

God's Grand Design
Class #6
What about radiometric & carbon-14 dating?
Genesis 5 & 11
Josh Whitney
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The Rock Church

(pray, pause, breath)

INTRODUCTION

Good evening everyone. Welcome to our next **God's Grand Design**. My name is Josh Whitney. I am one of the pastors at the Rock.

This is part 6. We will be addressing this question **what about radiometric & carbon-14 dating?** Last class and this class are both addressing the age of the earth. Last time, we approached it from a biblical perspective. Tonight, we are approaching it from a scientific perspective.

For the record, a bunch of you asked about this question.

Before we get into our topic. A few housekeeping items.

First, if you are new, and you want to be on the **email list**, send me an email at josh@trc.life

Second, we are going to take a **month off** for Christmas and the New Year. So we won't meet again till January 17, 2024. I am having a blast teaching this class but a four week break.

I also want to highlight the resources. All of my notes and slides and the audio recordings are all posted here.

Third, here is our **topic list** from the first class. After tonight, we will have addressed these questions I crossed off. But there are many more to cover. 2024 here we come. I haven't forgotten about the belly button question. This is where we are going next year.

So let's start with prayer.

OVERVIEW

In this class, we are comparing two different views of origins, where everything came from?

View #1 – God created the heavens and the earth. (in six days, thousands of years ago)

But I believe View #1 makes the most sense, biblically and scientifically. And that is what this class is all about.

View #2 is the dominant view in our world.

And **View #2. The heavens and earth evolved without God. (millions and billions of years ago)**

EVOLUTIONARY AGE OF THE EARTH

Let's review the evolutionary age of the earth. Here is a **summary table** we talked about last time.

Tonight, we are going to talk about the scientific methods used to estimate these ages.

But you should know the old ages for the earth came before any radiometric dating methods were developed. That may surprise you.

But it is actually the opposite.

The old age assumptions came first and then later the data to back it up later.

Why do I say that? Here is a major figure.

This guy is named Charles Lyell. He is a geologist who wrote some of the first major books on geology. Principles of Geology. In 1830. He said in a letter to a friend. **"I am sure you may get into Quarterly Review what will free the science [of geology] from Moses. If we don't irritate, which I fear that we may, we shall carry all with us."**

He had an agenda to free geology from Moses, specifically Genesis.

Charles Lyell also said, long before radiometric or carbon 14 dating. **The Earth is a testament to millions of years of slow, relentless change.**

And you know this guy. Charles Darwin took Lyell's geology book with him on his journey on the Beagle when he saw the finches. And he was inspired to write about evolution over millions of years. In his writings he spoke of **evidence of 'incomprehensibly vast' periods of geological time.**

Notice the date. 1859.

I will expand on this in a minute. But **radiometric dating was first used in 1905 and carbon 14 dating in 1946. The old age conclusions came before the science.**

That is the opposite of how it should be. First do the science then form your conclusions.

chart Back to this chart. Why do people think the earth is 4.5 billion years old? Because there are rocks that were dated using the methods we will discuss tonight that yield an age of 4.5 billion years and so on..

Last time, I asked, what if all of these dates are wrong?

BIBLICAL AGE OF THE EARTH

Why would I say that?

Last class, we actually added up all of the lifespans of the early people in the Bible from Adam to Abraham.

Adam was 130 when he fathered Seth. Seth was 105 when he had Enos and so on. You add all of those up.

You get about 2,000 years from Adam/Creation to Abraham. And Bible scholars and archeologists date Abraham around 2,000 B.C. And Abraham to Jesus, 2,000 years, and Jesus to us, 2,000 years. So that is about **6000 years from Adam/Creation to us.**

AGES COMPARED

Let's put our **two tables of ages** side by side. The contrast is quite striking. So last class, we established the biblical foundation for the column on the right, the creation timeline, 6,000 years.

Now I want to look at the scientific foundation for the column in the middle there, the evolution timeline, millions and billions.

AN ILLUSTRATION

Before we get into dating methods, I want to share an illustration with you. It will be helpful for you to understand some of the principles involved.

Also, I need will your grace tonight This is a pretty technical topic, radiometric dating and carbon-14 dating.

