



Answers4Seekers: Session #12A (semi-technical)

TOPIC: Age of the Earth Models: Young-Earth, Assumptions, & Strengths

- 1 - Overview of Topic
- 2 - Worldviews and Interpretations
- 3 - Biblical Creation Sequence
- 4 - Brief Review of the Hierarchy of Evidence
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***Also see Session #12B,
"Age of the Earth Models: Old-Earth Models, Assumptions, & Weaknesses"***



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1. Overview of Topic (Evidence for a Young-Earth)

- 1.1. The strongest level of evidence for any aspect of History is an “observed and recorded account made by a reliable and capable eye-witness and confirmed by their concurrent society.”
- 1.2. Recorded history has only existed for the past 5100 years (and only 3900 years with calendar accuracy). When this is lacking, estimating the age of an event in history can only be pursued through “models with assumptions.”
- 1.3. The formation of the earth is a past event, before any human observation was available to view it and record it, therefore it is not a historic event, but a pre-historic event. All models that estimate the age of the earth are based on a set of required, but unprovable, assumptions that align with the modeler’s worldview.
- 1.4. Much evidence supports a Very Young Earth interpretation, on the order of 10K years or less.
- 1.5. Models that use Uniformitarian-Close-System assumptions and project an age for the Earth between 10K to 100 million years also provide strong evidence for a Young Earth, since any age of the Earth under 100 million years would make the Old-Earth model, the Big-Bang model, and the Steady-State model completely impossible (even as speculations).
- 1.6. Old-age models are typically based on “uniformitarianism” and closed-system” assumptions, yet if any catastrophic processes occurred in the past (for instance, a global flood) those projected age-dates would be in complete error (and if corrected, would project a much younger age).
- 1.7. Where both possess equal plausibility, the “young-Earth” model supersedes the “old-Earth” models, because the Young Earth models allows less time for “unknowns” to influence the model; additionally, young-Earth models theoretically can have access to a capable and reliable eye-witness observer (a Creator) of past events; the old-Earth models possess neither of these.
- 1.8. **The existence of Very-Young-Earth and Young-Earth evidence indicates that the is Earth young and aligns well with the clear and straight forward reading of the narrative communicated in the Bible’s Genesis chapter 1. Additionally, the existence of young-Earth evidence negates the need and speculation of old-Earth models (Big Bang, Steady-state, etc.).**



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2. Worldviews and Interpretations

- 2.1. **Presuppositions:** These are our elementary assumptions about life that we develop from our personal experiences and preferences. They are personal values that by definition cannot be verified by procedure in the natural sciences, and to which we protect these “elementary assumptions” to the highest degree, and they are the least negotiable.
- 2.2. **Interpretations:** Are conclusions we make about evidence as it is viewed in the light of our presuppositions.
- 2.3. **Worldview Bias:** Occurs when we subconsciously accept weaker evidence because it agrees with our worldview, but reject stronger evidence because it conflicts with our worldview.

3. Biblical Creation Basics:

- 3.1. The God of the Bible describes Himself as possessing the attributes of being “almighty” in power:
- 3.2. Revelation 1:8 “I am the Alpha and the Omega,” says the Lord God, who is and was and is to come—the Almighty.” (Greek: Παντο-κράτωρ, Panto-kratōr)
- 3.3. “Παντο-κράτωρ” (Greek): Panto = “All,” Kratōr = “power/might.” Therefore, PantoKratōr = “all-power,” [and therefore, infinite in power].



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- 3.4. The Point: If someone was powerful enough to create the universe in 13.79 Billion years, but truly had all-power (i.e., infinite-power), if they wanted to, they could have also easily created the universe in 6 seconds.
- 3.5. God states that at the right time, He will again have no problem creating a new Heaven and new Earth (making the Universe new), as the scripture says:
- 3.6. The Bible states in 2 Peter 3:11-13: “Since everything will be destroyed in this way, what kind of people ought you to be? You ought to live holy and godly lives as you look forward to the day of God and speed its coming. That day will bring about the destruction of the heavens by fire, and the elements will melt in the heat. But in keeping with His promise, we are looking forward to a new heaven and a new earth, where righteousness dwells.”



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3.7. The Two Models (Young-Earth vs. Old-Earth) Have Very Conflicting Chronologies of Key Events:



Note: The Biblical sequence vs. Big-Bang's (Old-Earth) naturalistic sequence



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4. Brief Review of Levels of Evidence ([see session #2 for more info](#))

- 4.1. As noted below, an accurate record from a current, reliable, and capable eye-witness is the highest level of evidence.
- 4.2. Second to that would be a past accurate record from a current, reliable, and capable eye-witness and confirmed by the concurrent community as accurate.
- 4.3. Eye-witness historic records only go back to 5100 BC, everything beyond that is pre-history and there must be delegated to the realm of assumptions and estimates. Additionally, Historical records that have “calendar accuracy” only go back to 1800BC – the most authoritative. ([See Session#2 for Review of Types of Evidence.](#))

4.4. Check List for the Veracity of a Historic Event

#	Proposed Rules for determining Veracity of Past Events	Yes	No
1	Is one or more Living, Capable, and Reliable Eye-witness available who: a) observed the past event, b) recorded the past event, c) indexed the past event into its place in history, and d) communicated it to others?	[]	[]
2	Did one or more Historic, Capable, and Reliable Eye-witness observe the event, record the event, and communicate the event to their concurrent society?	[]	[]
3	Was the historic event close in time and not far outside of recorded history?	[]	[]
4	Are any Assumptions required to be able estimate the past date of the event?	[]	[]
5	Are <u>many</u> Assumptions required to be able to estimate the past date of the event?	[]	[]
6	Does the embraced module of estimating the age of a past of a proposed historic event have any other independent evidence models that estimate the same timeframe?	[]	[]

For a full review of types of evidences, please refer to our past [“Session #2, Hierarchy of Evidences.”](#)



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5. Definitions:

- 5.1. Uniformitarian: The assumption that all past, present, and future natural processes of nature proceeded at the same rate as measured today - no variation.
- 5.2. Closed-System: No outside influences allowed. Nothing can enter a natural system, and nothing can leave a natural system.
- 5.3. Entropy: The tendency of all natural systems to run down, lose information, and increase in disorder.

6. Assumptions of the Young Earth Model:

- 6.1. Only 5100 years of recorded history exists (all positions agree on this point).
- 6.2. Steady (Uniform), Catastrophic, and Accelerated processes are allowed in the Model.
- 6.3. Earth processes are not limited to solely naturalistic causes; that is, supernatural influences are not rejected as a possible contributing factor.



