, flat boundary between two sedimentary layers can represent a '*diastem*' - a brief pause in sediment accumulation with no significant erosion. In a marine or low-energy environment, a slight change in sea level or sediment supply could simply stop the deposition of one type of sediment and start the deposition of another, **without an erosional phase**
- **Submarine Deposition:** Much of the *Earth's sedimentary rock* was deposited in marine environments. Deep underwater, there is very little to no wave action, wind, or typical surface erosion processes to carve gullies or valleys in the underlying layer before the next layer is deposited. The contacts can thus be very flat and sharp, even if a long time has passed
- **Compaction and Preservation:** After burial, the intense pressure and weight of overlying material **compress the layers tightly together**. Any minor surface features or subtle soil development that may have occurred during a brief exposure or pause in deposition would likely be obscured or erased during this compression and the subsequent processes of *lithification* (turning into rock)
- **Erosion and Subsequent Burial (Unconformities):** Geologists recognize major time gaps where significant erosion did occur. These are called *unconformities* and they mark periods where rock layers were exposed, eroded, and then buried by younger sediments.

Some *unconformities* show dramatic angular differences or deep channeling, but others, known as *disconformities* or *para-conformities*, are very flat and subtle, appearing as simple, sharp contacts. In these cases, the **evidence of erosion is minimal**, but **other geological data** (like *index fossils* or *radiometric dating* of adjacent layers) **indicates a significant time gap**. The material that would have recorded that time was either never deposited or was eroded away completely, leaving a flat surface on the remaining, older layer.

- **Episodic Deposition:** The **rate of sedimentation** can be **highly variable**. Some layers can be deposited **rapidly** during high-energy events (like floods or storms), while others accumulate very **slowly**. The sharp contact may simply represent a sudden shift in the depositional environment, such as a coastline rapidly advancing or retreating, causing a quick change from sand to mud deposition.
- **Natural Phenomenon Balances Erosion Rates:** Lava flows, delta and continental shelf buildup from eroded material, coral reef buildup, and uplifting from colliding tectonic plates occur at roughly the same rates (and in some cases exceeding) the erosion rates.

WHAT IS SOIL EROSION BETWEEN STRATA?

HOW DO 'YOUNG EARTH' SCIENTISTS USE LACK OF SOIL EROSION BETWEEN STRATA TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS USE SOIL EROSION BETWEEN STRATA TO DEFEND THEIR POSITION?

10. Minimal Seafloor Sediment Accumulation-

The average depth of sediment on the ocean floor is relatively shallow. At current erosion rates from the continents, the present amount of sediment would accumulate in less than 12 million years, which is far less than the billions of years claimed by conventional geology for the age of the oceans.

'Old Earth' Counter-Argument

'Old Earth' geologists argue that the **thinness** is a result of the ongoing process of *tectonic subduction*, where older, sediment-covered ocean floor is constantly being **recycled into the mantle** over millions of years. They state that the ocean floor is geologically young, with older parts of the crust being **sub-ducted**.

WHAT IS SEAFLOOR SEDIMENT?

HOW DO 'YOUNG EARTH' SCIENTISTS USE SEAFLOOR SEDIMENT TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS USE SEAFLOOR SEDIMENT TO DEFEND THEIR POSITION?

11. Presence of Carbon-14 in "Ancient" Materials-

Carbon-14 has a short half-life (5,730 years) and should not be detectable in any material older than about 100,000 years. However, detectable levels of *C-14* have been consistently found in materials like coal, oil, and diamonds, which conventional science dates at millions or billions of years old, suggesting these materials are much younger.

'Old Earth' Counter-Argument

In the conventional, '*Old Earth*' explanation, the presence of detectable levels of *Carbon-14* in materials considered millions of years old is not an expected finding, because the half-life of carbon 14 is only 5,730 years, making the dating method effective only for materials up to about 50,000 to 60,000 years old. Since *carbon 14* is reported in materials dated much older by other *radiometric methods* (e.g., coal or diamonds dated at millions or billions of years old), conventional science explains this as being **due to one of two primary factors**:

Contamination: The most common explanation is that the sample has been **contaminated** by modern carbon from the environment, either during its time buried in the *Earth* (e.g., through groundwater infusion or microbial activity) or during the collection and laboratory preparation process. Tiny amounts of modern carbon in the air or dust can adhere to samples and be detected by highly sensitive modern instruments like *accelerator mass spectrometers* (AMS)

In-situ production: In certain *geological* contexts, the trace amounts of *nitrogen-14* naturally present within the '*ancient*' material (like a diamond crystal) can be bombarded by neutrons produced from the decay of radioactive elements (such as *uranium* and *thorium*) in the surrounding rock. This process creates new, '*fresh*' atoms within the sample itself over long geological timescales, leading to a small, but measurable *carbon 14* signal.

WHAT IS CARBON 14?

HOW DO 'YOUNG EARTH' SCIENTISTS USE CARBON 14 PRESENCE IN 'ANCIENT' MATERIALS TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS EXPLAIN CARBON 14 PRESENCE IN 'ANCIENT' MATERIALS?

12. Helium in Radioactive Rocks-

Zircon crystals containing *radioactive elements* contain significant amounts of *helium*, a product of radioactive decay. Since *helium* is a very light gas that diffuses out of rock relatively quickly, its retention in 'ancient' rocks is presented as evidence that the rocks have not had enough time for the *helium* to escape, pointing to a young age.

The argument goes like this:

- **Helium production:** *Radioactive decay*, primarily from *uranium* and *thorium*, produces *helium*.
- **Helium diffusion:** *Helium* is a very light element and can easily 'leak' or diffuse out of rocks over long periods. Given enough time, all *helium* should have escaped. Therefore, the presence of significant amounts of *helium* in rocks (particularly in ancient zircons) suggests that the rocks are not as old as mainstream science claims, but much younger, only a few thousand years old.
- **The specific study:** Some 'Young Earth' researchers have pointed to a study of *zircons* (naturally occurring minerals that are found in many *geological* settings, including as tiny grains in sand and rocks, and as larger, gem-quality crystals) from *New Mexico*, which found that a high percentage of the *helium* produced by decay was still trapped in the crystals, suggesting a *young age* based on their interpretation of *diffusion rates*

'Old Earth' Counter-Argument

The presence of *helium* in radioactive rocks is explained by the slow and continuous process of *radioactive decay* and *helium migration*. *Radioactive elements* like *uranium* and *thorium* decay over millions of years, producing *helium* atoms. These *helium* atoms are trapped within the crystalline structure of minerals, such as *zircon*, but slowly migrate through the rock over **vast timescales** to be released into the atmosphere.

The amount of *helium* in a rock is a result of the balance between the rate of its production from decay and the rate at which it escapes through diffusion. The long process of decay and diffusion is consistent with an ‘*Old Earth*’ model, which suggests that the *helium* has been escaping over millions of years.

While the ‘*Young Earth*’ perspective suggests that too much *helium* remains for the rocks to be old, the ‘*Old Earth*’ model explains this by pointing to the **extremely slow rate of *helium* diffusion** over millions of years and the way *helium* can be trapped in mineral structures.

WHAT IS HELIUM?

HOW DO ‘YOUNG EARTH’ SCIENTISTS USE HELIUM PRESENCE IN ‘ANCIENT’ MATERIALS TO DEFEND THEIR POSITION?

HOW DO ‘OLD EARTH’ SCIENTISTS EXPLAIN HELIUM PRESENCE IN ‘ANCIENT’ MATERIALS?

