

Our last two ISBR forums had some excellent “after session” discussions. With time short after the session, it is impossible to adequately address all of the questions. Consequently, this document will serve to address those questions in more detail.

It is divided into two sections:

Part 1 - Addendum to the March 5 Forum: Radiometric Dating

Part 2 – Addendum to the March 11 Forum: Carbon 14 Dating

Part 1 begins on the next page.

Part 2 begins on page 20.

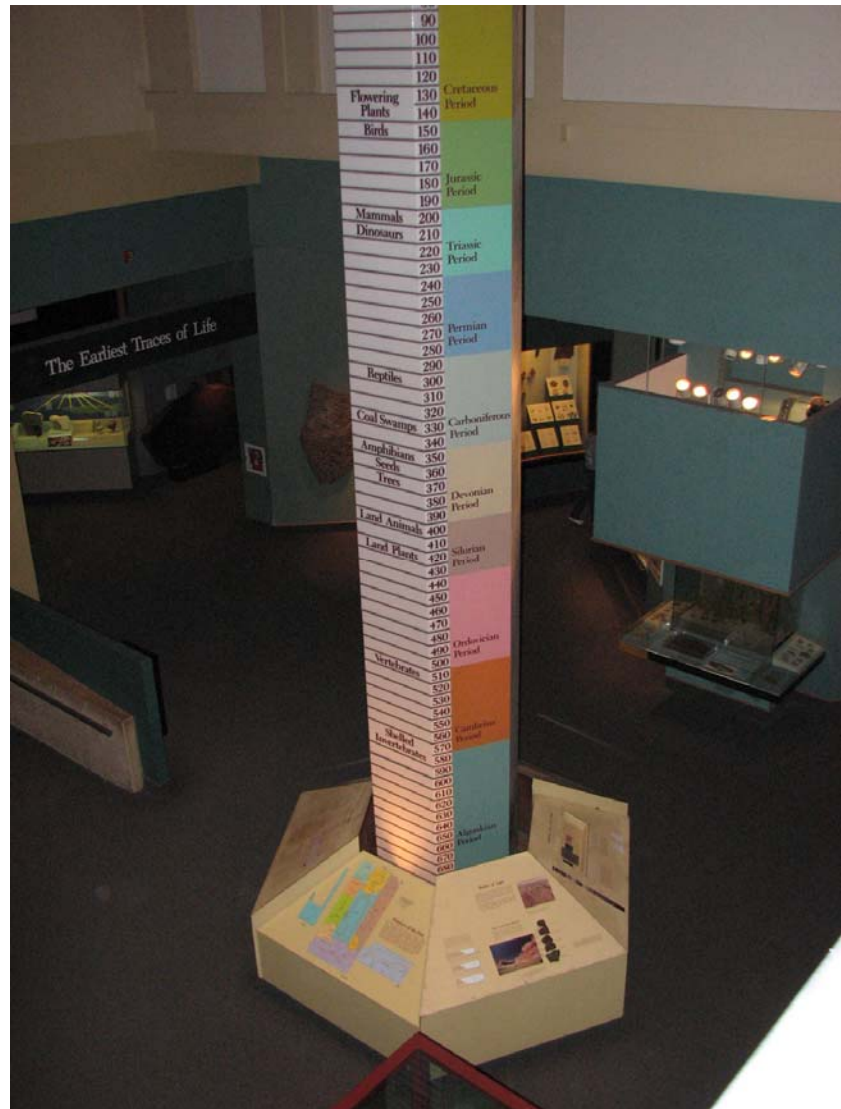
Part 1 - Addendum to the March 5 Forum: Radiometric Dating

In the process of discussing the topic of “Chimp to Human Evolution” (ISBR Lancaster Creation Forum – March 5, 2024) we “touched” on the topic of radiometric dating. That portion of the talk raised numerous questions. Quite a few people asked if I could send out various slides on some of these radiometric dating topics, so I have included (I think) all of the slides that people asked for in this one document. **Hopefully you can scan down through and find the specific info of interest for you.**

Since my degree specialty was in Nuclear Engineering, that is my favorite subject. In other words, “Thanks for all the great questions!”

The most common request was for a picture of the Geologic Column at the Smithsonian Natural History Museum in Wash., DC. Here is a good over all photo. There is a collage of pictures of this column on page 5 below. Pages 6 – 12 will walk you through the various faces at the base of this column that present a fairly accurate discussion as to how fossils are dated.

But first – here are a few slides from the presentation that people requested.



Human Evolution

There are two categories of radiometric dating:

1. Carbon Dating
 - a) Supposedly human evolution took place a few million years ago.
 - b) Carbon dating can only be used with ages of thousands of years.
 - c) Most fossils do not contain carbon anyway.
2. Rock Dating
 - a) Can only be used for ages well into the (tens of) millions of years.
 - b) Can only be used on igneous rock.
 - c) Fossils are only ever found in sedimentary rock.
3. Conclusion: Human evolution cannot be verified by radiometric dating methods!

How Are Fossils “Really” Dated? “Chad”

“The skull and other fossil remains have been dated at 6 million to 7 million years old — which would make them the oldest-known relatives of modern humans.”

“The usual radioisotope-dating techniques couldn’t be used on the thin geological strata where the fossils were found.”

“Instead, the researchers used a less reliable method to come up with an age of 6 million to 7 million years, by comparing dozens of animal fossils that were found alongside the skull with similar fossils found in Kenya that were isotope-dated.”

Nature Dec 18, 2003

“The usual radioisotope-dating techniques couldn’t be used on the thin geological strata where the fossils were found.” Wow!!

- First of all, sedimentary rock cannot be dated by any “usual technique.”
- Second, if it could be used, it only takes a few grams to run the dating tests.

If the strata is wide enough for a skull, it is easily wide enough to obtain a sample.

How Are Fossils “Really” Dated?



So how was the Chad fossil dated?

The fossils are “dated” by the (supposedly) “known dates” of other fossils.

Repeat: The fossils are “dated” by the (supposedly) “known dates” of other fossils.

That is the normal method that evolutionists use.

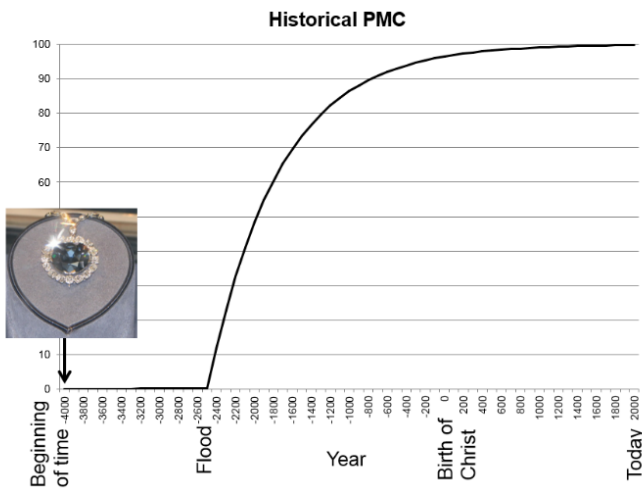
Let's first do a quick recap of Carbon 14 dating since it is unique. In our current atmosphere there is only one Carbon 14 atom for every trillion Carbon 12 atoms. Also, compared to the rock dating methods, the decay rate of Carbon 14 is incredibly fast! For that reason, in evolutionary time frames, it wouldn't take long for the number of Carbon 14 atoms to be so few that the best labs in the world would not be able to detect any presence at all. This "detection limit" is in the "thousands of years;" not millions, billions, or gazillions. For that reason, evolutionists almost never use Carbon 14 dating. For creationists, Carbon 14 dating is one of our best friends because, even for specimens that "supposedly" died hundreds of millions of years ago, the Carbon 14 method will always yield ages in the thousands of years!