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7. Young Earth Evidences: [See Session#2 for Review of Types of Evidence](#)

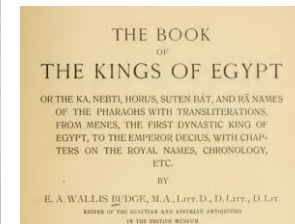
7.1. Evidences that support a Very Young Earth

7.2. Recorded History: 5124 years old

7.2.1. The oldest written record in the world is the Egyptian Book of Kings (Dynasties) which counts backwards only to 3100 BC. History, by definition, requires an observer who recorded events in writing. Therefore, recorded history only goes back to 5124 BC (everything before that oldest date is called pre-historic). **This evidence supports a young Earth interpretation.**

7.2.2. [Before Civilization, Renfrew, 1973, pg 28](#), (Colin Renfrew, British archaeologist)

This date of 3100 B.C. thus sets the limit of recorded history. No earlier dates can be obtained by calendrical means, and indeed the dates cannot be regarded as reliable before 2000 B.C. There is thus a theoretical limit beyond which the traditional chronology for Europe, based, as it was, ultimately on Egypt, simply could not go. Any dates before 3000 B.C. could be little more than guesswork, however persuasive the arguments and the evidence after that period.



7.3. Oldest Extant Original Document: 5124 years old

7.3.1. **The Kish Clay tablet**, estimated to date at **c. 3100 BC** (c. 3300 BC to 2900 BC), but this date is not corroborated by any sequential or complementary recorded evidence (as the Egyptian book of King has). **This evidence supports a young Earth interpretation.**



Kish Tablet

https://en.wikipedia.org/wiki/List_of_oldest_documents (this date has no chronological reference).



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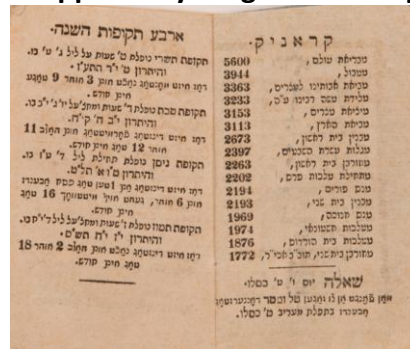
7.3.2. The oldest parchment documents in the world are the [Dead Sea Scrolls](#) are thought to date down to c. 350 BC. They are written almost entirely in [Hebrew](#), [Aramaic](#), and [Greek](#). This evidence supports a young Earth interpretation.



https://en.wikipedia.org/wiki/List_of_oldest_documents

7.4. Oldest Consecutive Human Calendars: 5784 Years Old

- 7.4.1. [Hebrew Jewish Calendar](#) dates creation at being 5784 years old (dates from 3760 BC).
- 7.4.2. 2nd oldest calendar, [Sumerian calendar](#), roughly dated to 2,100 BC.
- 7.4.3. This evidence supports a young Earth interpretation.





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7.5. Oldest living organism: 4850 years Old

7.5.1. The oldest known living organism (based on the method of cross-dated Dendrochronology) is the “Methuselah” Great Basin Bristlecone Pine (*Pinus longaeva*) in eastern California, USA. This dates the oldest living organism in the world (with some level of confidence). **This evidence supports a young Earth interpretation.**



<https://www.bbc.com/news/science-environment-40224991>

7.5.2. The Septuagint (LXX) Old Testament projects the age of the Earth is to be around 7500 years old (~5500 BC), so this tree fits nicely within the [Biblical chronology](#).

7.5.2.1. <https://biblearchaeology.org/research-articles/the-case-for-the-septuagint-chronology-in-genesis-5-and-11/>

7.5.2.2. <https://www.youtube.com/watch?v=tkAGIzgkR-E>

7.5.2.3. https://assets.answersresearchjournal.org/doc/v19/simulation_bristlecone_pine_dendrochronology.pdf



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7.6. Earth's Decaying Magnetic Field: 6000 to 8700 years old

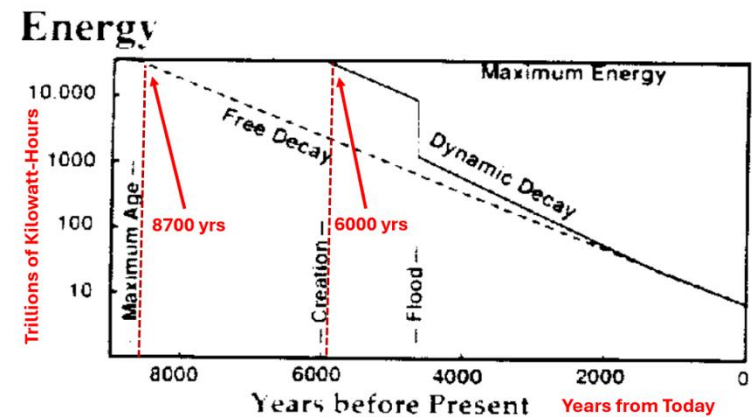


Figure 2. Total energy (in trillions of kilowatt-hours) stored in the earth's magnetic field. Free decay theory gives maximum age of 8700 years.

7.6.1. Extrapolating today's energy decay rate back (along the dotted straight line labeled "free decay") to that limit will yield a maximum age of 8700 years (using free decay method). According to the "dynamic-decay" method, with a significant loss of energy during the Genesis flood, the age of the field would be about 6000 years. The "dynamic-decay" theory is a more general version of the free-decay theory, since it takes account of motions in the core fluid. According to the dynamic-decay theory, the "energy" in the field has always decreased rapidly and the true age would be less than that because of extra losses during the reversals and fluctuations. The solid line (labeled "dynamic decay") shows that with a significant loss of energy during the Genesis flood, the age of the field would be about 6000 years. **This evidence supports a young Earth interpretation.**

7.6.1.1.1. <http://www.icr.org/article/371/> - The Earth's Magnetic Field Is Young

7.6.1.1.2. <https://answersingenesis.org/evidence-for-creation/5-rapidly-decaying-magnetic-field/>