13. Rapid Rates of Geological Processes (ie. Mt St Helens)

Examples such as modern erosion rates, *stalactite* growth, and the quick formation of coal and oil in laboratory settings are cited to suggest that many *geological* features could have formed rapidly, not over millions of years of slow, uniform processes.

The classic modern example is the *Mount St Helens* eruption in 1980 where within only a **few months to a few years** peat layers and sedimentary rock formed in the volcano’s vicinity. Some claim this as proof **against** that *geology layers* are deposited in **uniformitarian** processes over millions and hundreds of millions of years. They claim this is evidence of a ‘*Young Earth*.’

‘Old Earth’ Counter-Argument

“The problem lies in what rhetoricians call the ‘*either-or fallacy*’— the assumption that **all** *geological* processes occur either **gradually** (at relatively uniform constant rates) or **rapidly** (as rates pulsed by natural catastrophes)...

The ‘*Young Earth*’ verses ‘*Old Earth*’ debate is pictured in this context as a battle between the principles of ‘*Uniformitarianism*’ and the principles of ‘*Catastrophism*’ with one significant difference— ‘*Catastrophism*,’ as defined by geologists, refers to the formation of geologic structures through a **variety of catastrophes occurring at different times**. ‘*Young Earth*’ creationists define ‘*Catastrophism*’ as the formation of **all** *Earth’s* major geologic structures by a **single catastrophic event**, namely the *Flood*, an event lasting only several months that occurred, according to them, 5,000 to 10,000 years ago...

As *geology* and *geophysics* text books explain, **both slow and rapid processes contributed to the formation of the Earth's crust**. Some *geologic* features can be explained by only **gradual processes** occurring at relatively fixed rates over many millions of years, and others can be explained only by **rapid processes**. Examples of **gradually formed** features include coral atolls (islands), layers of ice and rock sediments, *varves* (two-toned sediment layers that mark the passing of seasons), anthracite coal, and certain conglomerate and metamorphic deposits...

Other *geologic* formations can be explained only by **rapid processes** punctuating uniform processes. Examples include lava flows, avalanche scars, asteroid and meteorite impact craters, polar ice cap shifts, and geologic intrusions. Abundant evidence exists for repeated '*disasters*' such as these over the last few billion years...

Many geological formations clearly combine gradual and rapid processes. The *Grand Canyon*, for example, reveals intrusions penetrating through several sedimentary layers. Evidence of rapid geological processes, such as those resulting from *Mount St Helens* eruption, fail to support the motion that every structure in *Earth's crust* formed quickly and simultaneously. It simply illustrates that *geology* is a complex science" (Hugh Ross, "*A Matter of Days- Resolving the Creation Controversy*").

WHAT HAPPENED AT MT ST HELENS?

HOW DO 'YOUNG EARTH' SCIENTISTS USE MT ST HELENS DATA TO DEFEND THEIR POSITION?

HOW DO 'OLD EARTH' SCIENTISTS EXPLAIN MT ST HELENS DATA?

CHAPTER TEN

“GLOBAL VERSUS REGIONAL FLOOD”

I. INTRODUCTION

The debate over the *Flood* described in Genesis is whether it was a *Global* event, as proposed by ‘*Young Earth’s*’ *Biblical* literal account, or a *Regional* event which aligns with some ‘*Old Earth*’ creationist views.

The *Global Flood* perspective is supported by verses using universal language like "*all the high mountains*" and "*everything that is on the earth,*" and theological arguments about God's covenant and judgment.

The *Regional Flood* view argues that *Biblical* language reflects the **limited geographical awareness of the ancient world** and is consistent with an ‘*Old Earth*’ model, while still maintaining the theological point that **the Flood wiped out all of humanity at the time.**

Global Flood Theology

- **Biblical literalism:** This view takes the Genesis account literally, emphasizing verses that state the *Flood* covered "*all the high mountains under the whole heaven*"
- **Universal judgment:** Proponents see the *Flood* as a judgment against sin that was *Global* in scope, destroying "*every living thing of all flesh*" except those on the ark.
- **Theological significance:** The *Global Flood* is seen as the basis for God's **covenant with Noah**, symbolized by the **rainbow**, which promises never to flood *Earth* again. A *Global Flood* is seen as necessary for a **universal judgment** on all of humanity's sin, which was spread across the **entire Earth** at the time.
- **Authority of Scripture:** This position often holds that interpreting the *Flood* as merely local **undermines the authority and inerrancy** of the entire *Bible*. If the plain text regarding the *Flood* is flexible, it raises questions about the trustworthiness of other parts of Scripture, including the *New Testament*.

- **Consistency with other passages:** This interpretation is often supported by the *New Testament's* references to the *Flood* as a **universal catastrophe** and the subsequent re-population of the earth by Noah's descendants. Jesus (Matthew 24:37-39) and Peter (2 Peter 3:3-7) both refer to the *Flood* as a **historical, world-destroying event**, which advocates argue supports a global scope, paralleling the future, global final judgment by fire.
- **Ark's Purpose:** If the *Flood* was only local, Noah and the animals could have simply migrated to another region, making the monumental task of building an ark seemingly unnecessary.

WHAT IS THE GLOBAL FLOOD VIEW?

WHAT IS ITS THEOLOGICAL SIGNIFICANCE?

WHAT IS ITS PHYSICAL SIGNIFICANCE?

Regional Flood Theology

- **Linguistic and Cultural Context:** This view argues that the *Biblical* language was written from an ancient, limited perspective where "*the whole earth*" (Hebrew '*kol erets*') referred to the **known world**, which was only the **Middle East** at the time.

Proponents point to other *Biblical* passages where similar **universal language** ("whole world") is used for local events, such as the famine in Joseph's time or the extent of Caesar Augustus's tax decree.

They also note that the Biblical Hebrew word for '*earth*' can also mean '*land*' or '*ground*.' This interpretation changes the meaning of '*the whole earth*' to the '*whole land/ground*' — indicating a more *Regional Flood* of the **known world** of the time.

This view acknowledges that '*all*' mankind (except Noah and his family) was destroyed, but states '*all*' of mankind was confined to the *Mesopotamian* area at that time.

- **Reconciling Science and Scripture:** This view acknowledges the scientific evidence from *geology* and *paleontology*, which '*Old Earth*' advocates say does **not** support a *Global Flood* in the last several thousand years.
- **Theological point remains intact:** Proponents maintain that the theological message of **judgment** and **redemption** is preserved because all of humanity was still concentrated in the *Mesopotamian* region, so a flood in that area would have been a *Global event* in terms of human life.

The *Flood* was universal in its effect on all humanity at that time, not necessarily the physical globe. If humanity was concentrated in the *Mesopotamian* valley before the *Tower of Babel*, a *Regional Flood* would still effectively wipe out all people except Noah's family.

WHAT IS THE REGIONAL FLOOD VIEW?

WHAT IS ITS THEOLOGICAL SIGNIFICANCE?

WHAT IS ITS PHYSICAL SIGNIFICANCE?

II. The Biblical Flood Narrative— Genesis 6-8

Genesis 6:1-22

1 “When man began to multiply on the face of the land and daughters were born to them, 2 the sons of God saw that the daughters of man were attractive. And they took as their wives any they chose. 3 Then the Lord said, “My Spirit shall not abide in man forever, for he is flesh: his days shall be 120 years.”

4 The Nephilim were on the earth in those days, and also afterward, when the sons of God came in to the daughters of man and they bore children to them. These were the mighty men who were of old, the men of renown.

5 The Lord saw that the wickedness of man was great in the earth, and that every intention of the thoughts of his heart was only evil continually. 6 And the Lord regretted that he had made man on the earth, and it grieved him to his heart. 7 So the Lord said, “I will blot out man whom I have created from the face of the land, man and animals and creeping things and birds of the heavens, for I am sorry that I have made them.” 8 But Noah found favor in the eyes of the Lord.