I mentioned the phrase "our current atmosphere" above for three reasons:

- 1) That ratio is still increasing. That alone means that the earth cannot possibly be millions of years old, or the Carbon 14 to Carbon 12 ratio would have reached equilibrium by now!
- 2) As mentioned in our forum, the laboratories don't really have a common method of handling this "measurable Carbon 14". They call this "intrinsic Carbon 14," since it is always present, and they use it to their advantage. For archaeologists, they can "adjust" how they use this intrinsic value to provide an "age" that suits the archaeologist's expectations. (Yes – the form used for submitting samples includes a line for the "expected age!")
- 3) These labs generally present the test results in terms of "pmc;" not "years." The term "pmc" stands for "percent modern Carbon." This is the ratio, in percent of the specimen's Carbon 14 ratio divided by the current atmospheric ratio. Then they let the scientist that submitted the sample calculate the age based on the formula, $pmc = 100 \times 2^{-t/5730}$

Now the scientist can play with this formula even more because the laboratory may not have even told the scientist what they did with the value of the intrinsic Carbon 14.

Calculating age from this "pmc" can sometimes appear somewhat problematic for creationists because many very old specimens "appear" to be tens of thousands of years old. However, as mentioned above, the atmospheric Carbon 14 ratio is still changing today, and according to the data provided by these "AMS" laboratories, this ratio changed very rapidly during the ice age immediately following the flood. Consequently, if we plot what we expect the atmospheric pmc to have been over the past 6000 years, it probably looked something like the chart below.



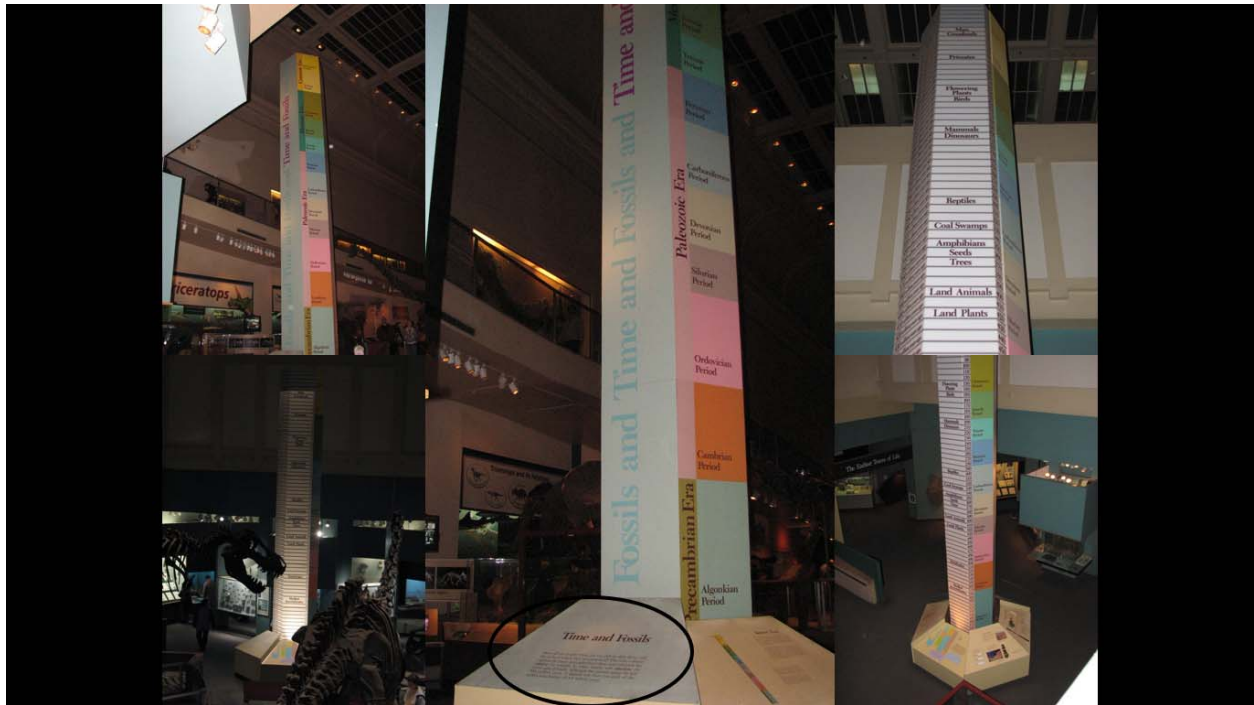
You cannot use this chart to actually calculate old ages. We do not have enough data to accurately assign numerical values to this entire chart. It is intended to illustrate the general "shape" of what this curve looks like.

We do know three dates though:

- 1) The current pmc and rate that it is currently increasing,
- 2) The approximate pmc at the time of the flood is fairly well established.
- 3) And the "oldest" pmc is pretty well established. Diamonds fit the creationists' expectations and align with the oldest pmc's known to man.

Now let's go back to "Rock Dating:"

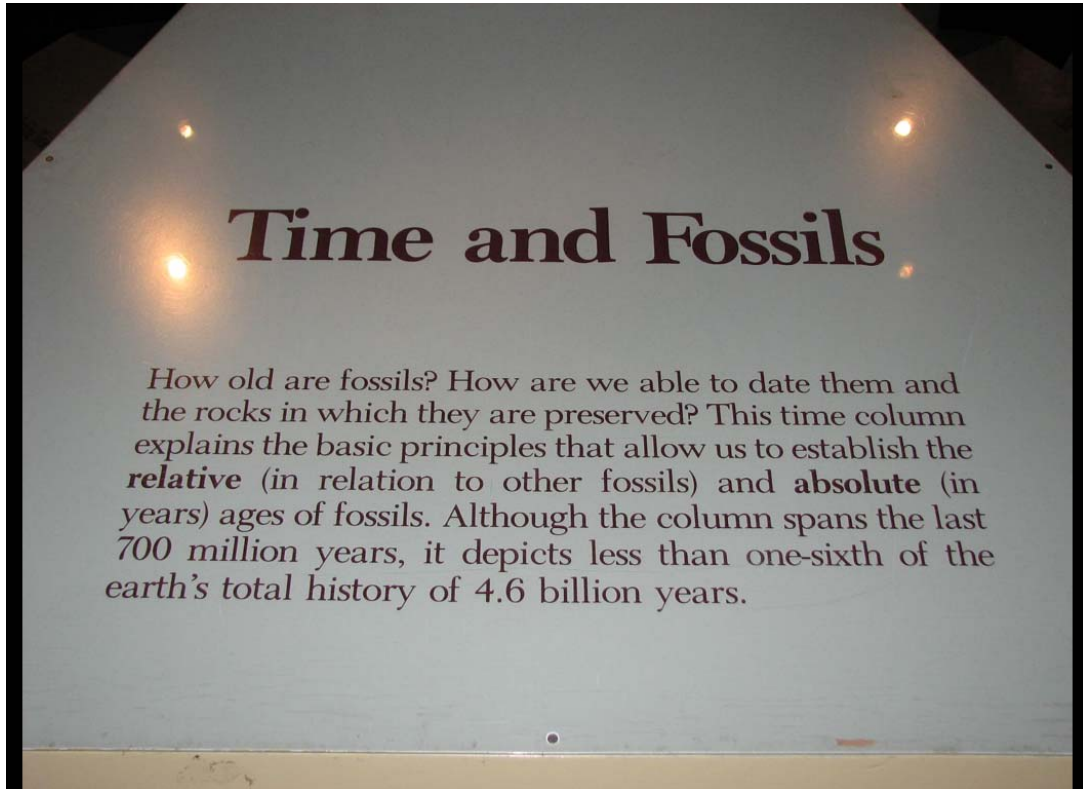
One topic of particular interest at the forum was the geologic column that used to be in the Smithsonian Natural History Museum in Washington, DC. As you entered the main display room, the one with all the fascinating dinosaurs, you could not possibly miss seeing this column. In fact no matter where you stood in that enormous room, you could not possibly miss that gigantic column. Here are five pictures taken from five different locations:



But pay particular attention to the "printed matter." The first face that you see as you enter the room is the one identified by the black ellipse. At the base of this enormous geologic column is an excellent description as to how the ages are determined for all the fossils that make up this column. However, in order to fully understand this process, we must walk around in a complete circle to read all four "faces."