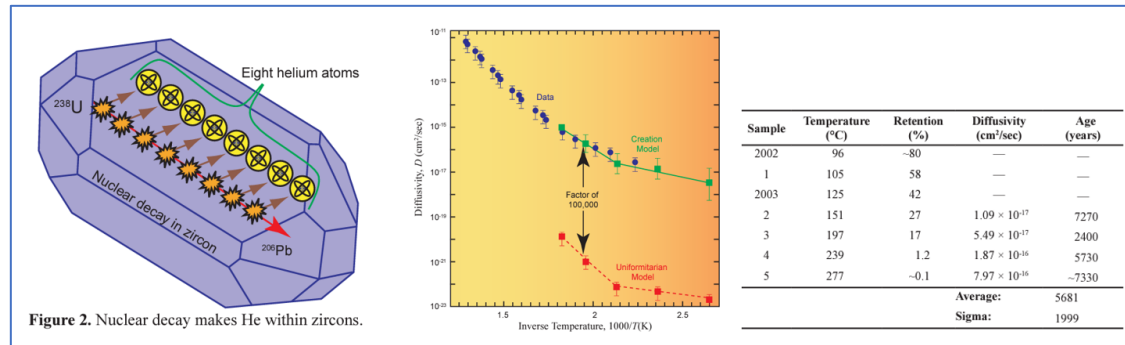


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7.6.1.1.3. <https://www.icr.org/article/magnetic-field-data-confirm-creation/>

7.6.1.1.4. [Earth's magnetic field is decaying steadily—with a little rhythm](#)

7.7. Helium in Radioactive Zircon Rock Crystals: 5681 years old



The ICR RATE team (c. 2003) studied helium generated by radiometric decay in Zircons, and had calculated it only had a He diffusion age of about 5,700 years, which is why large amounts of helium were still present in the zircons. **This evidence supports a young Earth interpretation.**

7.7.1. <https://www.icr.org/article/helium-retention-zircons-demonstrates-young-earth/> 2018

7.7.2. <https://answersingenesis.org/age-of-the-earth/6-helium-in-radioactive-rocks/> 2012

7.7.3. <https://answersingenesis.org/geology/radiometric-dating/helium-diffusion-rates-support-accelerated-nuclear-decay/> 2003

7.7.4. <https://www.icr.org/i/pdf/technical/Young-Helium-Diffusion-Age-of-Zircons.pdf> 2005

7.8. Influx of Silicon into rivers: Models Only 8,000 years of Influx

Influx of silicon to the ocean via rivers	8,000 years
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7.8.1. This evidence supports a young Earth interpretation.

7.8.1.1. Riley and G. Skirrow, editors, [Chemical Oceanography, Vol. 1](#) (New York: Academic Press, 1965), p. 164.



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7.8.1.2. See also Harold Camping, “[Let the Oceans Speak](#),” Creation Research Society Quarterly, vol. 11 (June 1974): p. 39–45.

7.9. Influx of Nickle into rivers: Maximum age 8,200 years

7.9.1. So, an age of the oceans can be estimated by determining how much nickel flows into the ocean every year via rivers and then calculating how many years it would take to build ocean nickel to the current levels. As a result, the *maximum* age of the oceans is 8,200 years (see table below). Depending on the starting amount (and how much the runoff from Noah’s Flood added) the age may be much younger. It also depends on whether any nickel is lost from the ocean (which we will consider later) and other factors. **This evidence supports a young Earth interpretation.**

River flow into oceans	37,288 km ³ per year
Ni conc. in rivers	1 µg/litre
Ni carried into oceans	37,288 metric tons per year
Ocean volume	1,338 million km ³
Ni conc. in oceans	0.228 µg/litre
Ni in ocean	305 million metric tons
Time to accumulate Ni in oceans at current unindustrialised rates of inflow.	8,181 years



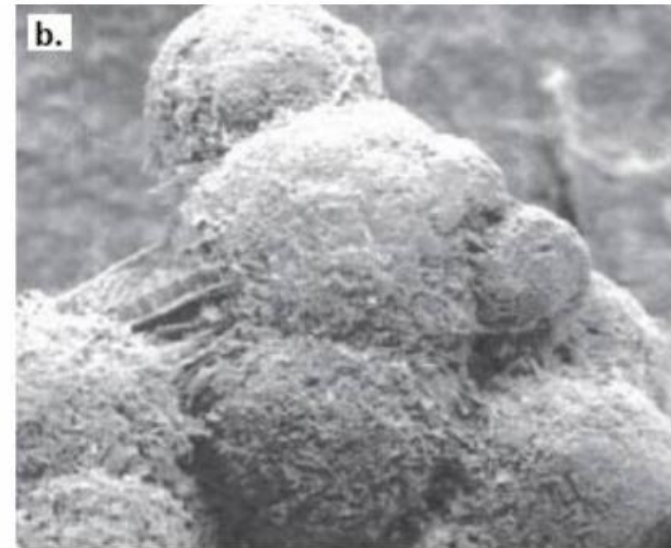
<https://creation.com/nickel-concentration-indicates-youthful-oceans#>



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7.10. Manganese nodules (MN) on the sea floors: 5000 to 30,000 years' worth

7.10.1. Deep ocean sediment containing at least 30% biogenous material is called ooze; one textbook states: "Oozes accumulate slowly, at a rate of about 1–6 centimetres (0.5–2.5 inches) per thousand years." Clays, on the other hand, which mostly constitute terrigenous particles, are even slower: "Terrigenous sediment accumulation on the deep-ocean floor is typically about 2 millimetres (1/8 inch) every thousand years." These extremely conservative rates consign a blanket of sediment over the deep ocean floor of only tens of centimetres (~ ½ meter) in a total of **5,000 years**—the timeframe assumed since the end of the global Flood. True, this is short of the **few metres** or so depth that characterize most buried MNs, but it's close. **This evidence supports a young Earth interpretation**