9 These are the generations of Noah. Noah was a righteous man, blameless in his generation. Noah walked with God. 10 And Noah had three sons, Shem, Ham, and Japheth.

11 Now the earth was corrupt in God's sight, and the earth was filled with violence. 12 And God saw the earth, and behold, it was corrupt, for all flesh had corrupted their way on the earth.

13 And God said to Noah, “I have determined to make an end of all flesh, for the earth is filled with violence through them. Behold, I will destroy them with the earth.

14 Make yourself an ark of gopher wood. Make rooms in the ark, and cover it inside and out with pitch. 15 This is how you are to make it: the length of the ark 300 cubits, its breadth 50 cubits, and its height 30 cubits. 16 Make a roof for the ark, and finish it to a cubit above, and set the door of the ark in its side. Make it with lower, second, and third decks.

17 For behold, I will bring a flood of waters upon the earth to destroy all flesh in which is the breath of life under heaven. Everything that is on the earth shall die. 18 But I will establish my covenant with you, and you shall come into the ark, you, your sons, your wife, and your sons' wives with you.

19 And of every living thing of all flesh, you shall bring two of every sort into the ark to keep them alive with you. They shall be male and female. 20 Of the birds according to their kinds, and of the animals according to their kinds, of every creeping thing of the ground, according to its kind, two of every sort shall come in to you to keep them alive. 21 Also take with you every sort of food that is eaten, and store it up. It shall serve as food for you and for them." 22 Noah did this; he did all that God commanded him."

Genesis 7:1-24

1 "Then the Lord said to Noah, "Go into the ark, you and all your household, for I have seen that you are righteous before me in this generation. 2 Take with you seven pairs of all clean animals, the male and his mate, and a pair of the animals that are not clean, the male and his mate, 3 and seven pairs of the birds of the heavens also, male and female, to keep their offspring alive on the face of all the earth. 4 For in seven days I will send rain on the earth forty days and forty nights, and every living thing that I have made I will blot out from the face of the ground."

5 And Noah did all that the Lord had commanded him.

6 Noah was six hundred years old when the flood of waters came upon the earth. 7 And Noah and his sons and his wife and his sons' wives with him went into the ark to escape the waters of the flood. 8 Of clean animals, and of animals that are not clean, and of birds, and of everything that creeps on the ground, 9 two and two, male and female, went into the ark with Noah, as God had commanded Noah.

10 And after seven days the waters of the flood came upon the earth.

11 In the six hundredth year of Noah's life, in the second month, on the seventeenth day of the month, on that day all the fountains of the great deep burst forth, and the windows of the heavens were opened. 12 And rain fell upon the earth forty days and forty nights.

13 On the very same day Noah and his sons, Shem and Ham and Japheth, and Noah's wife and the three wives of his sons with them entered the ark, 14 they and every beast, according to its kind, and all the livestock according to their kinds, and every creeping thing that creeps on the earth, according to its kind, and every bird, according to its kind, every winged creature. 15 They went into the ark with Noah, two and two of all flesh in which there was the breath of life. 16 And those that entered, male and female of all flesh, went in as God had commanded him. And the Lord shut him in.

17 The flood continued forty days on the earth. The waters increased and bore up the ark, and it rose high above the earth. 18 The waters prevailed and increased greatly on the earth, and the ark floated on the face of the waters. 19 And the waters prevailed so mightily on the earth that all the high mountains under the whole heaven were covered. 20 The waters prevailed above the mountains, covering them fifteen cubits deep.

21 And all flesh died that moved on the earth, birds, livestock, beasts, all swarming creatures that swarm on the earth, and all mankind. 22 Everything on the dry land in whose nostrils was the breath of life died. 23 He blotted out every living thing that was on the face of the ground, man and animals and creeping things and birds of the heavens. They were blotted out from the earth. Only Noah was left, and those who were with him in the ark. 24 And the waters prevailed on the earth 150 days.”

Genesis 8:1-22

1 “But God remembered Noah and all the beasts and all the livestock that were with him in the ark. And God made a wind blow over the earth, and the waters subsided. 2 The fountains of the deep and the windows of the heavens were closed, the rain from the heavens was restrained, 3 and the waters receded from the earth continually. At the end of 150 days the waters had abated,

4 and in the seventh month, on the seventeenth day of the month, the ark came to rest on the mountains of Ararat. 5 And the waters continued to abate until the tenth month; in the tenth month, on the first day of the month, the tops of the mountains were seen.

6 At the end of forty days Noah opened the window of the ark that he had made 7 and sent forth a raven. It went to and fro until the waters were dried up from the earth. 8 Then he sent forth a dove from him, to see if the waters had subsided from the face of the ground. 9 But the dove found no place to set her foot, and she returned to him to the ark, for the waters were still on the face of the whole earth. So he put out his hand and took her and brought her into the ark with him.

10 He waited another seven days, and again he sent forth the dove out of the ark. 11 And the dove came back to him in the evening, and behold, in her mouth was a freshly plucked olive leaf. So Noah knew that the waters had subsided from the earth.

12 Then he waited another seven days and sent forth the dove, and she did not return to him anymore.

13 In the six hundred and first year, in the first month, the first day of the month, the waters were dried from off the earth. And Noah removed the covering of the ark and looked, and behold, the face of the ground was dry. 14 In the second month, on the twenty-seventh day of the month, the earth had dried out.

15 Then God said to Noah, 16 “Go out from the ark, you and your wife, and your sons and your sons' wives with you. 17 Bring out with you every living thing that is with you of all flesh—birds and animals and every creeping thing that creeps on the earth—that they may swarm on the earth, and be fruitful and multiply on the earth.” 18 So Noah went out, and his sons and his wife and his sons' wives with him. 19 Every beast, every creeping thing, and every bird, everything that moves on the earth, went out by families from the ark.

20 Then Noah built an altar to the Lord and took some of every clean animal and some of every clean bird and offered burnt offerings on the altar. 21 And when the Lord smelled the pleasing aroma, the Lord said in his heart, “I will never again curse the ground because of man, for the intention of man's heart is evil from his youth. Neither will I ever again strike down every living creature as I have done. 22 While the earth remains, seedtime and harvest, cold and heat, summer and winter, day and night, shall not cease.”

III. KEYS CONCEPTS OF THE “GLOBAL FLOOD” NARRATIVE

According to ‘*Young Earth*’ advocates, the *Scriptural Arguments* for a *Global Flood* include the (1) Purpose and Extent of Destruction, (2) Ark’s Size and Purpose, (3) Water Depth and Duration, (4) God’s Promise, and (5) Testimony of the *New Testament*. (For the *Geological Arguments* for *Global Flood*, see the previous chapter).

A. Purpose and Extent of Destruction

The *theological purpose* of the global *Biblical Flood* narrative was to enact *divine judgment* on a world corrupted by sin and violence, followed by an act of **mercy** to preserve a righteous remnant (Noah and his family) and establish a *new covenant*. According to *Global Flood* proponents, the *Biblical* text describes the destruction as **comprehensive**, covering the **entire** known world and destroying **all life** on dry land outside of the Ark.

1. Key Theological Functions in the Biblical Narrative

- **Divine Judgment on Sin:** The primary cause of the *Flood* was humanity's pervasive **wickedness** and **violence**, which ‘*grieved*’ God's heart. The *Flood* was a just response to moral corruption, demonstrating the seriousness with which God views sin and His sovereignty over creation.
- **Cleansing and “Un-creation”:** The *Flood* is described in terms that reverse the original creation, returning the world to a state of watery chaos before dry land appeared. This serves as a **cleansing** or ‘*un-creation*’ to prepare for a fresh start.