This first face of the display is called “Time and Fossils” and talks about:

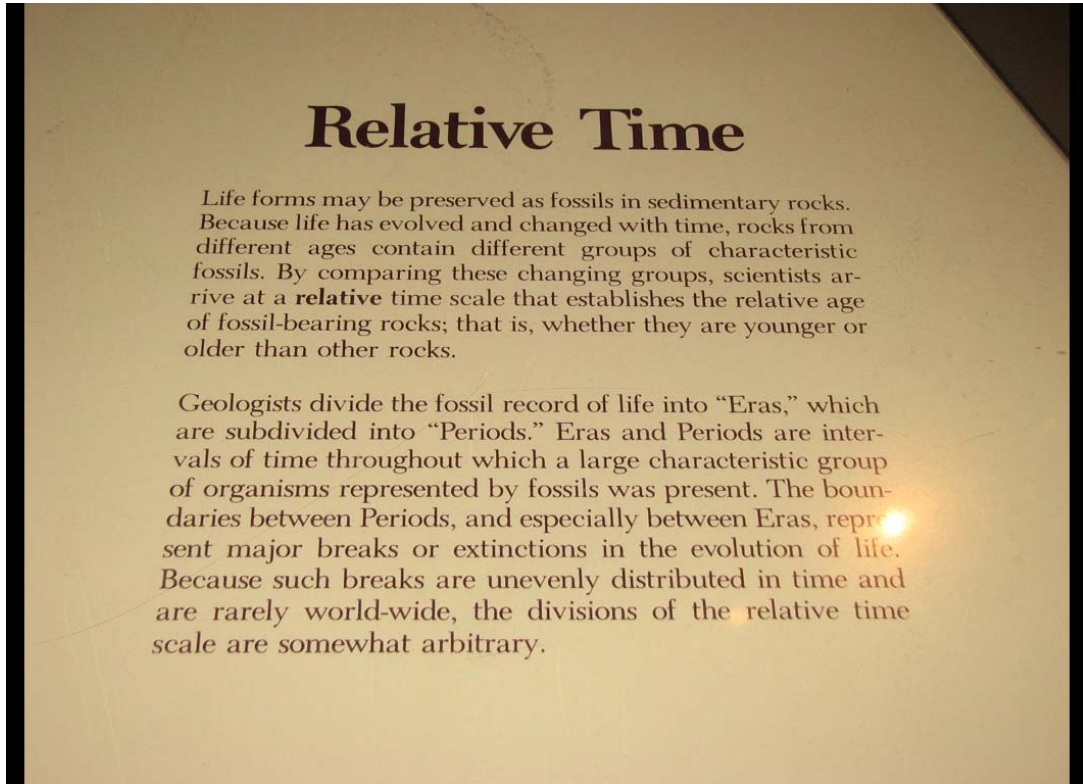
- “How old are fossils? How are we able to date them...”
- “Although the column spans the last 700 million years, it depicts less than one-sixth of the total history of 4.6 billion years.”



As you walk around this display, you will come to the second face. This face is called “Relative Time,” and talks about:

- **“Life forms may be preserved as fossils in sedimentary rocks.”**

Notice the key word here is sedimentary.



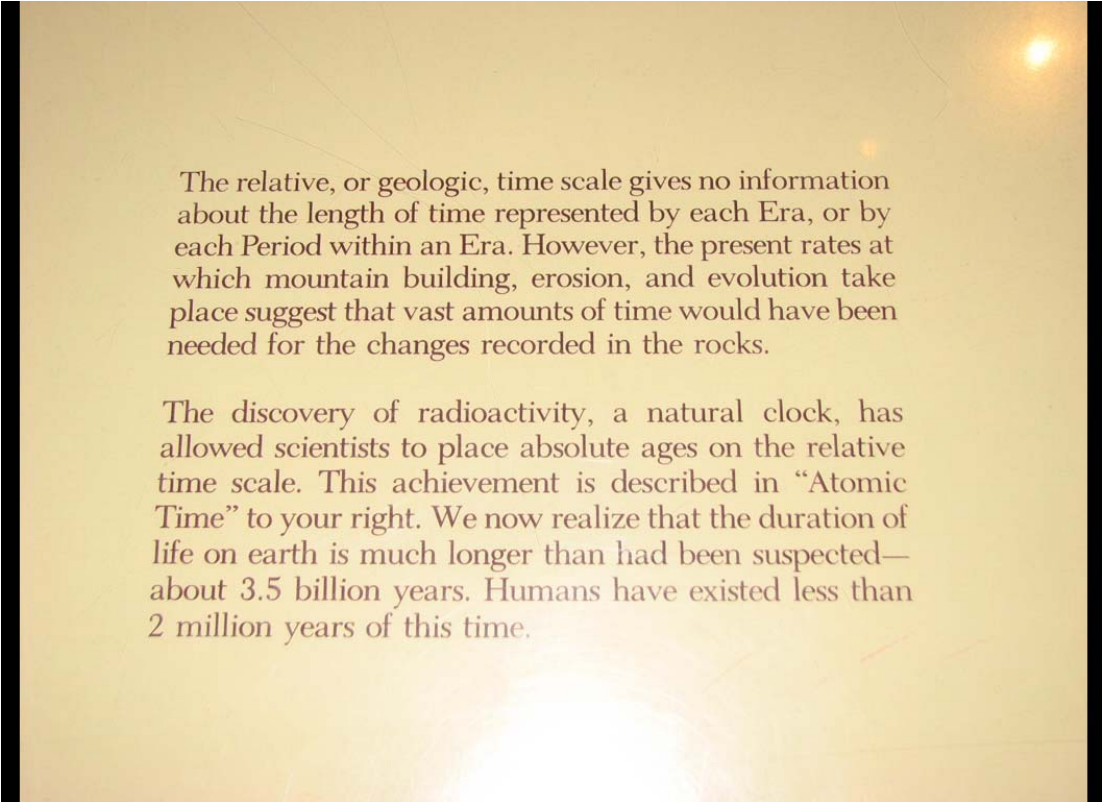
As we continue to read this face of the display we see that:

- **“...the present rates at which mountain building, erosion, and evolution take place suggest that vast amounts of time would have been needed for the changes recorded in the rocks.”**

(By the way, this was the mistake that Charles Lyell made nearly 300 years ago.)

- **“The discovery of radioactivity, a natural clock, has allowed scientists to place absolute ages on the relative time scale.”**

(Notice the key term here, “absolute ages.” Is that really true??)



The relative, or geologic, time scale gives no information about the length of time represented by each Era, or by each Period within an Era. However, the present rates at which mountain building, erosion, and evolution take place suggest that vast amounts of time would have been needed for the changes recorded in the rocks.

The discovery of radioactivity, a natural clock, has allowed scientists to place absolute ages on the relative time scale. This achievement is described in “Atomic Time” to your right. We now realize that the duration of life on earth is much longer than had been suspected—about 3.5 billion years. Humans have existed less than 2 million years of this time.

As you continue to walk around in a circle reading the four “faces,” you come to the third face. This one is called “Atomic Time” and provides excellent detail as to how radiometric dating works.

Atomic Time

The absolute age in thousands or millions of years of many rocks and fossils can be determined from the results of natural radioactivity.

Rocks as Clocks

All minerals in rocks are composed of atoms of various chemical elements. Many elements have isotopes, or varieties of the same element with slightly different properties, because of a difference in weight (mass). Most isotopes are stable and unchanging, but others are naturally radioactive. When unstable radioactive parent isotopes give off radiation, they decay into stable daughter isotopes of a different element.

Radioactive parent isotopes are locked into crystals at the time a rock forms. As the unstable parent isotopes decay, stable daughter isotopes occupy the places of the parents in the crystal. Therefore, the older a crystal, the more daughter isotopes one finds. The rate of decay of the isotopes is known, continuous, and not affected by outside forces such as temperature and pressure. If the minerals in a rock have not been altered by these forces, the ratio of parent to daughter isotopes can be used to tell how many years have passed since the rock was formed. The rock acts as a geologic clock.




Figure 10. The decay of atoms of the radioisotope uranium-238 into atoms of the stable daughter isotope lead-206.

● Atoms of the radioactive parent isotope
● Atoms of the stable daughter isotope

A crystal at the time of formation. The number of atoms of the ²³⁸U parent isotope is 100. The number of atoms of the ²⁰⁶Pb daughter isotope is 0. The ratio of parent to daughter isotopes has been 100:0.