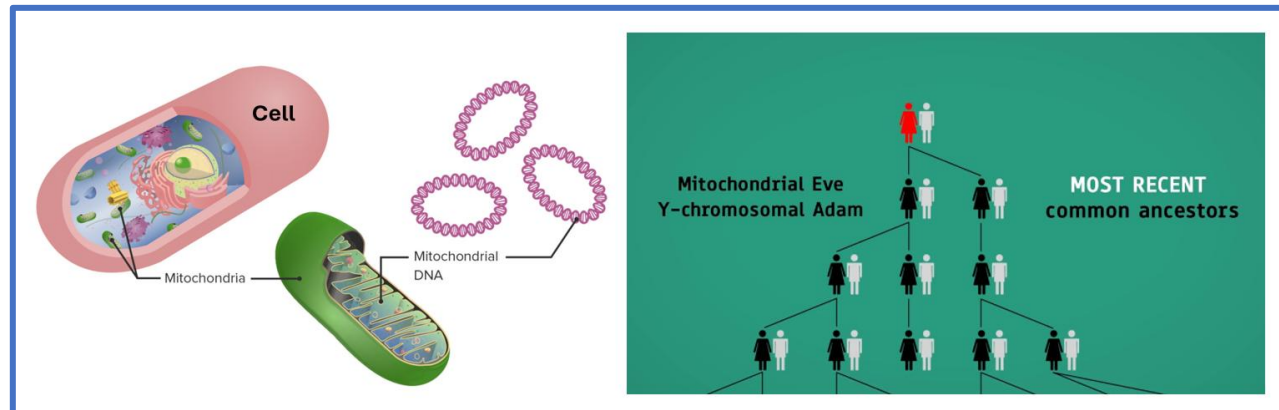


<https://creation.com/manganese-nodules>



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7.11. Age for 'Mitochondrial Eve' (mtDNA): projects 6K to 10K years

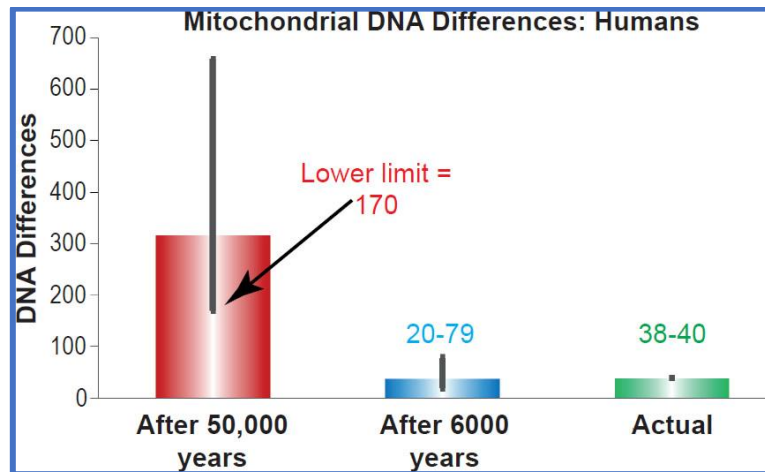


- 7.11.1. Human mtDNA diversity: the diversity of human mitochondrial DNA in the population based on mutation-rate and time.
- 7.11.2. Predictions to the best estimates of the mtDNA (mitochondrial-eve) diversity among non-African people groups demonstrates agreement with the predictions of the young-earth timescale (20 to 79 base pair differences after 6,000 years), this perfectly aligns with the existing mtDNA diversity of "38 to 40" base pair differences.



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7.11.3. The results in the chart (see below) “provide strong support for the recent origin of mitochondrial genome sequences. The predictions of young-earth timescale fit the actual diversity within an order of magnitude.



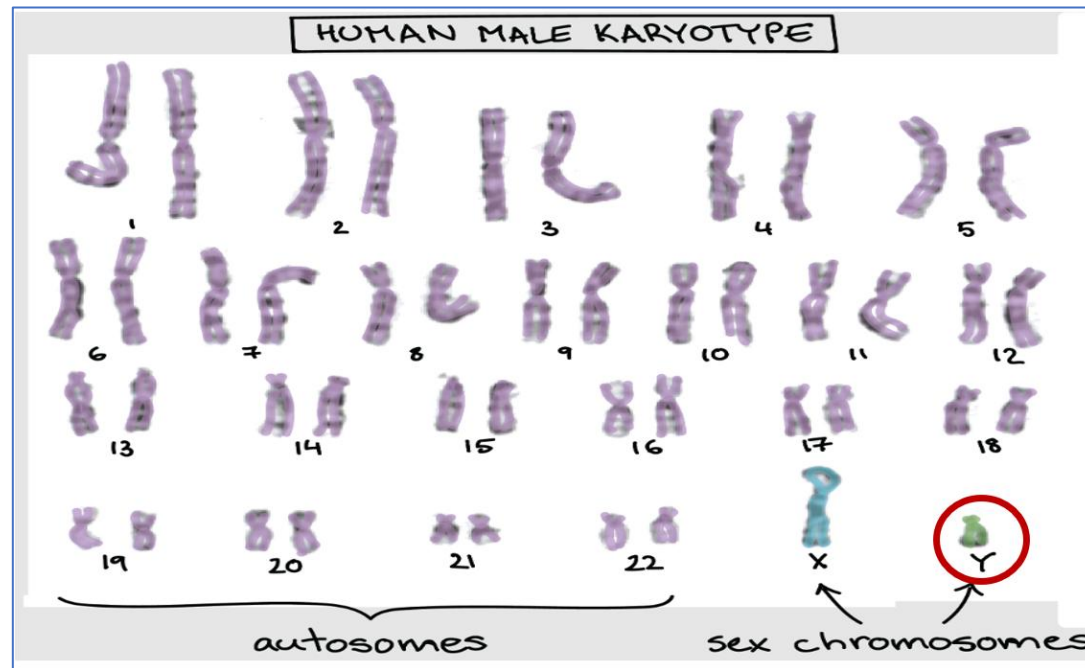
7.11.4. Chart-1 (above) demonstrates that the predictions of “20 to 79” base pair differences after 6,000 years (the young-earth timescale) perfectly captures the existing mtDNA diversity of “38 to 40” base pair differences, while the predictions for the evolutionary timescale were nearly an order of magnitude off (170 to 658 base pair differences) after 50,000 years. **This evidence supports a young Earth interpretation.**

- 7.11.4.1.1. <https://answersresearchjournal.org/mitochondrial-genome-mutation-rate/> 2015
- 7.11.4.1.2. <https://answersresearchjournal.org/origin-mitochondrial-genes-metazoan/>
- 7.11.4.1.3. <https://www.icr.org/i/pdf/technical/The-Eve-Mitochondrial-Consensus-Sequence.pdf> 2008
- 7.11.4.1.4. <https://answersresearchjournal.org/origin-mitochondrial-genes-metazoan/> 2013
- 7.11.4.1.5. <https://creation.com/cmi-responds-to-sceptics-criticism-of-mitochondrial-eve-article> 2006



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7.12. Age for Human Y-Chromosome in human Males: 4500 Years



7.12.1. Recent findings from Y-chromosome comparisons between fathers and sons put the origin of global Y chromosome differences around 4,500 years ago. This presents a compelling case for the origin of the most recent, globally common human male ancestor within the last 4,500 year. **This evidence supports a young Earth interpretation.**