- **Redemption and a New Beginning:** God's grace is shown in sparing Noah, a righteous man, and his family. They become a '*new Adam*' family, tasked with re-populating the earth, thus highlighting the possibility of **redemption** and the continuation of God's plan.
- **Establishment of the Noahic Covenant:** After the *Flood*, God made a *universal covenant*, promising never again to destroy all life on earth with a *Flood*— with the **rainbow** serving as a perpetual sign of this promise. This established a new era of grace and a stable environment.
- **A Type for Future Events:** *New Testament* authors use the *Flood* as an **example** or **type** for future events, comparing it to the final judgment at the second coming of Jesus and the salvation offered through baptism in Christ.

WHAT WAS THE SIN OF MANKIND PRIOR TO THE FLOOD?

WHY WAS THE DESTRUCTION OF MOST OF MANKIND WARRANTED?

WHAT WAS THE NOAHIC COVENANT?

2. Extent of Destruction

The *Biblical* text, particularly the **Genesis** account and *New Testament* references, consistently uses *universal language* to describe the scope of the destruction:

- **All-Inclusive Terminology:** The text uses phrases such as '*all flesh*,' '*every living thing on the face of the earth*,' and '*all the high mountains under the whole heaven were covered*.'
- **Anthropological Universality:** The *Flood* destroyed **all mankind** outside of the eight people on the ark.
- **Geographical/Cosmic Scope (Traditional View):** '*Young Earth*' advocates interpret the language in Genesis as describing a **literal, Global Flood** that covered the **entire planet**, arguing that anything less would make the explicit covenant promise (never to do it again) meaningless given the many local floods throughout history.

WHAT WAS THE EXTENT OF PHYSICAL DESTRUCTION ACCORDING TO THE GLOBAL FLOOD VIEW?

WHAT WAS THE EXTENT OF HUMAN DESTRUCTION ACCORDING TO THE GLOBAL FLOOD VIEW?

B. Ark's Size and Purpose

The Ark was a massive, box-shaped vessel built by Noah at God's command to serve as the sole means of preserving life on Earth during a *Global Flood*.

According to Genesis 6:15, God provided Noah with **specific dimensions** in cubits:

- **Length:** 300 cubits— Approximately 450 to 510 feet (137 to 155 meters), roughly 1.5 football fields long
- **Width:** 50 cubits— Approximately 75 to 85 feet (23 to 26 meters)
- **Height:** 30 cubits— Approximately 45 to 51 feet (14 to 16 meters), about the height of a four-story building.

The Ark had **three internal decks** and a total capacity of roughly **1.4 million cubic feet**— equivalent to the storage capacity of about **450 standard semi-trailers** or **522 railroad stock cars**.

According to *Biblical* interpretation and research by creationist organizations like *Answers in Genesis* (which built a full-size Noah's Ark replica called the *Ark Encounter*), the Ark could hold around **6,700 to 7,000 individual animals**, representing approximately **1,400 'kinds.'** This is **far fewer** than the total number of *species* in the world, due to several key interpretations of the *Biblical* text:

- **'Kinds' vs. Species:** The *Bible* uses the term '*kind*' rather than the modern classification of '*species*.' A '*kind*' is a much **broader category**, roughly corresponding to the biological '*family*' level in **modern taxonomy** (e.g., all domestic dogs, wolves, coyotes, etc., are considered part of one '*dog kind*' because they can interbreed)
- **Land-Dwelling, Air-Breathing Animals Only:** The command applied only to land-dwelling, air-breathing animals. This excludes the vast majority of species, such as marine life (fish, whales, etc.), most insects, and many amphibians, which could survive outside the Ark.
- **Two of Unclean, Seven Pairs of Clean:** Noah was instructed to bring **two** of every *unclean* animal, but **seven pairs** (14 individuals) of every *clean* animal and bird.
- **Average Size:** Most animals on *Earth* are **small**, with the average size of the '*kinds*' on the Ark being estimated at around that of a sheep. They were also likely **young**, non-adult specimens to save space and resources.
- **Ample Room:** Even with a high-end estimate of animals, calculations based on the Ark's dimensions (approx. 510 ft long, 85 ft wide, 51 ft high) suggest it had plenty of space for all the animals, their food, and the eight human passengers. Its total volume was equivalent to the capacity of around 522 modern railroad stock cars.

HOW BIG WAS THE ARK?

WHAT'S THE DIFFERENCE BETWEEN A 'SPECIES' AND A 'KIND'?

HOW MANY DIFFERENT ANIMALS COULD THE ARK HOLD?

C. Water Depth and Duration

- **Water Depth:** According to the Genesis narrative, the waters rose to a depth that covered all the '*high mountains*' on the earth. Specifically, the water was said to be **15 cubits** (approximately 22 feet or 6.7 meters) **above the highest peaks**.

In a modern context, this would imply a depth of nearly **9 kilometers** (over **29,000 feet/ 5.5 miles**) to cover *Mount Everest*. However, some interpretations suggest the pre-Flood Earth had a much **flatter topography**, requiring less water to achieve global coverage.

- **Duration:** The entire *Flood event*, from the beginning of the rain to the time Noah and the occupants exited the Ark onto dry land, lasted for **371 days**, or just over a year. The timeline can be broken down as follows:
 - 40 days and 40 nights of continuous rain.
 - 150 days during which the waters prevailed and reached their maximum height, completely covering the earth.
 - The waters then gradually receded, with the Ark resting on the mountains of Ararat after the first 150 days (five months).
 - Approximately 221 additional days for the water to subside completely and for the ground to dry, at which point Noah and the animals disembarked.

HOW HIGH IS THE TALLEST PEAK TODAY?

HOW HIGH DID THE WATERS RISE ACCORDING TO GLOBAL FLOOD THEORY?

HOW LONG DID THE FLOOD LAST?

D. God's Promise

In the *Biblical* narrative from the Book of Genesis, God's promise after the great *Flood* was a **covenant** to never again destroy all life on *Earth* with a flood of water.

1. The Covenant and Its Sign

After the floodwaters receded and Noah and his family left the ark, God established a **unilateral** and **everlasting covenant** (a sacred agreement that doesn't depend on human action) with Noah, his descendants, and every living creature on *Earth*.

The key promise was: *'Never again will all life be destroyed by the waters of a flood; never again will there be a flood to destroy the earth.'*

God designated the *rainbow* in the clouds as the **sign and reminder of this covenant**. When God sees the *rainbow*, He remembers the everlasting promise between himself and all living creatures. This serves as a constant assurance of God's mercy and his commitment to preserve the natural cycles of the earth (seedtime and harvest, cold and heat, summer and winter, day and night) as long as it endures.

WHAT IS THE SIGNIFICANCE OF THE RAINBOW?

DOES GOD REALLY NEED REMINDING OF HIS COVENANT?

DO WE NEED REMINDING OF HIS COVENANT? WHY?

2. Context and Significance

- **A New Beginning:** The covenant was part of a '*re-creation*' of the world after the *Flood*, offering humanity and animals a **fresh start**.
- **Grace and Mercy:** Despite recognizing that "*every inclination of the human heart is evil from childhood,*" God chose to exercise **mercy** rather than universal **judgment** by water again.
- **A Precursor:** This covenant is considered a precursor to later *Biblical* covenants, highlighting God's desire for a relationship with humanity and foreshadowing the ultimate salvation offered through Jesus Christ.
- **Not a promise against all floods:** The promise specifically guarantees that a global, life-destroying flood will not reoccur, but does not preclude local floods or future judgment by other means (such as *fire*, as mentioned in 2 Peter 3:7).