Some will think I went way too deep. I would be happy to answer questions afterwards.

Some will think I didn't go deep enough. I will point you to resources to go much deeper.

Here is my illustration. Let's say your wife was filling **your bathtub, but then she left.** You walk in. You are taking this class. You are feeling sciency. So you get your tape measure and determine the tub has 5 inches of water. And you came back 10 minutes later and the tub has filled one more inch to 6 inches. (This is very slow, I know.) And you notice it's 10:00 am.

So you think, I want to make Josh proud. **Ten minutes per inch.** Six inches high. That's 60 minute of water. It's 10:00 am. When did the tub start filling?

9:00 am, correct?

Wrong!

You don't realize 3 assumptions you made regarding the filling of this tub.

First assumption. You **assumed the initial conditions of the tub**. You assumed the tub was empty. What you didn't know is the tub wasn't empty. There was leftover water in there from your kid's bath.

Second assumption. You **assumed a constant rate of change. Or the flow of water into the tub** has been constant over the last hour. What you didn't know is that your wife turned the knob to a slower flow before you walked in. The water was filling much quicker before.

And third assumption. You **assumed, no outside contamination. That there had been no extra water added or subtracted from the tub** while it was filling. What you didn't know is, your wife wanted the water to be hotter, so she boiled a pan of water on the oven and poured it in.

Those are 3 assumptions you made with your time estimate.

The filling of your tub isn't as straight forward as you might have assumed.

THREE ASSUMPTIONS

So as we get into dating methods. Every dating method has these **three assumptions**. initial conditions, rate of change being constant, and lack of contamination.

Here is carbon 14 becoming nitrogen 14. That is one dating method we will discuss. All 3 assumptions are utilized.

People once thought that **atoms were stable**. You remember in your high school science class. A very simple atom is made up of a nucleus, made up of protons and neutrons. Plus electrons flying around the nucleus. Well people thought that the atom was stable. It didn't change.

We need a **chemistry refresher**. And for the record, I am not a chemistry guy. My wife, a biochemistry major in college, gave me a refresher yesterday. Does anyone remember what this is? Periodic table of elements.

What are elements? **Element: A chemical element is any substance that cannot be broken down into simpler substances by ordinary chemical processes.**

It is the building blocks of all matter.

Periodic table. So you see C that stands for carbon. N stands for Nitrogen. O stands for Oxygen. Aluminum, sodium, magnesium, etc. These are the basic chemical building blocks of matter.

You see here. Carbon, C, has the number 6. What is that? That is the atomic number.

Atomic number: the number of protons in the nucleus of an atom, which determines the chemical properties of an element and its place in the periodic table.

Periodic table. That is kind of wild to me. I have some **golf balls** to illustrate. The white golf balls will be the neutrons. The colored ones will be the protons.

So carbon has 6 protons and nitrogen has 7. So you add one more proton and you change the fundamental nature of an element. It goes from carbon to nitrogen.

So typically. Carbon 12. Six protons. Six neutrons.

Nitrogen 14. Seven protons. Seven neutrons.

That is wild. You add one proton and one neutron and it changes to a totally different element. It goes from carbon to nitrogen.

One more concept.

Isotopes: variation of a chemical element with specific properties.

So how many protons does carbon typically have 6? And 6 neutrons. So 12 total.

But there is something called carbon 14. Which has six protons and eight neutrons. And this is unstable. It wants to be stable.

Nobody wants to be unstable. People want to be stable. So carbon 14 becomes nitrogen 14.

Carbon 14. Six protons. Eight neutrons.

Nitrogen 14. Seven protons. Seven neutrons.

So it adds a proton and loses a neutron. It is adding or subtracting particles. That is the radiometric process in nutshell, adding and subtracting protons, neutrons, and electrons.

OK, chemistry refresher is over. These are the building blocks of the concepts we are going to cover tonight.

Tonight, I am going to cover dating methods that give very old ages for the earth.

And dating methods that give very young ages for the earth.

But every one of those dating methods, old or young, makes those three assumptions.

RADIOMETRIC DATING

Let's talk about a dating method that gives a very old age for the earth.