7.12.2. <https://answersresearchjournal.org/human-y-chromosome-molecular-clock/> 2019

7.12.3. <https://answersresearchjournal.org/evidence-y-chromosome-molecular-clock/> 2019



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7.13. Genetic Entropy in the Human Genome: 5,115 to 9,000 years

7.13.1. With a minimal historic genome “fitness” decline of just 1% per generation, a significant decline in the “fitness” of the human genome occurs in just 300 generation (6K to 9K years). This indicates we are dying as a species. Apart from intelligent intervention, information always decays. This significant decline in the fitness human genome supports human beings as being a recent creation. **This evidence supports a young Earth interpretation.**

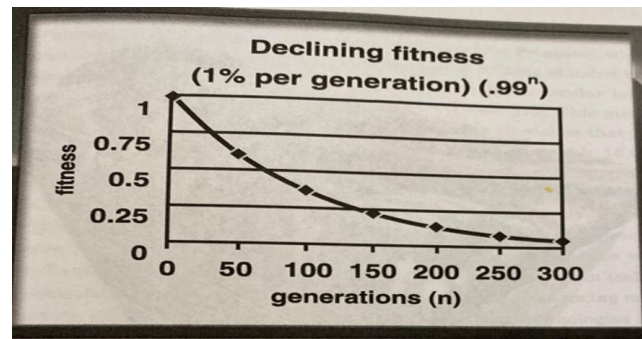


Figure 4. The consequence of genetic entropy.

Dr. Crow (1997) indicated that the fitness of the human race is presently degenerating at 1-2% per generation due to the accumulation of mutations. A 1% decline in fitness per generation (beginning with a fitness of 1) is plotted for a hypothetical human population over a period of 300 generations (6,000-9,000 years). The resulting pattern seen is a classic biological decay curve. This type of progressive loss of fitness would clearly lead to dramatic degeneration of the human race within the historical timeframe.

Reference: <https://www.amazon.com/Genetic-Entropy-John-C-Sanford/dp/0981631606/> 2014, pgs 71 &160

7.13.2. Other data also shows a very recent, massive burst of human genetic diversification — mostly associated with genetic entropy. One author stated, “**The maximum-likelihood time for accelerated growth was 5,115 years**



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ago.” Again, this significant entropy of the human genome supports humankind as being of a recent creation. This evidence supports a young Earth interpretation.

Abundance of rare variation explained by human demographic history. The excess of rare variation across the exome is consistent with explosive human population growth (22). To investigate this further, we used an Out-of- Africa (OOA) demographic model (23) to predict the expected joint distribution of allele frequencies between the EA and AA samples via a diffusion approximation (18). The OOA model, modified to account for admixture, captures prominent features of the joint frequency distribution. However, both populations contain more rare variants than predicted by this model (18; Fig. 2A,B), most likely due to rapid population growth in the last few thousand years that is undetectable with smaller sample sizes (18; Fig. S9E). We revisited the demographic model from Gravel *et al.* (23), allowing for a reduced initial European expansion that is compensated for by accelerated growth starting after the split of European and Asian populations. Similarly, we introduced a phase of exponential growth in the African population starting at the same time. The resulting demographic model is an improved fit to the synonymous site-frequency spectrum (18; Fig. 2B), and strongly supports a recent, dramatic acceleration of population growth. The maximum-likelihood time for accelerated growth was 5,115 years ago (Fig. 2B).

“Evolution and Functional Impact of Rare Coding Variation from Deep Sequencing of Human Exomes” pg. 4
https://www.science.org/doi/suppl/10.1126/science.1219240/suppl_file/papv2.pdf:

- 7.13.3. <https://www.icr.org/article/genetic-entropy-points-young-creation>
- 7.13.4. <https://www.amazon.com/Genetic-Entropy-John-C-Sanford/dp/0981631606/>
- 7.13.5. <https://creation.com/from-ape-to-man-via-genetic-meltdown-a-theory-in-crisis>
- 7.13.6. <https://youtu.be/0zOxFFiVY1A> - Genetic Entropy - Evolution's Achilles' Heels



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7.14. Oldest Ongoing Genealogy: 3061 Years ago

7.14.1. House of King David, Israel (1037 BC + 2024 AD = 3061 years)

7.14.1.1. The genealogy of the Lurie Family has roots that go back to the Israelite king, King David, and is the longest current recorded family line (that has reasonable support).

7.14.1.2. For comparison, the Kong Family (Descendants of Confucius) only goes back to 551 BC, which date 2575 years old). **This evidence supports a young Earth interpretation.**

1. Lurie Family

📅 Year Founded: c.1037 BCE

👤 Founder: King David

✳️ Current Head of Family: N/A

🌍 Country of Origin: Israel

<https://www.oldest.org/culture/family-trees/>

7.15. Genealogy of Biblical Adam: 6000 to 7579 years ago

7.15.1. The biblical genealogy is the longest recorded family line. Comparing the Biblical texts of the Masoretic (MT), Septuagint (LXX), and the Samaritan Pentateuch (SP) the projected biblical age of Adam's & the Earth's Creation to present day (2024) is up to **7579 years old**. **This evidence supports a young Earth interpretation.**

MT, SP, or LXX?
Deciphering a Chronological and Textual Conundrum in Genesis 5 **Creation: 5554 BC**

Table 1: Proposed original numbers in Genesis 5 and 11 with BC dates.

Patriarch	Scripture Reference	BC Birth Date	Birth Date from Tradition (AM)	The Proposed Original Text		
				Age	Remaining Years	Lifespan
Adam	Ge 5:3-5	5554 BC	0 AM	230	700	930
Seth	Ge 5:6-8	5324 BC	230 AM	205	707	912

By Henry B. Smith Jr.
Background

https://biblearchaeology.org/images/Genesis-5-and-11/Smith-Henry-Winter-2018-BAS_MT-SP-or-LXX.pdf



8. Evidences that support a Young Earth

NOTE: These “Uniformitarian” young ages make old-Earth models impossible.

[UCSA] = Based on using “Uniformitarian & Closed System Assumptions”

8.1. Influx of Copper into rivers: 50,000 years of Influx [UCSA]

8.1.1. The total net deposits of copper influx into rivers projects a process duration and age for the earth of 50,000 years. This evidence supports a young Earth interpretation.