WHAT IS GOD'S JUDGEMENT?

WHAT IS GOD'S MERCY?

WHICH WOULD YOU RATHER HAVE?

E. Testimony of the New Testament

The *New Testament* consistently refers to the Genesis *Flood* narrative as a **real, historical event** with theological significance, primarily serving as a prefiguration of future judgment, salvation through faith, and the *Christian* sacrament of baptism.

Several New Testament Passages Reference the Flood

- **Jesus's Teaching** (Matthew 24:37-39; Luke 17:26-27): Jesus compared the suddenness of the *Flood* to his own second coming, noting that people in Noah's time were unaware of the **impending judgment** while engaged in everyday activities. This emphasizes the **need for spiritual readiness**.
- **Apostle Peter's Epistles** (1 Peter 3:20; 2 Peter 2:5; 2 Peter 3:5-7): Peter confirmed the *Flood's historical reality*, highlighting God's patience and Noah building the ark. He mentioned that only eight people were saved through the water. Peter used the *Flood* to contrast the world destroyed by water with the current world awaiting judgment by fire.

He also linked the saving aspect of the *Flood's* water to *Christian baptism*. Peter described Noah as a 'preacher of righteousness.'
- **The Book of Hebrews** (Hebrews 11:7): In this chapter on faith, Noah is mentioned for his faith in building the ark based on God's warning, which led to the salvation of his family.
- **Revelation** (Revelation 4:3, 14:7): The presence of a *rainbow* around God's throne in Revelation serves as a reminder of God's promise not to flood the earth again. An allusion to the *Flood* may also appear in a passage about final judgment.

WAS THE FLOOD A REAL EVENT?

HOW DO YOU KNOW?

ARE YOU SPIRITUALLY READY FOR JESUS' RETURN? HOW? WHY?

F. Geology of a Global Flood

Much of the *geology of the Global Flood* view of creation was discussed in previous chapters. 'Young Earth' advocates state that a worldwide *Global Flood* caused most of the *geological evidence* we see today. A concise *geological summary* goes like this:

Pressure and Geology: The additional *waters* of the *Global Flood* put immense *pressure* and *weight* on the *Earth's crust* causing massive *geological upheaval*, including planet-wide *volcanic activity* and the potential for the *crust to fracture*.

Exposure of the Mantle: The hot, molten material of the Earth's *mantle*, which is usually trapped beneath the solid *crust*, could have been exposed to the atmosphere. This would have led to widespread, intense *volcanism* and *lava flows* across the planet's surface— *reshaping the contours of the Earth*.

Mountain Building and Rifting: As *tectonic plates* collided, *mountains* (like the Himalayas) formed as the *crust* was *forced upward*. Where *plates pulled apart* (*divergent boundaries*), *rift valleys* formed, and *new crust* was created through *seafloor spreading*, often accompanied by *volcanic activity*.

Overall, 'Young Earth' advocates state that all the *Earth's* geological formations, *fossilization*, coal, oil, natural gas, gypsum, and limestone deposits (and more) are attributed to the one *Global Flood* event which lasted one year and ten days.

WHAT IS THE EARTH'S CRUST?

WHAT IS THE EARTH'S MANTLE?

HOW DID THE FLOOD CAUSE MASSIVE GEOLOGICAL UPHEAVAL?

IV. KEYS CONCEPTS OF A “REGIONAL FLOOD” NARRATIVE

The words ‘*all*,’ ‘*every*,’ and ‘*everything*’ appear more than **40 times** in **Genesis 1:6-8** to describe how the ‘*Flood*’ impacted ‘*all*’ humans, ‘*all*’ animals, and ‘*all*’ the mountains. But **Regional Flood** advocates ask, “What actually constituted the ‘*entire heavens*’ and ‘*the surface of the earth*’ in ancient times?”

Today, with our **21st Century** understanding of the *Universe* (and our *Earth* in particular), we have a different perspective than that of the people of Moses’ time. Our comprehension of the ‘*whole world*’ today is indeed **Global**— but to the **ancient world**, advocates of this view claim the ‘*whole world*’ meant something much more **Regional**.

A. The ‘Whole World’ in the Bible

— **Joseph Fed All The Earth**— Genesis 41:57 states “*Moreover, all the earth came to Egypt to Joseph to buy grain, because the famine was severe over all the earth.*” Later in Genesis 42:5-6 it made clear that the ‘*all the earth*’ simply meant all the nations under Egyptian sovereignty and influence— not Alaska or Australia!

— **The Whole Earth Came to Listen to Solomon’s Wisdom**— 1 Kings 4:34 states, “*And people of all nations came to hear the wisdom of Solomon, and from all the kings of the earth, who had heard of his wisdom.*” 1 Kings 10:24 adds, “*And the whole earth sought the presence of Solomon to hear his wisdom, which God had put into his mind.*”

But we later read in 1 Kings 10:24 and 2 Chronicles 9 that these peoples of the ‘*whole earth*’ only came from as far away as Ethiopia and Arabia— a mere 1,300 miles away.

— **Caesar Ordered A Census of the Whole World**— Luke 2:1 states, “*In those days a decree went out from Caesar Augustus that all the world should be registered.*” The ‘*world*’ was clearly understood to be only the **Roman Empire**— not Dallas, Texas.

— **Pentecost Spread the Gospel to the Whole World**— Acts 2:5 states, “*Now there were dwelling in Jerusalem Jews, devout men from every nation under heaven.*” For Jewish people living in first century Jerusalem, ‘*every nation under heaven*’ would represent the provinces of the **Roman** and **Parthian Empires**— not the Mayans of Southern Mexico and Central America.

— **Paul Encouraged That Christian Faith Being Spread All Over the World**— Romans 1:8 states, “*First, I thank my God through Jesus Christ for all of you, because your faith is proclaimed in all the world.*” The *Christian world* Paul referred to was becoming vast, but not yet global.

— **Paul Encouraged That the Fruit of the Gospel was Being Spread All Over the World**—

Colossians 1:6 states, “*which has come to you, as indeed in the whole world it is bearing fruit and increasing—as it also does among you, since the day you heard it and understood the grace of God in truth.*” Paul’s ‘whole world’ was again only the **Roman Empire** as he knew it.

— **Peter Referred to the Flood as Affecting the World of “That Time”**— 2 Peter 3:6 states, “*and that by means of these the world that then existed was deluged with water and perished.*”

By modifying the word ‘world’ (‘*kosmos*’) with ‘that then existed’ (‘*tote*’) Peter was communicating that the small ‘world’ of Noah was not the large (but not worldwide) ‘world’ of the known *Roman Empire*.

These are just a few verses describing the ‘whole world’ as being much more **limited in area** than we would use the term today. There are many other places in *Scripture* where the concept of the ‘whole earth’ was limited to **smaller geographic regions**.

Genesis 10 lists all the **nations** descended from Noah’s sons. They cover only the **Mediterranean** and **ancient Near East**. There was no knowledge of Australia, China, Japan, North America, South America, etc. Hence, **Regional Flood** advocates argue that, to the writer, the account covered all the **known land masses**— **not the entirety of Earth** as we know it today.

HOW VAST IS YOUR ‘WHOLE WORLD’ TODAY?

WHAT ENCOMPASSED THE ‘WHOLE WORLD’ ACCORDING TO THE REGIONAL FLOOD MODEL?

WHY?