Dating Fossils

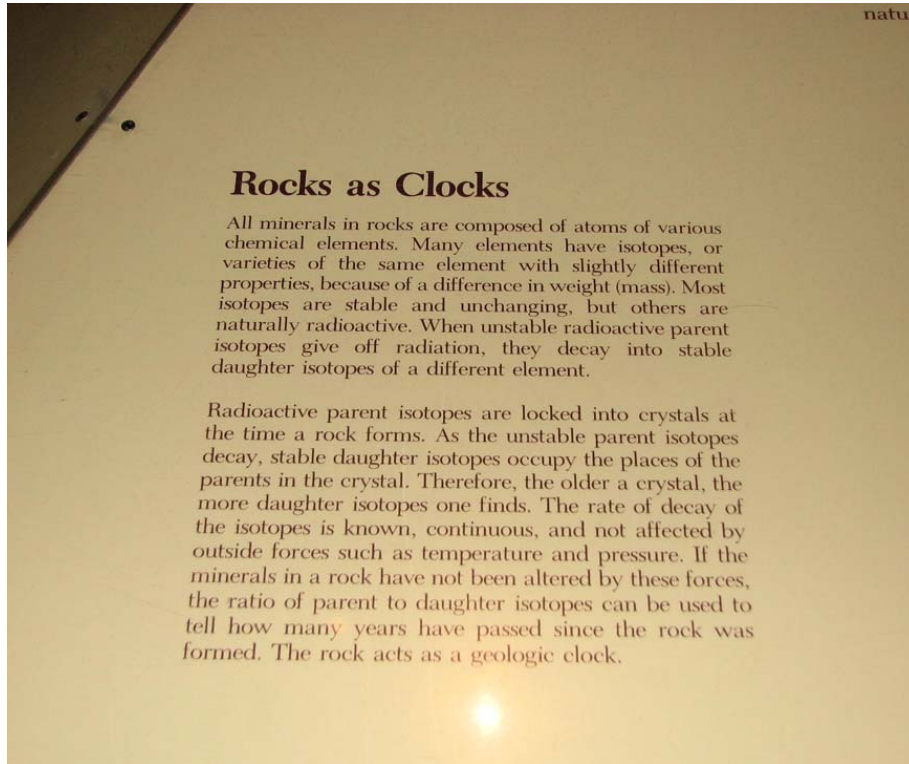
Isotopes decay at different rates; some rapidly, others much more slowly. Fossil bones, shells, and plant materials are dated with a fast geologic clock—carbon 14. Unfortunately, most fossils do not contain enough of the long-lived isotopes to be dated directly by these methods. Neither do most sediments in which older fossils are found.

Sediments are made of fragments eroded from older rocks, so the radioactive clocks in the sediments record the time of formation of these older rocks and not the time of fossil burial. However, new minerals form in sediments soon after deposition, and some of these can be dated with the slower geologic clocks. Used with care, these secondary minerals can give us an age close to that of the fossils found nearby.

Common Geologic Clocks

Parent Isotope	Daughter Isotope	Materials That Can Be Dated	Dating Range in Years
Carbon 14	Nitrogen 14	Wood and other plant remains, charcoal, bones, shells, and other animal remains	0 to 50,000
Potassium 40	Argon 40 Calcium 40	Minerals such as feldspar, mica, hornblende, and biotite	0.1 million to 4.5 billion
Rubidium 87	Strontium 87	Minerals such as feldspar, mica, hornblende, and biotite	48,000 to 4.5 billion
Uranium 238 Uranium 235	Lead 206 Lead 207	Zircon, monazite, pyrochlore	0.1 million to 4.5 billion

Let's look at the individual sections of this face. The first section is called "Rocks as Clocks," and it is an accurate description of how radiometric dating works in igneous rocks.



Common Geologic Clocks

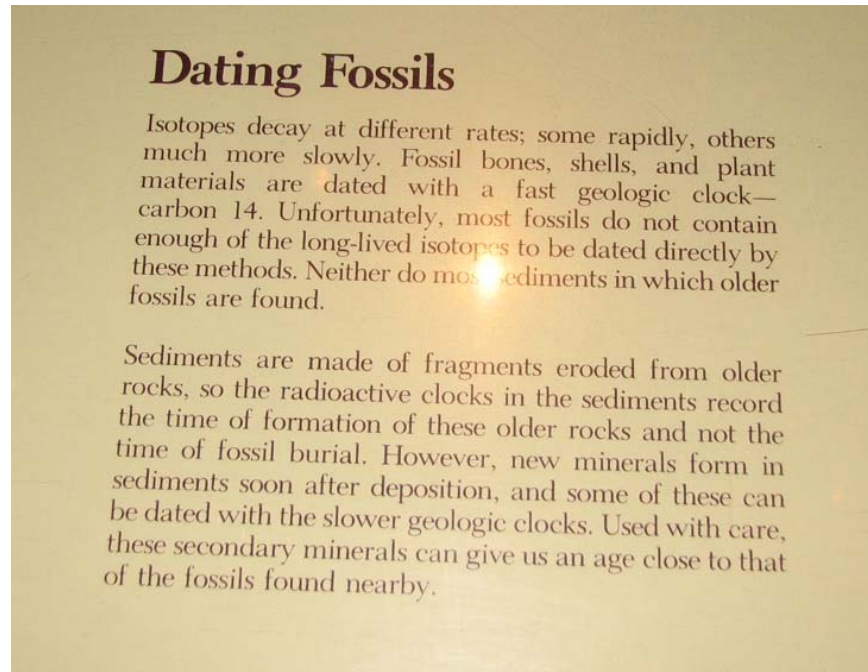
Parent Isotope	Daughter Isotope	Materials That Can Be Dated	Dating Range in Years
Carbon 14	Nitrogen 14	Wood and other plant remains, charcoal, bones, shells, and other animal remains	100 - 50,000
Potassium 40	Argon 40 Calcium 40	Micas, feldspars, hornblende, biotite, zircon, Thorium, Uranium, volcanic rocks	100,000 - 4.5 billion
Rubidium 87	Strontium 87	Micas, feldspars, biotite, zircon, Ophiolite, amphibole, Metamorphic rocks	50 million - 4.5 billion
Uranium 238 Uranium 235	Lead 206 Lead 207	Zircon, Uranium, Pitchblende	10 million - 4.5 billion

This section of this face is difficult to read, but it is describing the isotopes used for the four different rock dating techniques. I will discuss these techniques below.

The next section of this face talks about “Dating Fossils.” Notice this comment. It is a key point!

- **“...the radioactive clocks in the sediments record the time of formation of these older rocks and not the time of fossil burial.”**
NOT the time of fossil burial!

By “older rocks,” they are referring to the individual rock particles that make up these sediments. Not only would they be “older,” but the “date” established by sedimentary samples would be gibberish based on the fact that each of these particles would have a different age.



This face also indicates that “new minerals” form and some of these can be dated....” Why “some?” That is because mineral formation is a chemical process, not a nuclear process. Consequently, these would not be dated by the classic radiometric rock dating methods which we will discuss below, but are (supposedly) dated by more complex schemes that are partially radiometric (to give the method the appearance of validity) but also involve “chemical clocks” or “luminescent clocks;” neither of which make good clocks so these methods are rarely used. In order to use these methods, the chemistry or luminescence aspects of the method must first be “established” by assuming that the temperature, pressure, water saturation, etc. are all known for the chemical aspects, and that the exposure to light is known for the luminescence aspects. This assumption must be considered known throughout the complete “aspect” of that portion of the dating process. In other words, they have considerably more variables than they have knowns. That is why this potential dating method is only given a “hand waving” in this display without any explanation.

So, if these rocks can't be dated via radiometric dating techniques, how are they dated??