So let's start with radiometric dating method. **Radiometric dating is a method of dating geological or archeological specimens by determining the relative proportions of particular radioactive isotopes present in a sample.**

It is variation of an element with certain number of protons and neutrons and it is unstable and it is changing into something stable.

Again, people once thought that atoms were stable. They didn't change.

Well the **discovery of radioactivity** in uranium by French physicist Henri Becquerel in 1896 forced scientists to change their ideas about atomic structure. He discovered that certain elements were not stable.

There are certain elements that decay or change into other elements over time.

back to our **periodic table**. Uranium U (92) becomes lead Pb (82). It goes from 92 to 82. How many protons does it lose? 10. See how smart we are becoming. Well done.

See this diagram. This element, uranium decays into lead step by step by losing protons neutrons and electrons. And so on until it arrives at a stable atomic structure, lead, that won't lose any more particles.

You have seen in movies the Geiger counter measuring radiation. That is simply measuring the particles flying off of unstable elements. And radiation can be very harmful. There are different types of radiation, alpha, beta, gamma, etc. Some of these particles can cause cancers.

When I did my **research in grad school**, we used radioactive materials to measure groundwater and we had to be tested for exposure to radiation and keep our radiative source always shielded, either in that lead box or in the ground. These are some photos from my thesis. There I am 23-year-old, graduate research assistant 2 months from marrying Krista.

So when you hear **radiation or radioactivity**, think one unstable element is changing into a more stable element through the process of losing or gaining protons, neutrons and electrons.

Radiometric dating has been carried out since 1905 when it was invented by Ernest Rutherford

Again, this shows us the old age conclusions came before the science.

He used this process to calculate the age of rocks in the hundreds of millions of years.

How did he do that?

There is a concept called the **half-life**. It's not a video game. Half-life is the length of time it takes for half of the radioactive, unstable element, here uranium 235, to decay into something more stable, here lead 207.

That simply means how long will it take for half of the uranium 235 to turn into lead 207. The half-life. And scientists aren't counting for millions of billions of years. They are measure the current rate at which particles are turning from uranium into lead. Then they do some math to calculate the half-life. The time it takes for half of the uranium to become lead, half life.

Here is **the equation** for calculating the age of a rock. D is daughter product, in this case lead. N is parent remaining, in this case uranium. Ln is the natural log. And lambda is the decay rate.

Going back to our bathtub filling illustration, you see all 3 assumptions are embedded in this equation.

initial condition. It is all uranium.

constant rate of change from uranium to lead over billions of years.

And no contamination this process.

Make these assumptions. Do a little math. Age of the rock.

You should know there are a **variety of radiometric dating methods** with different unstable elements turning into stable elements at different rates. Again, half-life simply means how long till half of the element A has changed into element B.

You see Carbon 14 turns into Nitrogen 14. C to N. (6 to 7). Added a proton. Carbon 14 is used to date dead plants and animals.

Most of these dating methods are used to date rocks.

Potassium to Argon. 1.3 billion years. K to Ar (19 to 18). Dropped a proton.

Uranium to Lead. 4.5 billion years. U to Pb. (92 to 82). Dropped 10 protons. Highly unstable.

Rubidium to Strontium. 48.6 billion years. Rb to Sr. (37 to 38). So it added a proton.

God has made an amazing world. You add or remove a proton or neutron and it fundamentally changes the element.

This is **simple visualization**. Before we move on.

Let's say we find a rock that is half uranium U and half lead Pb. We measure the current rate of change and make the 3 assumptions.

No one was there billions of years ago to measure the amount of uranium present in this rock.

No one was there over the billions of years to verify the decay rate has stayed constant.

And no one was there over the billions of years to observe that there has been no contamination, adding or subtracting uranium or lead.

But if all 3 of those assumptions are correct, you can get a date for this rock. It's 4.5 billion years old.

PROBLEMS WITH RADIOMETRIC DATING

Are there any reasons to believe this dating method may have flaws? I debated what video to play and how long to play it. Because they tend to be pretty technical.