B. Mankind’s Failure To Disperse”

‘**Old Earth**’ advocates state that when the Genesis narrative describes the **Flood** as causing devastation on ‘**all the Earth**’ it really means only the large (but **regionally limited**) area of **Mesopotamia** from which **mankind had failed to disperse** after being banished from the **Garden of Eden** and after the **Flood**.

— **God Told Adam and Eve To Fill the Earth**— Genesis 1:28 states, “*And God blessed them. And God said to them, “‘fruitful and multiply and **fill the Earth** and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth.’”*”

- **God Again Told Noah to Increase Greatly on the Earth**— Approximately 1,600 years after first telling Adam to ‘*fill the Earth*’ God gives the **same command to Noah**. Genesis 9:7 states, “*And you, be fruitful and multiply, increase greatly on the earth and multiply in it.*”
- **God Finally Dispersed the Nations Only After the Tower of Babel**— Only 100-300 years after the *Flood* (depending on dating methods) God finally takes matters into His own hands and **disperses the nations at the *Tower of Babel*— finally forcing outward migration from Mesopotamia**.

“*Biblical clues to the geographical limitation of human habitation prior to the *Tower of Babel* can be found in the names of places in the Genesis record. In Genesis 1-9 all the places mentioned belong to settlements in *Mesopotamia* and the *Persian Gulf Oasis*. From Genesis 10 onward (after the *Tower of Babel* in Genesis 11), the text refers to places throughout much of the *Eastern hemisphere*...*

This sudden shift to a wider *geographical* focus **after Genesis 10** strongly suggests that until the time of the *Flood* (and even afterwards), humans (and the animals on which they depended) remained in and around the area often referred to in textbooks as the ‘*Cradle of Human Civilization*.’ (Hugh Ross, “*Navigating Genesis- A Scientist’s Guide to Genesis 1-11*”).

The primary *theological point* of the *Flood* narrative is the **universal scope of God’s judgment against the prevailing human wickedness**. Proponents of a *Regional Flood* argue that the entire **human population** was concentrated in the specific region of *Mesopotamia* at that time.

Therefore, a massive *regional flood* would have achieved the goal of **destroying all humanity and life “on the Earth” as it was known to the Biblical authors**, making a geographically *Global Flood* unnecessary.

DID ADAM FILL THE WHOLE EARTH AS WE KNOW IT TODAY? HOW DO YOU KNOW?

DID NOAH FILL THE WHOLE EARTH AS WE KNOW IT TODAY? HOW DO YOU KNOW?

WHAT HAPPENED AT THE TOWER OF BABEL?

C. Highest Mountains

‘*Old Earth*’ creationists who view the *Genesis Flood* as a **local (Regional) event** interpret the *Biblical* description of the waters covering the ‘*highest mountains*’ as happening within the ancient *Near East’s* cultural and linguistic realm— **not** as a description of covering modern, global peaks like *Mt. Everest*:

- **Geographical Scope of “Earth”**: The Hebrew word ‘*erets*,’ often translated as ‘*earth*’ in English *Bibles*, can also mean ‘*land*,’ ‘*ground*,’ ‘*country*,’ or ‘*region*’. In this view, phrases like “*all the earth*” or “*under the whole heaven*” refer to the entire inhabited **land known to the Biblical audience**, which was primarily *Mesopotamia* and the surrounding region.



- **Perception of Totality:** To a person in the ancient world, a *Flood* that covered their **entire known world** (as far as the eye could see in all directions) would be described using universal language. From the perspective of Noah in the ark, floating on the vast floodwaters of the *Mesopotamian plain*, no land would have been visible, **giving the appearance of a total, ‘world-covering’ flood.**

To people of the ancient times, the ‘*world*’ meant its **people**, the ‘*land*’ meant the **ground under their feet** stretching from horizon to horizon, and the ‘*highest mountains*’ were those **within their sight** or **walking distance** of their home.

- **‘High Mountains’ were ‘High Hills’:** The Hebrew word ‘*har*’ can mean ‘*mountain*’ but also ‘*hill*’ or ‘*mount.*’ The ‘*high mountains*’ of the narrative are interpreted by **Regional Flood** proponents as the ‘*high hills*’ in the *Mesopotamian plain*— **not** the thousands-of-feet-high global mountain ranges of today.
- **Theological Purpose:** The language in the *Flood* narrative is seen as serving a **theological, not a scientific**, purpose. The text emphasizes the **totality of God's judgment** on a sinful human race, which at that time was **localized in a specific region**, and God's covenantal faithfulness to Noah.

WHAT DOES ‘ERET’ MEAN?

WHAT WAS THE ANCIENT UNDERSTANDINGS OF THE ‘WORLD’?

WHAT DOES ‘HAR’ MEAN?

WHAT WAS THE ANCIENT UNDERSTANDINGS OF MOUNTAINS VERSES HILLS?

D. Water

The **highest mountain** on *Earth* above sea level is *Mount Everest*, which stands at approximately **8,849 meters (29,032 feet)**. The *Biblical* account in Genesis mentions **water** covering the '*highest mountains*' by **15 cubits**, or about **22.5 feet**. This implies the water level would need to reach over **29,050 feet** in a *Global Flood* scenario!

Regional Flood advocates point out that the *Earth's* **total water supply** is not only **insufficient** to account for a *Global Flood*, but such a *Flood* would have **devastating consequences**:

- **Current Water Volume:** The *Earth's* **oceans** currently hold about **1.37 billion** cubic kilometers of water, covering approximately **71%** of the surface.
- **Required Water Volume:** To submerge all landmasses, including *Mount Everest*, the global sea level would need to **rise** by roughly **8.6 to 9 kilometers (over 5 miles)**.

This massive **increase** in **water volume** (around 4.4 billion cubic km) is **not present** in (1) the *Earth's* **current atmosphere**, (2) **surface water**, or (3) known **underground reservoirs**.

- **Physical Constraints:** The **introduction** and subsequent **disappearance** of such a massive amount of water would **violate known laws** of *physics* and *geology*:
 1. **Source and Drainage:** There is no known natural source for this much **extra water** to suddenly **appear**, nor a realistic mechanism for it to **drain** away afterward.
 2. **Thermodynamics:** Condensing that much **water vapor** (as was at one time proposed by some '*vapor canopy*' hypotheses) would release enough energy to raise the atmospheric temperature to **thousands of degrees Celsius**, incinerating any life.
 3. **Pressure and Geology:** The immense **pressure** and **weight** of the **additional water** on the *Earth's* *crust* would cause **massive geological upheaval**, including planet-wide **volcanic activity** and the potential for the *crust* to **fracture**. If the entire *Earth's* *crust* were to suddenly and completely fracture on a massive, unprecedented scale, the consequences would be **globally devastating**:
 - a. **Loss of Life:** **All life on the surface** would be instantly **imperiled** by the **extreme heat**, massive **earthquakes**, and **atmospheric changes**.
 - b. **Atmospheric and Magnetic Field Changes:** A severe, sustained disruption could affect the planet's **magnetic field** (generated by the fluid outer core), which protects the atmosphere from **solar winds**. The **loss of this shield** could eventually lead to the **atmosphere being stripped away** (as is believed to have happened on Mars).

c. **Planetary Reshaping:** The intense forces would lead to the **collapse** of the surface materials, with **gravity** quickly working to pull the planet back into a **sphere**, likely forming a **new crust** over geological time from the cooling mantle material.

4. **Energy Requirement:** The energy required for *Earth's* mountains to be pushed up tens of thousands of feet and many of *Earth's* ocean trenches and basins pressed down by still more **tens of thousands of feet** in such a short time **exceeds** by many orders of magnitude not only what the *laws of physics* permit, but also **what the planet could survive**.