As we continue to walk around this geologic column, we come to the fourth and final face of this display. It is called "Marking Time with Fossils." What? I thought we were trying to date the rocks so that we can date the fossils; were we not?? Here is the summary from that face:

- **"Marking Time with Fossils"**
- **"How can fossils be used to tell the age of rocks from around the world?"**
- **"The presence of the trilobite *Olenellus* in these different rocks shows that the rocks are approximately 530My +/-10"**



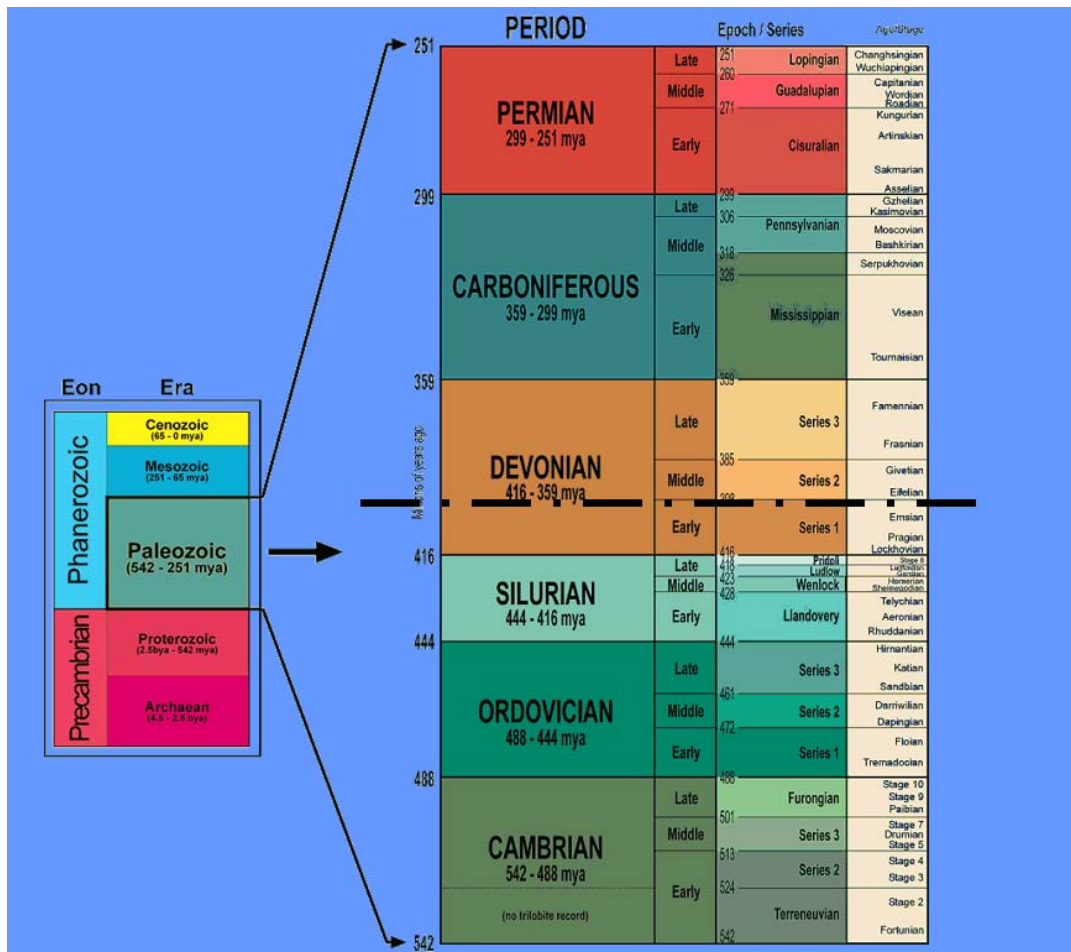
Wow! Sorry folks. I've been using these slides since 2008 and never noticed this before. These are scans of original 35mm pictures and somehow the bottom of this scan got corrupted and I no longer have the 35mm photos. Anyway – I could not have made up the last line of this quote because I had never heard of an *Olenellus* before. This sentence is on the overhead transparencies that I used before PowerPoint and it was very clear.

Notice that we have just walked around this geologic column in a complete circle only to conclude via circular logic that the fossils date the fossils! They talked in great detail about radiometric dating (which had nothing to do with the dating process) and then correctly stated that fossils are dated by the location of other fossils!

- So much for this statement on the second face, **"The discovery of radioactivity, a natural clock, has allowed scientists to place absolute ages on the relative time scale."**

The other significant topic of discussion during our brief “rock dating discussion” pertained to the fact that when you “date” a single rock with all four rock dating methods, you will always come up with four distinctly different ages. How many “physical birthdays” do you have? “One,” right? How many “birthdays” does a single rock have? “One,” right? Well – not according to the rock dating methods.

Let’s look at a typical chart for the geologic column. I like this chart because it shows you the overall 2.5 billion year picture, and then highlights one section for you.



The small section on the left is a “picture” of the geologic column of time ranging from “today” all the way back to 2.5 billion years ago. The enlarged section on the right is just one “Era” of all of this time, ranging from 251 years ago to 542 years ago. Notice the “exactness” of these figures. Example: “251” years; not “250.” One would think that scientists really have these dates nailed down tight!

I drew the bold black horizontal “center line” at 397 million years, which is located right in the middle of this Paleozoic era. We will use this line for reference purposes below.

Do they really know the ages of fossils this accurately?

Let's examine the data.

The ages derived via radiometric dating methods have mystified both evolutionists and creationists for decades. Who spent the money to ascertain why these ages were so mystifying? The Smithsonian, with its \$15 million dollar per year budget? No. It was the Institute for Creation Research (ICR) who raised \$1.5 million dollars to embark on a 7 year research project. But don't take my word for it. Check out the resources on the last page of this document.

The research project gathered numerous rock samples from all over the world and sent these samples to various world renowned laboratories to have them dated via all four rock dating methods. The four rock dating methods are described by:

- 1) Potassium decays into Argon.
- 2) Rubidium decays into Strontium.
- 3) Uranium decays into Lead.
- 4) Samarium decays into Neodymium.
(I affectionately refer to this last method as the "Sam and Ned method.)

These are the same four methods described on the third face of the Smithsonian Geologic Column display as described above. The "age results" from each and every single rock tested was extremely variable. To illustrate a point, let's look at the results from all four of these test methods for one particular (very typical) rock sample.

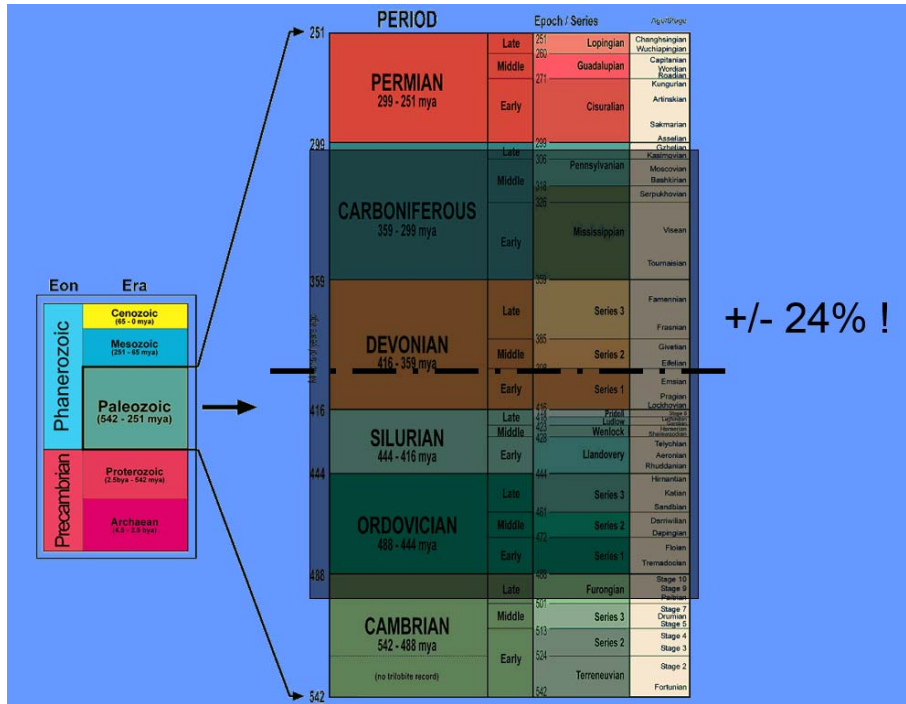
Summary	
Method:	Age:
• K->Ar	841.5 Ma
• Rb->Sr	1055 Ma
• U->Pb	1249 Ma
• Sm->Nd	1375 Ma

You tell me; how old is this particular rock? 841.5 million years? 1055 million years? 1249 million years? Or 1375 million years? According to evolutionists, "They're all old. Get over it." But not so fast!! Even when considering the tolerances of the test methods, these dates are still distinctly different!