I am going to turn to an expert. **Dr. Andrew Snelling**. He is very smart. Youth earth creationist geologist, PhD. I am going to play 2 minutes of this clip. Mid lecture.

Some of you will think, too much.

Others will think, why did you stop?

I am going to just play 2 minutes so you can see how technical these topics are.

But let's all lock in for 2 minutes.

23:17 – 25:37

https://www.youtube.com/watch?v=z1IBdLVyzzo&t=1397s&ab_channel=IsGenesisHistory%3F

Exactly.

If you want to dig deeper into this, you want to get really technical, I will point you to two resources.

I would recommend this website. <https://answersresearchjournal.org/radiometric-dates/>

This is probably half of the articles. I counted 30 articles. They are 10 to 50 page technical articles on all sorts of radiometric dating topics.

And here is a **whole bunch of videos** you could watch. 4 lectures by Dr. Snelling totaling 3.5 hours of him lecturing on these topics.

So if you want to dig deeper, there is 30 articles and 4 lectures.

EXAMPLES

I want to share a few examples of errors, or what I would call inconsistent results.

There are 4 types of inconsistent results that are common. I am not cherry picking my examples. There are numerous examples of each of these inconsistent results.

First type of inconsistent result, here is a site, [in Redding, California](#). So a long time ago, there was a mudflow that buried these ammonites and some wood. And the mud turned into mudstone. And the sea creature and the wood were both fossilized.

And so a modern day geologist, digs up these 3 samples and using three different dating methods, the mudstone dates at 112-120 million years old. The ammonite fossil is about 36,400-48,710 years old. And the wood dated to 32,780 to 42,390 years old.

Ammonites are supposedly extinct marine animals. But here is a photo of their modern cousin.

So the geologist gets 3 different dates. Since the wood and ammonites were incased in the same mudflow that turned into stone, it is the same event. So it would have started all 3 clocks at the same time.

But if you have 3 different answers. Logically. One could be correct or none could be correct. But all 3 are not correct.

So the first inconsistent error is getting 3 different ages for the same event.

Let's think about this another way, you hire an accountant to do your taxes. He says you owe either \$50,000 or \$5,000 or \$4,000. I would think, fire the accountant.

OK, second inconsistent result.

Does anyone know what cooled lava is called? Basalt? You will a notebook. Thanks Zac. Zac gave me some cool creation notebooks.

Here is a 2nd type of inconsistent result. There are a number of volcanos that erupted at known times. Samples of lava which [cooled to basalt](#). This basalt is from Saint George, Utah.

Those samples have been radiometric dating and yield ages that are significantly different than the known age. So for example, Mt. Stromboli, in Italy, erupted in 1963. Radiometric dates for the rock yield 2.4 million years old.

And this isn't a onetime thing.

Here is a [chart Dr. Snelling](#) compiled of examples of known volcano eruptions and the radiometric dates. You see they are very different.

Why is the eruption date significant? When the rock is hot, magma phase, or lava, the different elements are free to move around. But geologist have determined once it cools, it locks the elements into place. And that starts the radiometric clock.

The measured age doesn't match the known age.

So back to our tax accountant illustration. Let's say you sat with an IRS agent and they determined you owed \$500. You take your tax return to your accountant and they ran the numbers and say you owe \$50,000. Well, the IRS said I owe \$500, so that is what I owe.

I would think, fire the accountant.

A lecture slide caught my eye. The speaker said When you use radiometric dating **on a sample of known age**, it doesn't work. And when you use radiometric dating on a sample of unknown age, it is assumed to work? That doesn't seem right.

Here is a third inconsistent result. This is closer to home. The **Grand Canyon, Arizona**. A rock at the top of the Grand Canyon, formed by a relatively recently volcanic eruption, yield the same age as the volcanic rock deep below the canyon walls. Both samples date to 1.1 billion years. That doesn't make sense.

Rocks that shouldn't match, match? Why do we give this any credence?

Going back to my tax accountant illustration. My accountant does my tax return for me and Elon Musk. He says, Elon you owe a billion dollars in taxes. And then turns to me and says you also owe a billion dollars in taxes. Ah, no, our numbers should not match. I would think, fire the accountant.