Regional Flood advocates state that *Global Flood* proponents squeeze several billion years worth of **tectonic activity** in an extremely brief window— only **150 days**. Such a perspective requires **lateral continental movement** of as much as **5,000 to 8,000 miles**. This movement averages out to **125-200 feet per minute!** (Tectonic plates today move roughly at the same rate that fingernails grow— **0.60 to 10 cm/yr**).

The sudden **release of energy** would lead to a dramatic increase in the magnitude and frequency of **earthquakes**, **volcanic eruptions**, and **tsunamis**. Volcanoes at *plate* boundaries would go into “*super-mega-ultra-hyper drive*,” with a never-ending stream of *lava* and *sulfuric ash* causing a ‘*volcanic winter*’ blocking sunlight and raising *Earth's* ‘*albedo*’ (surface reflectivity). This loss of reflectivity would cause the *Earth* to **absorb more sunlight** and lead to extreme **warmer temperatures** for years.

WHAT IS THE TOTAL VOLUME OF WATER IN, ON, AND AROUND THE EARTH TODAY?

WHAT WOULD HAVE BEEN THE VOLUME OF WATER NECESSARY FOR A GLOBAL FLOOD ACCORDING TO REGIONAL FLOOD ADVOCATES?

WHAT WOULD HAVE BEEN THE PHYSICAL RAMIFICATIONS OF A GLOBAL FLOOD?

E. How a Regional Flood Was Contained

In the *Regional Flood* model, the *Flood* waters were contained within the **natural geological boundaries** of a **specific geographic area**, typically interpreted as the *plain of Mesopotamia*. The **water receded** through natural processes, such as **drainage** into the *Persian Gulf* and by way of **evaporation**.

— **Natural Topography:** The *Flood* occurred in a topographically low, nearly flat river plain (like the *Tigris and Euphrates valley*) surrounded by higher ground (**mountains in Turkey/Syria and Iran**).

In a *Regional Flood* model the **floodwaters** (while vast to the inhabitants) were **confined** by these existing *geological features*:

- **Poor Drainage**: Due to the very low gradient of the land in the region, the water ‘**piled up**’ and could not flow quickly downstream to the *Persian Gulf*. This **poor drainage** resulted in the water remaining for a long period (months), forming large, **temporary lakes** and effectively ensuring the **land appeared to be entirely covered to a local observer**.
- **Evaporation**: Over the many months the water prevailed, a significant amount of water was removed through *evaporation*, aided by **wind** and **heat**. This process, combined with **gradual drainage**, accounted for the **slow recession** described in the *Biblical* narrative.
- **Curvature of the Earth**: Proponents of this view argue that from a single **vantage point**, like the Ark, the **curvature of the Earth** would have **prevented** a person from seeing the **tops** of distant hills even if they were not submerged, **making the ‘whole world’ appear covered in water**.

HOW WERE THE FLOOD WATERS CONTAINED IN A GLOBAL FLOOD MODEL?

WHERE DID THE WATERS GO AFTER THE FLOOD IN THE GLOBAL FLOOD MODEL?

HOW WERE THE FLOOD WATERS CONTAINED IN A REGIONAL FLOOD MODEL?

WHERE DID THE WATERS GO AFTER THE FLOOD IN THE REGIONAL FLOOD MODEL?

F. Ark's Landing Place

Genesis 8:4 states that the ark eventually came to rest on the ‘*mountains*’ (plural) *of Ararat*—**not** on *Mount Ararat* (elevation 16,945 feet above sea level) as some have claimed.

Gen 8:4- “*and in the seventh month, on the seventeenth day of the month, the ark came to rest on the mountains of Ararat*”

This distinction makes a **significant interpretative difference**. The entire *Ararat range* extends from the north and east of *Mount Ararat* all the way to the foothills skirting the *Mesopotamian plain*. The range encompasses an area of more than **100,000 square miles** with elevations ranging from a few **hundred** to the **thousands** of feet.

The ark could have come to rest **anywhere** within this vast region.

WHERE ARE THE MOUNTAINS OF ARARAT?

WHERE DID THE ARK LAND?

WAS 'INDIANA JONES' ON THE RIGHT TRACK?

H. Bio-deposits

Regional Flood advocates state that one of most difficult challenges *Global Flood* proponents face is the quantity of *Earth's bio-deposits*— *coal, oil, natural gas, kerogen, clathrates, gypsum, limestone, phosphates, insoluble metals, topsoil*, and more.

Global Flood models propose that the sum total of all these materials came from **plant and animal death** on *Earth* at the time of the *Global Flood*.

However, today the **minimal quantity** of *Earth's underground biological material* (not including topsoil, phosphates, or sulfate-reduced metal ores), equals **76 quadrillion tons**. In other words, the *biological material* embedded in *Earth's crust* **exceeds** *Earth's* current living *bio-mass* (only **625 billion tons**) by at least **122,000 times!** *Regional Flood* proponents state that all of the embedded *bio-deposits* in the *Earth* core could **not** possibly have come from such a **short Global Flood**.

Additionally, a single, **year-long Global Flood** would theoretically result in a more **uniform distribution of organic material** and **less specific geological layering**. But, the actual **localized nature of major oil fields** in ancient seabed areas (like the *Persian Gulf*) is a strong indicator that specific, **long-term conditions were necessary**, not a universal event.

Oil is found almost exclusively in *sedimentary basins*. If a single, catastrophic *Flood* covered the entire globe, organic deposits would be expected in a wider variety of rock types (*igneous, metamorphic*, etc.) **which is not** the case.

'Old Earth' Scientific Explanation for Oil Distribution

Petroleum formation is a multi-step process that requires a highly specific sequence of events and conditions, which is why it is concentrated in **specific sedimentary basins**.

- **Source Material:** The **primary source of oil** is an abundance of **soft-bodied marine organisms**, such as algae and plankton, that accumulated at the bottom of ancient seas or lakes millions of years ago. The conditions needed to preserve this organic matter involved low oxygen levels to prevent it from decaying or being consumed by scavengers

- **Burial and "Cooking":** This organic-rich material needed to be **buried by layers of sediment**. The correct amount of **pressure** and a specific **temperature** range (the '*oil window*') over millions of years '*cooked*' the organic matter into liquid oil (kerogen). **Too much heat** would turn it into *natural gas* or *graphite*, while **too little** would leave it as *unformed organic matter*
- **Migration:** Once formed, the *liquid oil* had to **migrate** from the *source rock* through *permeable rock* layers (like sandstone) .
- **Trapping:** Finally, the *migrating oil* needed to be **stopped and trapped** by an *impermeable rock* layer (a '*seal*') to accumulate in a *reservoir*, rather than seeping to the surface and dissipating.
- **Not a simple outcome of a Flood:** The scientific consensus is that *oil formation* is a process that takes **millions of years— not only one**. While a *Global Flood* may have contributed to the accumulation of organic matter in certain areas, it did not create the specific **pressure, temperature, and rock-layering** conditions required to turn that matter into oil everywhere else.

WHAT ARE BIO-DEPOSITS?

HOW DO GLOBAL FLOOD ADVOCATES EXPLAIN BIO-DEPOSITS?

HOW DO REGIONAL FLOOD ADVOCATES EXPLAIN BIO-DEPOSITS?

WHY DO REGIONAL FLOOD ADVOCATES SAY THERE WAS NOT ENOUGH TIME FOR THE CURRENT BIO-DEPOSITS TO DEVELOP UNDER THE GLOBAL FLOOD MODEL?