Remember the "exactness" of the dates displayed in our geologic column. Remember that I drew a "centerline" at 397 million years, i.e. right in the middle of the Paleozoic era. The difference between 841 millions of years and 1375 million years is plus or minus 24% from the middle of these four ages! In other words, the rock only has one actual age, yet according to the test results of this one rock, that age could be anywhere within +/- 24% of the laboratory results.

+/- 24% !!

Now let's look at the "middle" of the Paleozoic Era and shade this "uncertainty" area in gray.



When we shade +/- 24% from the centerline, the ages of the "Carboniferous Period," the "Devonian Period," the "Silurian Period," and the "Ordovician Periods" all fade into oblivion. According to these test results, the actual age of a rock could actually fall anywhere within these four periods. In fact, the age of most of the Paleozoic Era becomes completely indistinguishable!

YET – as you recall, they (the evolutionists) would like you to believe that these ages are accurate right down to a single million years. In fact, they are now drawing this geologic chart with implications of accuracies to within 100,000 years. Compare the actual data with that which they present in the museums. The ages that they would have you believe are nothing short of fraud.

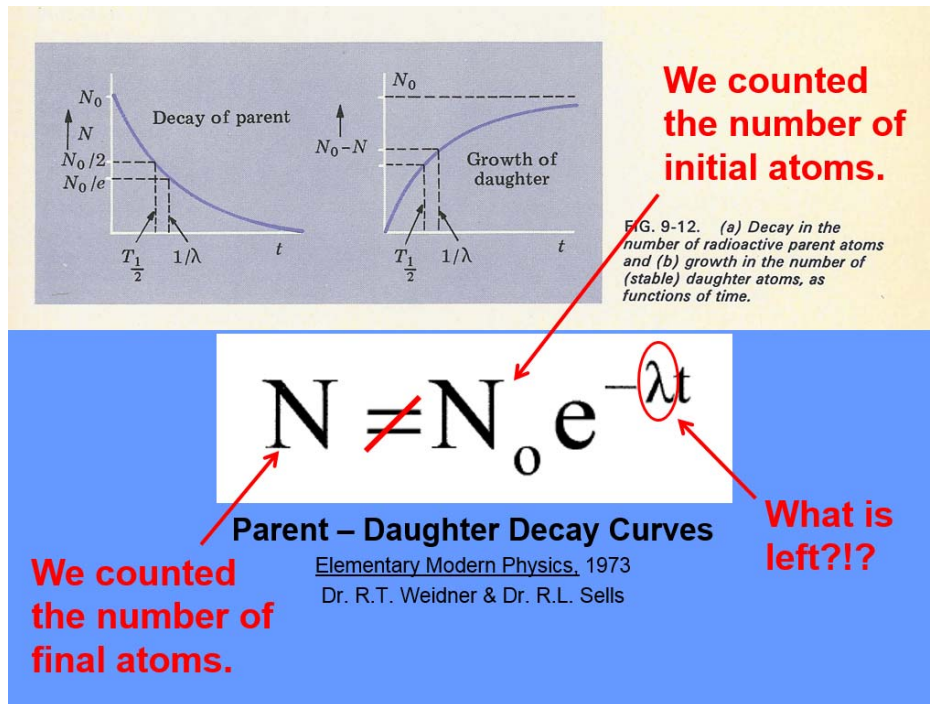
Now recall the actual way that they determine these ages as described on the Smithsonian Geologic Column,

- **“The presence of the trilobite *Olenellus* in these different rocks shows that the rocks are approximately 530My +/-10”**

So much for rigorous lab testing.

As mentioned in the presentation, once the Accelerator Mass Spectrometer (AMS) has counted the elements for each of these tests, the formula for calculating that age is very simple.

$$N = N_0 e^{-\lambda t}$$



The age should be identical regardless of which method you use, but the results are always significantly different. For that reason, I have drawn a red line through the “equals sign” above in order to indicate that the left side of the equation is “not equal” to the right side as it should be. What went wrong? The problem is with the so called, time constant, λ . That is the only possibility left in this equation! “N” and “N₀” were literally and accurately counted by the AMS equipment.

The “time constant” is a function of what is known as the “strong force;” the force that holds the nucleus of an atom together. For decades, the value of this “strong force” was practically “sacred.” It was believed that if the “strong force” ever changed, the entire universe would completely obliterate. However, since 1972 scientists have known that the strong forces could not have possibly always been constant. They just didn’t know what to do with that knowledge. (So they ignored it.)

The diagram below illustrates the thickness of the strata at what is known as the “Oklo Natural Reactor.” This was discovered in 1972. The gray sections of the diagram below represent the thickness of the strata that contain the uranium where it was too thin to sustain nuclear fission. Yet it did! The only way that could have happened is if the strong forces were much weaker at that particular time in history.

The other possibility is that nuclear engineers have no idea what they are doing, in which case, all of our power reactors would have melted down in normal operation within minutes of first being started.

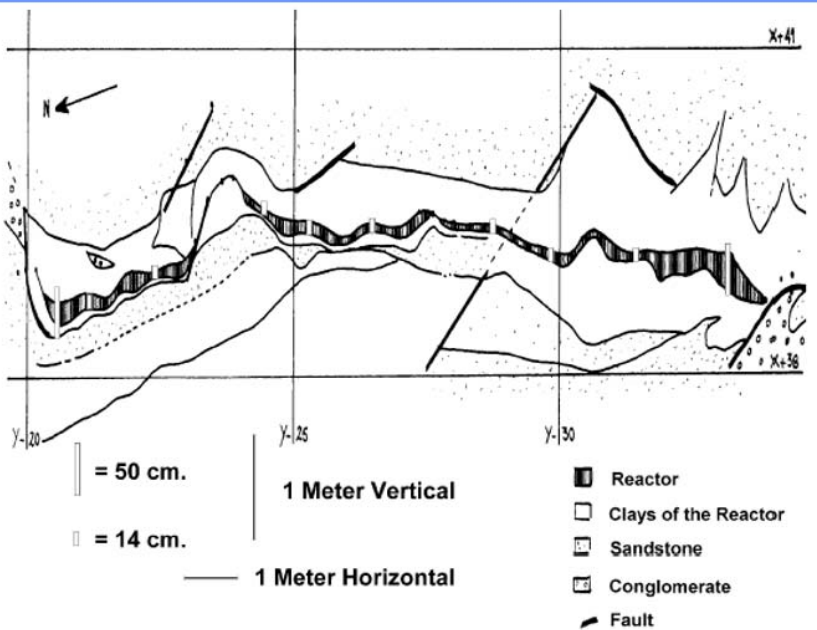


Figure 4. Cross-section of Reactor 3-4

Given the conditions present at Oklo, a slab-shaped reactor would need to be at least 50 cm thick. In this cross-section of reactor 3-4 we can see that nowhere is this reactor 50 cm. thick. Even if the reactor consisted of ideal materials (which it does not) it would have to be a minimum of 14 cm. thick. As can be seen, most of the “reactor” is less than even 14 cm. (This figure is a modified version of Figure 40 in [5, p.130]. The vertical has been stretched to 200% of the original to make the comparison with 14 cm. easier.)

Oklo Cross-section

The Oklo “Natural
Nuclear Reactors” -
Evidence of Variable
Constants? 2003
Mark Z. Matthews

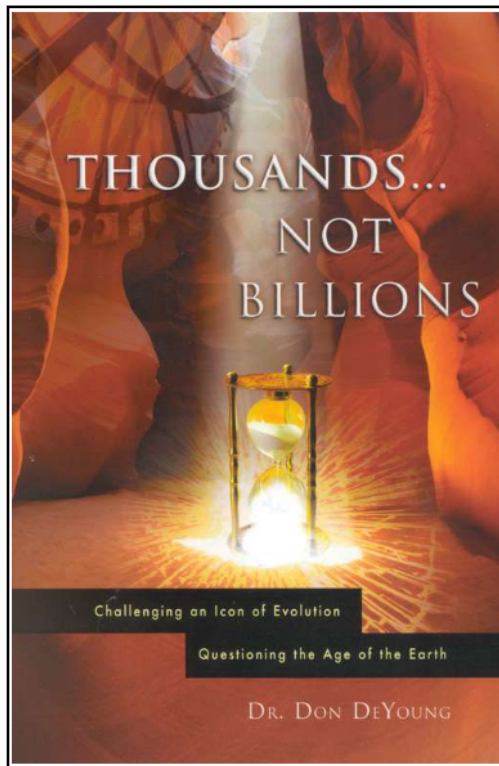
**Sediments laid down
during the flood!!**

The Oklo Natural Reactor is well documented and easy to find on the internet. Quite often, the articles fail to mention the section of the “reactor” where the conditions for sustained fission did not exist. When the article does mention this scenario, it usually does some sort of “hand waving” by concocting a silly story like suggesting that maybe these areas of solid rock became totally saturated by water then totally dried out, then totally saturated, etc. How solid rock can do that, or what conditions would exist to allow this repeated ridiculous scenario becomes more of a mystery than recognizing that the strong force had changed.