And a fourth type of inconsistent result. This is a **South African granite rock**. The rock was dated using different methods and components.

The rock using one dating method yields an age of 2.9 billion years. Minerals in the rock using a different dating method yields a dating method of 2.0 billion years. And a third dating method of albite grains using a different method gives ages of 3.0 to 5.8 billion years.

Same sample, 3 different ages.

Again, the accountant says you owe \$3000 or \$2000 or \$6000. I would think, fire the accountant.

Again, I am not being selective with these 4 examples. I had no problem finding all of these four types of inconsistent results. Once you know where to look. Again, I would point you to those articles and videos if you want to start digging into these topics.

So the question is, why would these dating methods have these four types of inconsistent results. It goes back to our three assumptions. If logically, the radiometric dating methods are giving these inconsistent results. Then at least one, if not, two or three of these **assumptions** are wrong.

Again, no geologist has been around for billions of years, to verify initial conditions, constant rates of change and no outside contamination.

That's radiometric dating. How it works and examples of inconsistent results.

CARBON 14 DATING

Some of you are thinking what about Carbon 14? First developed in 1946 by Willard Libby is based on the decay of the carbon-14 isotope.

Let's discuss carbon 14 for a minute. Carbon 14 is actually an ally of youth age of the earth.

I will tell you why, but first, let's learn about cycle of **Carbon 14**.

Remember our golf balls. Carbon 14. Which has six protons and eight neutrons. And this is unstable. It wants to be stable.

Carbon 14. Six protons. Eight neutrons.
Nitrogen 14. Seven protons. Seven neutrons.

SO it adds one proton and loses one neutron. And not it is stable.

Let's watch a short video that explains the basic process.

https://www.youtube.com/watch?v=phZeE7Att_s&ab_channel=ScientificAmerican

0:00- 2:00

A **good overview**. And you heard the conclusion, it only works for samples less than 60,000 years.

You guys are becoming experts. We understand there is a measure rate of C14 changing to N14. And have our assumptions regarding the initial conditions. Constant rate of change. And the lack of contamination. Do some math and you know the age of the fossil or wood or whatever?

It has to be organic though. Remember that, radiometric dating is used for rocks. Carbon 14 dating is used for dead plants and animals.

Alright on this one, the no **contamination is a big assumption**. It's a big deal. Because research shows that there are a number of environmental factors that can elevate the normal amount of carbon 14 in the atmosphere. Things like volcanos, solar flares, industrial activity, earth's magnetic field, forest fires and even nuclear explosions are all known to significantly impact the amount of carbon 14 in the atmosphere.

In fact, some scientists think we have broken carbon 14 for future scientists to use. In other words, we have added so much carbon 14 through recent industrial and nuclear activity making it useless in the future.

This is also very telling. There was a large **carbon 14 quality control study** where samples of known dates were sent to labs. A British science and engineering group did this blind study. Out of 38 samples of known dates sent to labs, only 18% of the samples passed. The other 82% were wrong. Sometimes wrong by thousands of years.

Wait a minute! We will read in an article that this wood sample was dated to 32,000 years old. And 82% of this quality control study were wrong? That is kind of shocking!

Someone says, carbon 14 dated this specimen to 32,000 years ago. Maybe you could ask are you familiar with the British quality control study that only 18% of the results were correct?

Again, thinking about our poor accountant. He says when my client's tax returns get audited, I did it right 18% of the time. I would think, fire the accountant.

YOUNG EARTH FRIEND?

Now why did I say that Carbon 14 could be the young earth's friend?

Do you remember the **half-life of carbon 14**? Again, a radioactive unstable element changing into a more stable element by adding and subtracting components.

Half of the Carbon 14 in a sample turns into nitrogen 14 in 5,730 years.

So I created an **excel chart** for your viewing pleasure. James and I discussed this last class period and I thought it would be a good way to illustrate it. So notice after 8-10 cycles, like the carbon 14 video said, only goes up to 60,000 years, because there is so little carbon 14.

Now why is that the young earth's friends? Why because once you get a sample that is supposedly over 60,000 years old, how much Carbon 14 should a sample have?

NONE! Hardly any!