Influx of copper to the ocean via rivers	50,000 years
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- 8.1.2. “Let the Oceans Speak,” Creation Research Society Quarterly, vol. 11 (June 1974): p. 39–45. <https://www.creationresearch.org/crsq-1974-volume-11-number-1>
- 8.1.3. *Chemical Oceanography*, Vol. 1, A Riley and G. Skirrow, editors, (New York: Academic Press, 1965), p. 164. <https://www.amazon.com/Chemical-Oceanography-Skirrow-editors-Riley/dp/B00KUERHMU>

8.2. Radiocarbon C14 in the Atmosphere: 12,500 years [UCSA]

8.2.1. The total Radiocarbon C14 projects an age for the Earth’s atmosphere of 12.5K years or less. This evidence supports a young Earth interpretation.

8.2.2. Source: [Prehistory and Earth Models](#), M Cook, 1966, page 1:

The Radiocarbon Method of Libby
Current data on the neutron source strength of C^{14} via the reaction $N^{14}(n,p)C^{14}$, and the rate of decay of radiocarbon show that C^{14} may not be in steady state in the atmosphere. Instead, the ratio $I_a(\text{now})/I_{a,\text{max}}$ for the actual intensity of radiation to the steady state or maximum intensity in the biosphere appears to be less than 0.78. On the conventional assumption that the neutron source strength is constant in time, a basic postulate of the radiocarbon dating method, this result leads to an 'age' of 12,500 y or less for the atmosphere

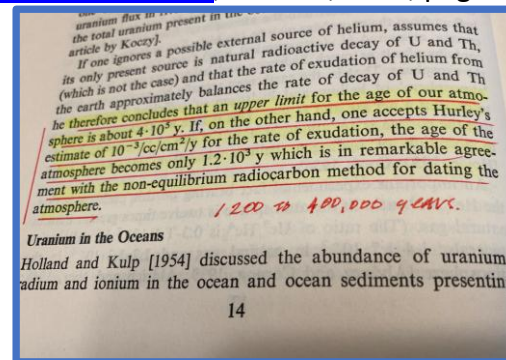


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8.3. Helium in the Atmosphere: 1,200 to 400,000 years [UCSA]

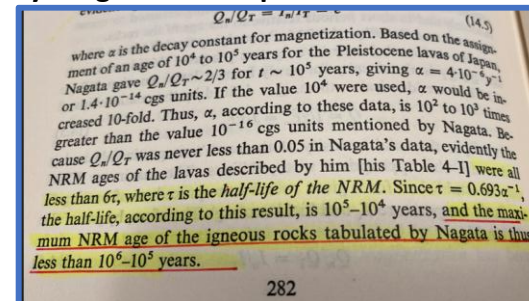
8.3.1. The total Helium in the Earth's atmosphere projects an age range of 1.2K to 400K years. **This evidence supports a young Earth interpretation.**

8.3.2. Source: [Prehistory and Earth Models](#), M Cook, 1966, page 14:



8.4. Natural Remnant Magnetization (NRM) in Igneous Rock: 100,000 to 1 Million Years [UCSA]

8.4.1. The amount of Natural Remnant Magnetization (NRM) in Igneous projects an age range of 100K to 1,000K years. **This evidence supports a young Earth interpretation.**



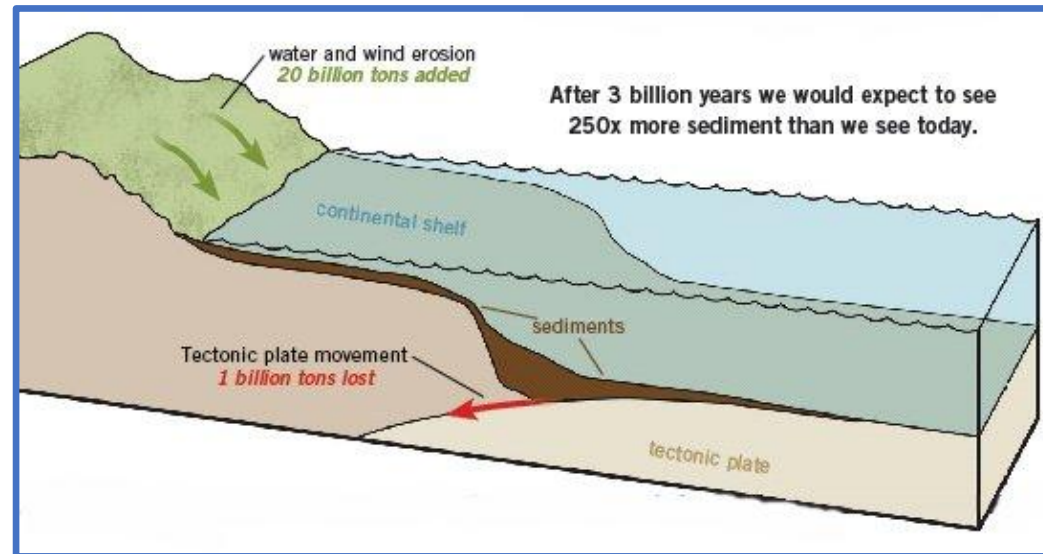
Source: [Prehistory and Earth Models](#), M Cook, 1966, page 282:



Answers4Seekers: Session #12A (semi-technical)

8.5. Very Little Sediment on Sea Floor: 12 million years [UCSA]

- 8.5.1. The [amount of sediment on the sea floors](#) at current rates of land erosion would accumulate in just **12 million years**; a fraction of the secular supposed age of the ocean floor of up to **3 billion years**. *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. This evidence supports a young Earth interpretation.*