Well – thanks for all of your great questions. But don't take my word for it! This paper and my discussion at the forum are incredibly brief and incomplete. There are numerous other types of tests conducted and amazing credible data used to draw these conclusions.

You can read the tech papers yourself. Go to <https://www.internationalconferenceoncreationism.com/proceedings/> and then click on The 5th International Conference (2003)

OR, you can read a layman's version called Thousands not Billions. <https://www.christianbook.com/thousands-not-billions-challenging-evolution-questioning/donald-deyoung/9780890514412/pd/514410?event=ESRCG>



OR, you can go to the ISBR website, <https://www.isbrministries.org>
Then click on "Videos."

For a "lite" discussion of radiometric dating, click on 2022 and scroll down to April 4.

For a much more detailed discussion, click on 2014-2015 and scroll down to a three part series.

God Bless you!
Indebted to our Creator,

Jay Auxt

March 6, 2024

Part 2 – Addendum to the March 11 Forum: Carbon 14 Dating

This article will discuss:

- 1) The Earth's Atmosphere
- 2) Carbon 14 in Our Bodies
- 3) The Formation of Carbon 14
- 4) Carbon 14 Decay
- 5) Percent Modern Carbon (pmc)
- 6) Calculating Age
- 7) Implications for Creationists
- 7a) Global Warming:
- 7b) The Young Earth – Atmospheric Carbon 14
- 7c) The Young Earth – Intrinsic Carbon 14
- 7d) The Young Earth – Diamonds, a Creationist's Best Friend
- 7e) Carbon 14 "Signatures"

1) The Earth's Atmosphere

The earth's atmosphere is comprised of numerous chemical molecules. The atmosphere primarily consists of:

Nitrogen	78%
Oxygen	21%
Water Vapor	0.4%
Other (unrelated to this discussion)	
Carbon Dioxide	0.04%

The elements (the basic types of atoms) are defined by the number of protons that the atom has. Protons have a "positive" charge, and "electrons" have a negative charge. For that reason, in order for the charge of the atom to be neutral, an atom always has the same number of electrons as it has protons. It is the number of electrons that determine the chemical characteristics of the elements.

The Carbon in our atmosphere is primarily exists in the Carbon Dioxide. Most of this carbon is Carbon 12. Carbon 12 has 6 protons, 6 electrons, and 6 neutrons. Neutrons have no charge. Some (very few) Carbon atoms in the atmosphere are Carbon 14. Carbon 14 has 6 protons, 6 electrons, and 8 neutrons. Only one in a trillion Carbon atoms in our current atmosphere are Carbon 14. The remainder are Carbon 12.

2) Carbon 14 in Our Bodies

As we live and breathe, our bodies are in equilibrium with the earth's atmosphere. The air that we breathe is obviously the same. The food that we eat also exchanges the same atmosphere. Consequently, our bodies will have that same ratio of Carbon 14 to Carbon 12; one in a trillion.

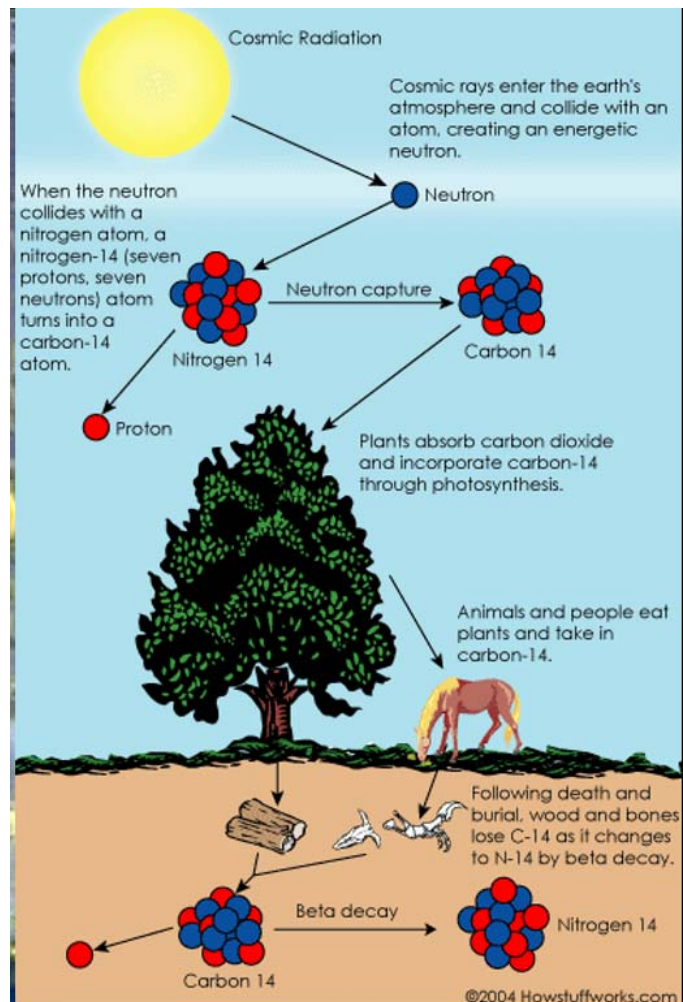
Once a creature is dead and buried, it no longer has this normal exchange of atoms from the atmosphere. For that reason, over time, the Carbon 14 in that creature decreases. By comparing the percentage of Carbon 14 atoms in a buried creature to the current percentage of Carbon 14, scientists can calculate how long ago this creature was buried.

3) The Formation of Carbon 14

Where does Carbon 14 come from? Some of the Carbon 14 in our atmosphere appears to have been there from God's original creation. However, most of it is "formed" in the atmosphere by cosmic rays from the sun. A cosmic ray "excites" a neutron which then collides with a Nitrogen 14 atom and changes it into Carbon 14. Nitrogen 14 has 7 protons, 7 electrons, and 7 neutrons. In effect, the cosmic ray changes one of the 7 protons in a Nitrogen 14 atom into a neutron. The new atom only has 6 protons, which is Carbon. Having been formed from Nitrogen, this Carbon atom has the original 7 neutrons plus the new one that was just formed. This newly formed Carbon atom has 6 protons and 8 neutrons. $6 + 8 = 14$ Consequently, this newly formed Carbon atom is Carbon 14; not Carbon 12.

4) Carbon 14 Decay

The protons and neutrons of an atom are in the "nucleus" of the atom. The electrons "fly around" the nucleus (somewhat like "orbits") and form bonds with other atoms. These bonds formed with other atoms by the electrons are known as "chemical bonds." Chemical bonds are



affected by their environment and therefore change constantly. The rate at which chemical bonds change is dependent by numerous factors such as heat, light, humidity, and pressure.

Some nuclei are extremely stable and never change. Other nuclei are not as stable and, over time, want to change into a more stable nuclei. This type of “change” to the nuclei is called “decay.” This decay process is not affected by the environment (except for extreme circumstances.) For that reason, nuclear decay can be an extremely accurate “clock.”

Carbon 14 decays (changes) into Nitrogen 14. The rate of this change is such that 50% of the Carbon 14 atoms will decay into Nitrogen 14 in 5730 years. This “rate” is known as the “half-life.” For example, if a “Carbon sample” contains 1000 Carbon 14 atoms, due to natural “decay,” after 5730 years, it would only have 500 Carbon 14 atoms. The other 500 “decayed” into Nitrogen 14. After another 5730 years, this sample would only have 250 Carbon 14 atoms, and so forth. The earth is only about 6000 years old. We will discuss that below.