And YET

However **Coal** 40-60 000 year old coal. Sandwiched between rock layers that are dated at 34 to 318 million years old. So which age is correct.

So there should be no carbon 14 after 60,000 years, but it is found in rock layers that supposedly date back hundreds of millions of years.

It shouldn't be there.

Diamond Carbon 14 is also found in diamonds. Diamond is hardest natural forming substance. So very resistant to contamination. Carbon 14 is repeatedly found in measurable levels in diamond samples.

Carbon 14 is found in diamonds which are supposedly 1.0 – 3.5 billion years old. All of the carbon 14 is essentially gone are 60,000 years.

It shouldn't be there.

And **Dinosaur** bones contain carbon 14. Repeatedly found in multiple dinosaur bones. Dinosaurs lived between about 66 to 245 million years ago.

But all of the carbon 14 is essentially gone are 60,000 years.

It shouldn't be there.

If you had an old earth perspective, how do you discount these three data points.

It's the 3 assumptions: initial conditions, constant rate of change and contamination.

Carbon-14 instead of being the young earth creationist enemy, it is actually our friend.

If someone says to you, what do you young earth creationist do with carbon 14, you could ask, why is carbon 14 found in dinosaur fossils?

YOUNG EARTH

So is that it?

We have 3 major assumptions with radiometric and carbon 14 dating?

And we have examples of inconsistent results?

Actually, no, there are a variety of dating methods that yield **a young age for the earth**.

And for the record, all of these young earth dating methods, have the three assumptions.

I am going to talk very briefly through 12 pieces of evidence that point to a young earth.

My final accountant illustration comment. If your accountant has made all of those errors, maybe it is time to find a new accountant.

The first evidence for a young earth. **The human population on the planet**. We talked about this before.

We used the exponential growth formula. Initial value. Rate of change. And time. Currently population growth rate is about 0.9%. calculations from 2 first people, 2% growth rate, 250,000 years. It is a number too big, it's infinity.

But if it's, 6 people, 4500 years ago, at a 0.468% growth rate yields 8 billion.

The second evidence for a young earth. **Amount of salt in the sea**. Even ignoring the effect of the biblical Flood and assuming zero starting salinity and all rates of input and removal so as to maximize the time taken to accumulate all the salt, the maximum age of the oceans, 62 million years. This suggests that the age of the earth is radically less also. Evolutionist believe the oceans are 3.8 billion years old. So for 3.8 years, salt has been washing into the oceans. At the rate that salt is accumulating, it's only 62 million years old. Again, the flood greatly impacts this.

But here is a dating method that yields a significantly younger age than the conventional timeline.

The third evidence for a young earth is related. **Continental erosion**. It's not just the salt flowing into the ocean. As the rain falls on the continents, it erodes sediment down through the rivers into the ocean. Now here is the thing. The continents are thought to be about 2.5 billion years old. But a number of geologists have calculated that North America should have been levelled in 10,000,000 years if erosion has continued at the current rate. And again, the flood would have greatly impacted all of these erosion numbers. We will dig into the flood and the geological column in the spring. But again, the age of the continents based on current rates of erosion.

The fourth evidence for a young earth is also related. **The Ocean sediment**. The amount of sediment on the sea floors at current rates of land erosion would accumulate in just 12 million years; a blink of the eye compared to the supposed age of much of the ocean floor of up to 3 billion years. Furthermore, long-age geologists reckon that higher erosion rates applied in the past, which shortens the time frame. From a biblical point of view, at the end of Noah's Flood lots of sediment would have been added to the sea with the water coming off the unconsolidated land, making the amount of sediment perfectly consistent with a history of thousands of years.

You should know the flood would significantly impact all 3 of these. Salt, erosion and sediment. 2024, here we come.

Let's pivot to outer space.

The fifth evidence for a young earth is related to the **faint young sun paradox**. According to stellar evolution theory, as the sun's core transforms from hydrogen to helium by means of nuclear fusion, the mean molecular weight increases, which would compress the sun's core increasing fusion rate. The upshot is that over several billion years, the sun ought to have brightened 40% since its formation and 25% since the appearance of life on earth. For the latter, this translates into a 16–18 °C temperature increase on the earth. The current average temperature is 15 °C, so the earth ought to have had a -2 °C or so temperature when life appeared. That is a problem if the earth is really old.