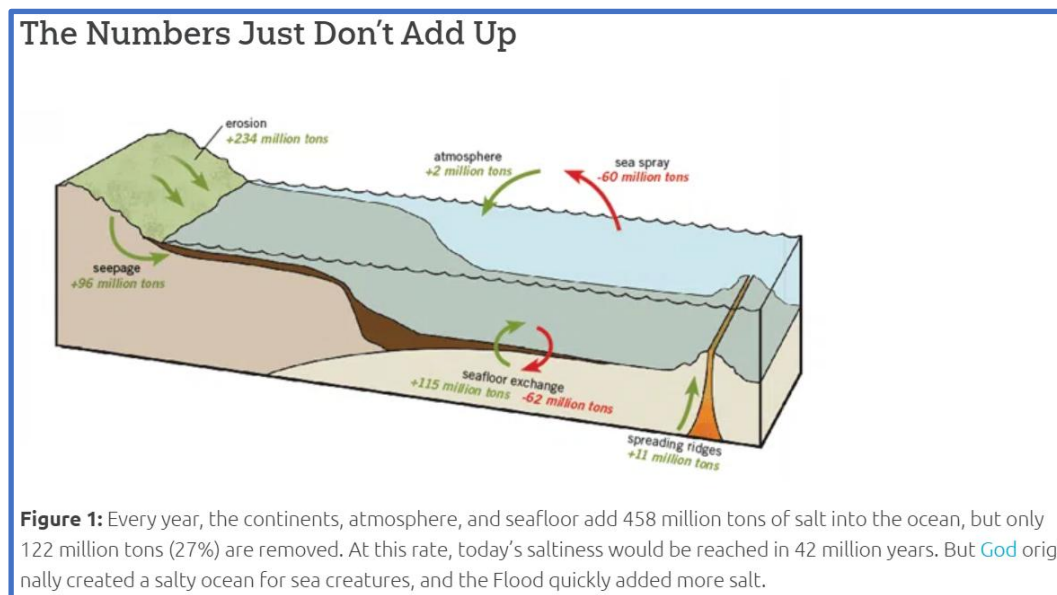
- 8.5.2. <https://answersingenesis.org/geology/sedimentation/1-very-little-sediment-on-the-seafloor/>
8.5.3. <https://answersingenesis.org/geology/sedimentation/1-very-little-sediment-on-the-seafloor/>
8.5.4. <http://static.icr.org/i/pdf/technical/Sands-of-Time-A-Biblical-Model-of-Deep-Sea-Floor-Sediment.pdf>



Answers4Seekers: Session #12A (semi-technical)

8.6. Very Little Salt in the Sea: maximum 62 million years [UCSA]

8.6.1. There is very little [salt in the sea](#). Even ignoring the effects of a 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 is less than 1/50 of the age evolutionists claim for the oceans (up to 3 Billion years). **This evidence supports a young Earth interpretation.**



<https://answersingenesis.org/evidence-for-creation/9-very-little-salt-in-the-sea/>

8.6.2. <http://static.icr.org/i/pdf/technical/The-Seas-Missing-Salt.pdf>

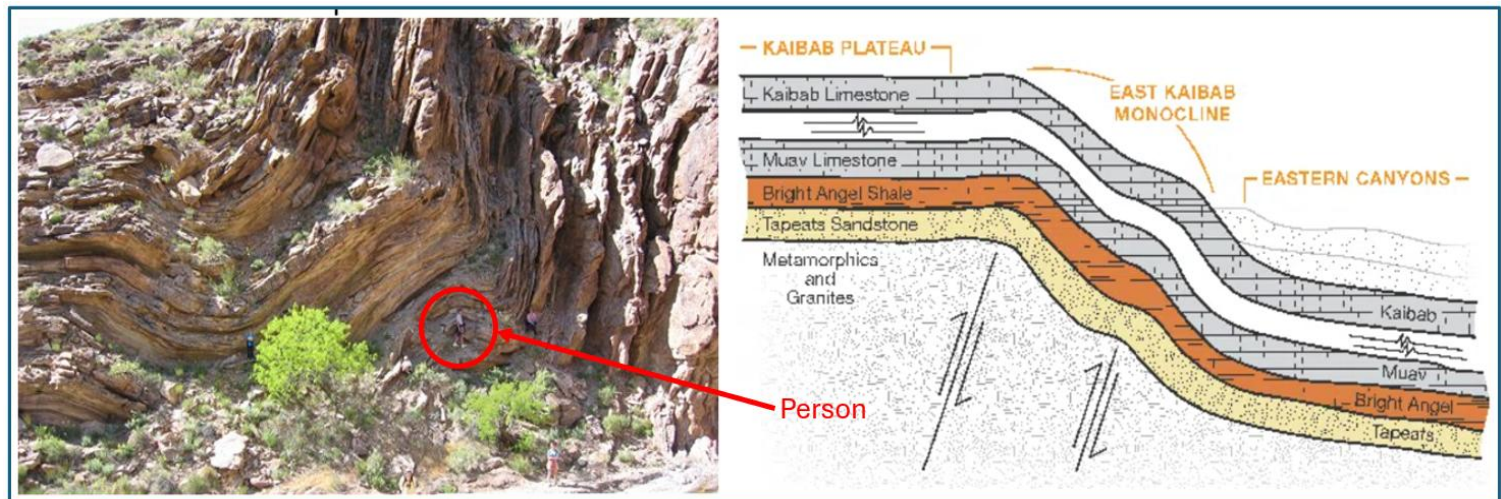
8.6.3. <https://creation.com/salty-seas-evidence-for-a-young-earth>



Answers4Seekers: Session #12A (semi-technical)

8.7. Bent Rock Layers: Evidences fast, cataphoric processes [UCSA]

8.7.1. In many mountainous areas, rock layers thousands of feet thick have been bent and folded without fracturing. How can that happen if they were laid down separately over hundreds of millions of years and already hardened? Bent rock layers evidence fast and cataphoric processes working on the Earth. **This evidence supports a young Earth interpretation.**



8.7.2. <https://answersingenesis.org/geology/rock-layers/2-bent-rock-layers/>

8.7.3. <https://answersingenesis.org/geology/rock-layers/rock-layers-folded-not-fractured/>



8.8. Soft Tissue in “Ancient” Fossils: Supports a young-Earth interpretation. [UCSA]

8.8.1. Soft tissue has been found in many fossils claimed to be ancient and millions of years old. **Biochemicals in such tissues spontaneously break down within only thousands of years after death.** Soft tissue is believed to last only thousands of years (not millions) and with only 5100 years of recorded history, there is no proof that soft-tissue in fossils can be beyond that time. **Therefore, soft-tissue, blood cells, and DNA in “supposed” ancient fossils is evidence that supports a young Earth interpretation.**