I. Animal Diversification

How many animals fit on the ark? It's a question that has puzzled *Christians* for ages. *Global Flood* advocates claim that the **5.8 million** animal *species* living today (plus all sea animals and plants given the devastating *plate tectonic* previously mentioned) **descended** from the pairs brought on board the ark. *Regional Flood* proponents state that the number of current *species* (not to mention the number of species that have gone extinct since the flood) **could not have possibly have fit on the ark.**

To address this issue, *Global Flood* models propose that Noah saved only **pairs** of each '*family*' or '*order*,' rather than pairs of '*species*.'

Order, *family*, and *species*, are *hierarchical ranks* used in the *biological classification system (taxonomy)*. The primary difference is their level of inclusivity: an *order* is the most inclusive of the three, containing multiple *families* while a *species* is the most specific unit, grouping individuals that can **interbreed** and **produce fertile offspring**.

Global Flood advocates believe **all 5.8 million species** of land animals arose **after** the *Flood* through a process called *biological ‘rapid descent with variation’ (hyper micro-evolution)*. By this natural process, a few thousand pairs rapidly **evolved** into millions:

- **Diversification within "kinds"**: *Global Flood* advocates argue for rapid *micro-evolutionary changes* and *speciation* (origin of new *species*) within the *genetic boundaries* of a created ‘*kind*’ (a broader category than the modern scientific definition of *species*, possibly closer to *genus* or *family*)
- **Pre-existing genetic variation**: They propose that the **original** created ‘*kinds*’ had a large amount of *pre-existing genetic variation (heterozygosity)*. The *post-Flood* environment and population bottlenecks allowed for the **rapid sorting and expression** of these traits through *natural selection* and *genetic drift*, leading to **diverse forms** (e.g., the various breeds of domestic dogs and wild canids all descended from a single canine ‘*kind*’).
- **Rapid adaptation**: This rapid variation allowed *species* to quickly adapt to the diverse environmental niches available after the *Flood*.

However, *Regional Flood* advocates state that ‘*rapid descent with variation*’ is just another name for *Darwinian evolution on steroids!!!* Indeed the term was first used by Darwin himself to describe his theorized *macro-evolutionary* process.

Animals, especially as advanced as horses and felines, simply **do not (and cannot)** by any observed or postulated mechanism, *evolve or diversify at such a rapid rate— especially not in just 4,500 years!* This rate of change is far more rapid and extensive than what is observed or predicted by even *evolutionary biology (Darwinism)*!

Not even the most optimistic *non-theistic evolutionist* would support such a theory!

HOW MANY SPECIES EXIST TODAY?

WHAT IS DARWINISM?

WHY DO REGIONAL FLOOD ADVOCATES ACCUSE GLOBAL FLOOD ADVOCATES OF BELIEVING IN HYPER-DARWINISM?

THE **MANY, MANY, MANY, MANY, MANY, MANY** 'MIRACLES' OF A GLOBAL FLOOD

Christians all agree that God can do anything, including *miracles*. But *Regional Flood* proponents claim that *Global Flood* advocates seem to be asking people to believe in *miracle* after *miracle* after *miracle*— far beyond what is actually described in the Genesis story. David Snoke (“*The Biblical Case for an Old Earth*”) provides a list of just some of the many *miracles* that a *Global Flood* entails:

1. The **miracle** of **transportation of millions of animals to the Ark** from Australia, the Americas, Antarctica, and the islands.
2. The **miracle** of the **compression of the animals** in the Ark. The described volume of the Ark is not large enough for all the millions of animal **species** plus the food and fresh water they would need for 370 days aboard the ark.
3. The **miracle** of the **feeding of the *carnivorous* animals** on the Ark. If *carnivorous* animals came along, then many extra animals of other types had to come for food, unless meat was miraculously refrigerated.
4. The **miracle** of the **caretaking of millions of animals** by just eight people, including tons of dung production per day.
5. The **miracle** of the **survival of the occupants** of the Ark despite the huge heat production in a closed space.
6. The **miracle** of the survival of special-climate animals (e.g. polar bears and penguins) on the Ark.
7. The **miracle** of the **feeding of special diet animals** (e.g. the koala) on the Ark.
8. The **miracle** of the **creation of water out of nowhere** and the **destruction of that water afterwards**. In a *Local Flood*, water moves from one place to another, but in a *Global Flood*, new water would have to be created.
9. The **miracle** of the **non-sinking of the continents** under the weight of that water.
10. The **miracle** of the **survival of trees and plants under that water**.
11. The **miracle** of the **survival of fresh water fish in salt water** (or, salt water fish in fresh water).

12. The **miracle** of the **survival of amphibious and tidal pool creatures on the Ark**. Certain species need particular conditions of water environment. In addition to bringing food and water to drink for the regular animals, Noah would have had to set up special aquariums that changed the type of water at different times of day.
13. The **miracles** of the **survival of worms, insects, etc. underwater** (or, the miracle of the transportation of all insects, worms, etc. to the Ark, including all the necessary ingredients for termite hills, ant colonies, etc).

As Snoke concludes, “Some advocates of a *Global Flood* have argued that the above *miracles* were not necessary because the *Earth* was relatively flat and the continents were not divided before the *Flood*, and there were relatively few animal *species*— which then **mutated** and **adapted** to the new environment created after the *Flood*...

In so saying, they not only affirm *evolution*, which I reject, but they make the forces of *evolution* occur a million times more efficiently than any Darwinist would claim...

Mountains spring up in a matter of weeks, continents tear apart and skid across the oceans at high speeds, nuclear radiation pours in from the skies creating mutations that lead to whole new species of plants and animals that are adapted to specific environments like tidal pools or mountaintops— all within a few hundred years between Noah and Abraham...

As one ‘*Young Earth*’ advocate said to me, ‘No wonder Noah got drunk!’”

WHAT IS A MIRACLE?

WAS THE FLOOD A MIRACLE?

WAS GOD’S CREATION OF THE UNIVERSE A MIRACLE?

ARE YOU A MIRACLE?

CONCLUSION

As stated in the *Preface*, the goal of this study was to inform, not persuade. If you began as a ‘*Young Universe/Earth*’ advocate, you’ve probably found ample reasons to strengthen your view. If you started as an ‘*Old Universe/Earth*’ proponent, there are lots of facts and figures to hang your hat on. And if you came into this study just wondering what all the hoopla is about concerning God’s creation, you may be just as confused as when you started. You’re not alone.

Fortunately, the one indisputable fact that all *Christians* agree on is that God created the *Universe*, the *Earth*, and everything around us. While specific narratives and theological details may differ, *Scripture* and the scientific observations of the *Universe* both emphasize the purposeful design and divine power of God— nothing exists outside of His creation.

We can try to get into God’s head with our *Biblical* hermeneutics and scientific extrapolations, but ultimately we must rely on faith. *Young Universe? Old Universe? Young Earth? Old Earth? Global Flood? Regional Flood?* God knows. Do we?

I’ll leave you with the three *Biblical* verses we started with:

***“Where were you when I laid the foundation of the earth?
Tell Me, if you have understanding.”*** (Job 38:4)

***“For My thoughts are not your thoughts,
neither are your ways My ways, declares the Lord.
For as the Heavens are higher than the Earth,
so are My ways higher than your ways
and My thoughts than your thoughts,”*** (Isaiah 55:8-9)

***“For what can be known about God is plain to them,
because God has shown it to them.
For His invisible attributes, namely, His eternal power and divine nature,
have been clearly perceived, ever since the creation of the world,
in the things that have been made.
So they are without excuse”*** (Romans 1:19-20)

Thanks for once again for joining me in studying God’s might and mercy,

Steve Glaser