5) Percent Modern Carbon (pmc)

How are these specific atoms counted? They are way too small to see under a microscope! There have been several ways over the past 100 years ago. Most were not very accurate. For that reason, many of the results reported in earlier research papers were very unreliable. However, today scientists have invented the “Accelerator Mass Spectrometer,” abbreviated as AMS. This device literally counts the individual atoms. It accelerates these atoms into a beam and then bends that beam with magnets. The heavier atoms in the beam are deflected less than the lighter atoms. Thus, by use of the chemical properties and this isolation by mass, the number of each type of atom can be counted.

The amount of Carbon 14 in the atmosphere is still increasing. Eventually the production rate of Carbon 14 by the cosmic rays would equal the natural decay rate of Carbon 14 into Nitrogen 14. That should have occurred many millions of years ago. That alone indicates that the earth is very young.

The fact that the number of Carbon 14 atoms in the atmosphere is still increasing, presents a problem when attempting to calculate the age of a Carbon sample. The current rate of change for the Carbon 14 in the atmosphere is fairly well known and easy to work with, but the older the sample is, the more difficult it is to calculate that age. For that reason, the AMS laboratories do not calculate the “age” of a sample. They merely report what the “ratio” is between the “measured Carbon 14 to Carbon 12 ratio” and the “current Carbon 14 to Carbon 12 ratio.” This is known as the “Percent Modern Carbon, known as “pmc.” Example, the current ratio of Carbon 14 to Carbon 12 is one in a trillion. Suppose a Carbon sample contained one in ten trillion Carbon 14 atoms to Carbon 12 atoms. In this case, the pmc would be reported as “90%.”

6) Calculating Age

For the example above, using Algebra II, calculating the time of burial is very straight forward.

Keep in mind that this age is calculated from the “percent modern carbon.” This would be fairly accurate for items like this one buried somewhat recently, but for items buried over two thousand years ago, the ever changing rate of atmospheric Carbon 14 becomes somewhat problematic. Secular archaeologists love to use this uncertainty to their advantage to insist that the Bible is wrong because the age of an artifact is a hundred years off from the Biblical time period.

$$\begin{aligned}pmc &= 100 \times 2^{-t/5730} \\90 &= 100 \times 2^{-t/5730} \\0.90 &= 2^{-t/5730} \\ \text{Log } 0.90 &= \text{Log } 2^{-t/5730} \\ \text{Log } 0.90 &= (-t/5730) \times \text{Log } 2 \\ \text{Log } 0.90 / \text{Log } 2 &= (-t/5730) \\ -0.152 &= -t/5730 \\ t &= 871 \text{ years}\end{aligned}$$

7) Implications for Creationists

7a) Global Warming:

Referring back to Item #1, The Earth’s Atmosphere, one implication that is a little of a side discussion but worth mentioning is the list of chemical molecules in the atmosphere. Notice that the amount of water vapor in the atmosphere is ten times that of Carbon Dioxide. Water vapor also holds ten times as much heat as Carbon dioxide. That being the case, it is worth mentioning that the Carbon Dioxide in the atmosphere is only responsible for less than 1% of the heat in the atmosphere.

To be fair, although that is small, it is not insignificant. The average surface temperature of the earth is about 60 F. But that is relative to an arbitrary “zero.” On the Fahrenheit scale, that “absolute temperature” would be about 520 degrees. (The temperature from absolute zero.) 1% of 520 is 5 degrees Fahrenheit. Calculating the actual effects of this 1% would be extremely difficult since it is still only one small variable in an incredibly complex equation with numerous unknown factors. From an evolutionary perspective, if the earth is billions of years old, we must protect it for billions of more years. From a Biblical perspective, Genesis 1 gives man “dominion” over certain aspects of His creation and not over others. (Notice that man is not responsible for earthquakes, hurricanes, wind, rain, etc.) Yes, we are to be “good stewards” of His creation. That would certainly be indicated by Genesis 1. However, we must also consider that just as God created man with “healing capabilities,” He created the earth with “healing capabilities” as well. Reference: Compare the aftermath of the global flood in Genesis 6-8 with the earth’s rapid recovery.

7b) The Young Earth – Atmospheric Carbon 14

As mentioned above, the rate that the atmospheric Nitrogen is converted to Carbon 14 is very slow. If the earth was “old,” the rate of Carbon 14 production would have equaled the rate of decay many millions of years ago, and the two would be in equilibrium. That is not the case. The Carbon 14 ratio is still increasing.

7c) The Young Earth – Intrinsic Carbon 14

With the advent of AMS, it was quickly discovered that ALL Carbon 14 data indicates that the earth is thousands of years old!! For example, evolutionists believe that coal is hundreds of millions of years old, yet it still contains approximately 0.25% pmc. Since the amount of Carbon 14 in the atmosphere is very small, one atom in a trillion and the half-life is fairly short, there should be no measurable Carbon 14 detected in coal. But there is. In fact, scientists have compared coal from various coal seams supposedly ranging from 50 million years old to 300 million years old. They all had basically the same pmc! Any variation in pmc values had nothing to do with the supposed age of the coal. The actual age was all the same.

Furthermore, non-biological carbon that has been around since the origin of the earth and was never exposed to the atmosphere should also have no measurable Carbon 14. But it does. The pmc of these items is around 0.07 pmc which is still easily detectable by AMS techniques!

One laboratory spent two years studying every aspect of the AMS process in order to determine “what is going wrong.” They studied everything imaginable. At the conclusion of this two year study they summed up their study as follows, “So far, no theory explaining the results has survived all the tests.” This mystery Carbon 14 is known as “Intrinsic Carbon 14” and merely accepted as – an anomaly. Perhaps we need to amend the conclusion of their study as follows, “So far, no evolution based theory explaining the results has survived all the tests. Evidently, the earth is very young as the Bible indicates.”

7d) The Young Earth – Diamonds, a Creationist’s Best Friend

Naturally, for an evolutionist, accepting a “young age” is unacceptable. Consequently, the evolution community settled in on an idea that perhaps by some strange means, everything in the ground was subject to some sort of “contamination.” Somehow, water contaminated with Carbon 14 seeped into basically everything all around the world. (Obviously that idea wouldn’t “survive all tests” either, but that’s beside the point. As Dr. Webb (with AIG) has often stated, “Don’t let the data get in your way.”

But – diamonds are a creationist’s best friend. The crystal lattice of a diamond is so tight that it is impossible for these crystals to become contaminated. Consequently, the Institute for Creation Research gathered numerous diamond samples from around the world and sent them to multiple AMS laboratories around the world. The results? You guessed it; the pmc was 0.07.

7e) Carbon 14 “Signatures”

For samples that precede Christ, it is impossible to establish exact dates using the Carbon 14 techniques. Even “after” Christ some “apparent dates” can be skewed by natural causes such as volcano bursts of Carbon into the atmosphere.

However, creation scientists do have enough data points to develop a curve that could be representative of the “trend” for atmospheric pmc. It is important to understand though that the purpose of this chart is merely to establish a “trend.” It should never be used in an attempt to calculate an actual date.

Scientists have four sets of data points that I refer to as “signatures.”

1) Since the advent of AMS 40 years ago, scientists have enough data points to establish the current rate of increase of the Carbon 14 in the atmosphere.

2) In the process of studying the “cause” of this “intrinsic Carbon 14,” this laboratory firmly established that the Carbon 14 ratio immediately after the flood was increasing extremely rapidly. For example, they consistently tested the shells of an ice age clam and firmly established that, by AMS testing, the outside of these clams appears to be 6700 years older than the inside! Obviously clams do not live 6700 years. So obviously the Carbon 14 ratio in the oceans was increasing rapidly. Also keep in mind that the Carbon 14 ratio of oceans would increase much slower than the atmosphere.

This rapid increase also explains why the various bones and tusks of ice creatures have wildly different ages all within the same body!

3) As mentioned earlier, scientists can show that items buried during the flood typically have a pmc of about 0.25%.

4) Also, as previously mentioned, scientists can show that items that have existed since the beginning of time have a pmc of about 0.07%.

Using these typical

“signatures,” the curve for an estimated pmc throughout time will look somewhat as depicted in this chart. Notice that diamonds fit the expected “signature” for at or near the beginning of time. It should also be noted that the “curve” between the ice age and current pmc’s is a guess at best.