The sixth evidence for a young earth is **supernova remnants**. The number of type I supernova remnants (SNRs) observable in our galaxy is consistent with an age of thousands of years, not millions or billions. A supernova, or violently exploding star, is one of the most brilliant and powerful objects in God's vast cosmos. On average, a galaxy like our own, the Milky Way, should produce one supernova every 25 years. When a star has exploded in this way, the huge expanding cloud of debris is called a SuperNova Remnant (SNR). Not only that, but the predictions for the Milky Way's satellite galaxy, the Large Magellanic Cloud are also consistent with a young universe. Theory predicts 340 observable SNRs if the LMC were billions of years old, and 24 if it were 7000 years old. The number of actually observed SNRs in the LMC is 29. As the evolutionist astronomers Clark and Caswell say, 'Why have the large number of expected remnants not been detected?' and these authors refer to 'The mystery of the missing remnants'.

Guess what observed. 3rd column.

The **seventh evidence** for a young earth is **recession of the moon from the earth**. Don't see this movie. It's bad I heard. Tidal friction causes the moon to recede from the earth at 1.5 inches per year. It would have been greater in the past when the moon and earth were closer together. The moon and earth would have been in catastrophic proximity (Roche limit) at less than a quarter of their supposed age.

The 8th evidence for a young earth is **existence of long-period comets** (orbital period greater than 200 years) that are sun-grazing comets or others like Hyakutake or Hale-Bopp means they could not have originated with the solar system 4.5 billion years ago. However, their existence is consistent with a young age for the solar system. Again an ad hoc Oort Cloud was invented to try to account for these comets still being present after billions of years. Distant Long-Period Comets Quickly Fade Away

The 9th evidence for a young earth is **Decay of earth's magnetic field**. The decay of the earth's magnetic field. Exponential decay, with fluctuations especially during and after the Flood, is evident from historical measurements and is consistent with the hypothesis of free decay since creation, suggesting an age of the earth of only thousands of years. For further evidence that it follows exponential decay with a time constant of 1611 years (± 10)

The 10th evidence for a young earth is **Dinosaur soft tissue**. Dinosaur blood cells, blood vessels, proteins and DNA are not consistent with their supposed more than 65-million-year age, but make more sense if the remains are thousands of years old (at most).

When we talk about dinosaurs, I will play this video.

There should be nothing soft in dinosaur bones. But we when get into the flood and dinosaurs.

The 11th evidence for a young earth is **Oldest tree on the planet**. The ages of the world's oldest living organisms, trees, are consistent with an age of the earth of thousands of years. Great Basin Bristlecone Pine has been deemed the oldest tree in existence, reaching an age of over 5,000 years old. Found throughout Utah and Nevada.

The 12th and final evidence for a young earth is **The Arches National Park** (USA) has over 2,000 rock arches. If 43 have collapsed since 1970 and the linked article was written in 2015, that's 45 years, giving a rate of collapse of ~1 per year, which means that all would be gone in ~2,000 years. This is thoroughly consistent with the biblical timeframe but not the evolutionary one of millions of years.

Again, on all of these dating methods, old earth or young earth, the **three assumptions** are all key.

CONCLUSION

As we bring this to a close, I debated how to end this lecture.

We discussed the three assumptions of any supposed age calculation.
We discussed evidences that point to an old age of the earth.
And inconsistent results associated with those methods of dating.
And we also discussed evidences that point to a young age of the earth.

So where do we end?

One of the foundational truths of the Bible is that God is the Creator of everything. One of the many passages to proclaim God as Creator is **Isaiah 40:28**, “**Do you not know? Have you not heard? The LORD is the everlasting God, the Creator of the ends of the earth. He will not grow tired or weary, and his understanding no one can fathom.**”

So my advice as we bring this to a close, we should take the word of the Person who was there. The Creator of Heavens and Earth.

We will discuss till 800. Thank you!

Discussion Questions:

See you in a month! Merry Christmas.