8.8.2. Below Chart: Used here only as a visual of the many supposed ancient samples found with C14 (details below).

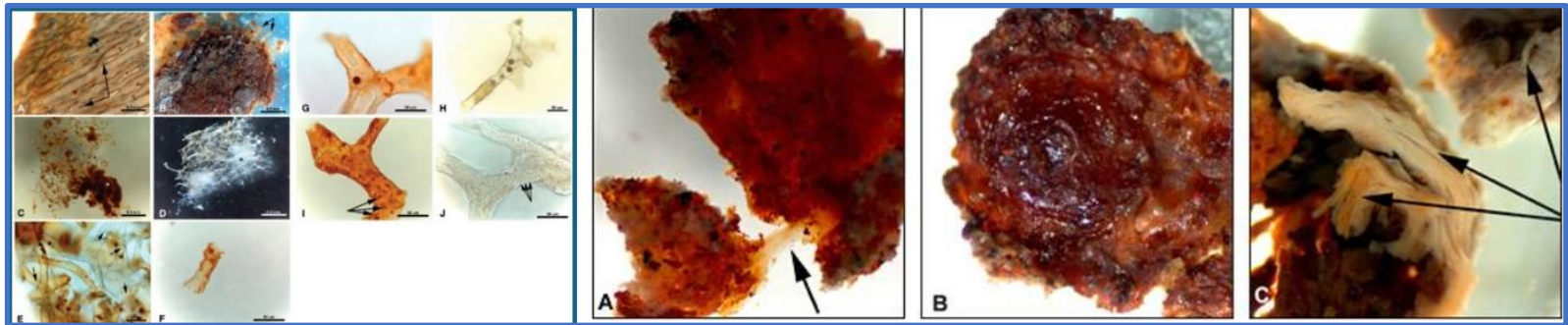
FOSSIL ANALYSES WITH VERIFIED ORIGINAL SOFT TISSUES							
Publication Date	Brief Description	Evolutionary Age	Publication				
Articles Published in Peer-Reviewed Journals							
1 8/6/1966	<i>Tarbosaurus</i> collagen fibers	80MY	Pawlicki, R. et al, <i>Nature</i> , 211 (5049): 655-657.	22 10/2/2009	Permo-triassic fungal chitin	250MY	Jin, Y. G. et al, <i>Science</i> , 289 (5478): 432-436.
2 6/14/1992	Seismosaur osteocalcin (bone protein)	150MY	Muyzer, G. et al, <i>Geology</i> , 20: 871-874.	23 8/18/2009	Squid ink	160MY	Whilby, P.R. et al, <i>Geology Today</i> , 24 (3): 95-98.
3 9/25/1992	DNA in amber	30MY	Morell, V. et al, <i>Science</i> , 257 (5078): 1860-1862.	24 11/5/2009	Salamander muscle, whole	18MY	McNamara, M. et al, <i>Proc. Royal Soc. B</i> , 277 (1680): 423-427.
4 6/16/1994	Hadrosaur bone possible DNA	65MY	Woodward, S. R., N. J. Weyand, and M. Bunnell, <i>Science</i> , 266 (5188): 1229-1232.	25 2/25/2010	<i>Sinosauropteryx</i> melanosomes	125MY	Zhang, F. et al, <i>Nature</i> , 463: 1075-1078.
5 5/19/1995	Live bacteria spores from amber	25-40MY	Cano, R. J. and M. K. Borucki, <i>Science</i> , 268 (5213): 1060-1064.	26 5/14/2010	Mammal hair in amber	100MY	Vullo, R., <i>Naturwissenschaften</i> , 97 (7): 683-687.
6 6/10/1997	<i>T. rex</i> bone hemoglobin fragments	67MY	Schweitzer, M. et al, <i>PNAS</i> , 94 (12): 6291-6296.	27 5/18/2010	<i>Archaeopteryx</i> original feather remnants	150MY	Bergmann, U., <i>PNAS</i> , 107 (20): 9060-9065.
7 6/2/1999	Live bacteria from halite deposit	250MY	Vreeland, R. H. et al, American Society for Microbiology, 99th General Meeting, June 2, 1999, Chicago.	28 8/9/2010	Mosasauro blood, retina	65-68MY	Lindgren, J., <i>PLoS ONE</i> , 5 (8): e11998.
8 6/21/1999	Live bacteria from separate rock salts	250MY	Stan-Lotter, H. et al, <i>Microbiology</i> , 145 (12): 3565-3574.	29 11/12/2010	Penguin feathers	36MY	Clarke, J. A. et al, <i>Science</i> , 330 (6006): 954-957.
9 6/21/1999	Cretaceous Madagascar bird keratin	65MY	Schweitzer, M. H. et al, <i>J. Vert. Paleo</i> , 19 (4): 712-722.	30 2/7/2011	Chitin and chitin-associated protein	417MY	Cody, G.D. et al, <i>Geology</i> , 39 (3): 255-258.
10 9/1/2001	<i>T. rex</i> collagen SEM scans	65MY	Armitage, M., <i>Creation Research Society Quarterly</i> , 38 (2): 61-66.	31 4/1/2011	C-14 date of mosasauro (24,600 Yrs)	70MY	Lindgren, J. et al, <i>PLoS ONE</i> , 6 (4): e19445.
11 6/26/2004	Live (non-spore) bacteria in amber	120MY	Greenblatt, C. L. et al, <i>Microbial Ecology</i> , 48 (1): 120-127.	32 3/23/2011	Lizard tail skin, Green River	40MY	Edwards, N. P. et al, <i>Proc. Royal Soc B</i> , 278: 3209-3218.
12 3/24/2005	<i>T. rex</i> soft tissue	68MY	Schweitzer, M. et al, <i>Science</i> , 307 (5717): 1952-1955.	33 6/8/2011	<i>T. rex</i> and hadrosaur Type I Collagen	68MY	San Antonio, J. D. et al, <i>PLoS ONE</i> , 6 (6): e20381.
13 7/25/2006	Soft frog, intact	10MY	McNamara, M. et al, <i>Geology</i> , 34 (6): 641-644.	34 6/30/2011	Bird feather pigment	120MY	Wogelius, R. A. et al, <i>Science</i> , 333 (6049): 1622-1626.
14 6/30/2007	<i>T. rex</i> collagen	68MY	Schweitzer, M. et al, <i>Science</i> , 316 (5822): 277-280.	35 2013	<i>Triceratops</i> horn soft tissue whole sheet	67MY	Armitage, M. H., and K. L. Anderson, <i>Acta Histochemica</i> , 115 (6): 603-608.
15 1/22/2007	<i>Triceratops</i> and <i>T. rex</i> blood vessels	68MY	Schweitzer, M. H. et al, <i>Proc. Roy. Soc. B</i> , 274: 183-197.	36 10/15/2015	Tube worm chitin	551MY	Moczydlowska, M. F. et al, <i>J. Paleontology</i> , 88 (2): 224-239.
16 4/7/2008	<i>Psittacosaurus</i> skin	125MY	Linghan-Soliar, T. et al, <i>Proc. Royal Soc. B</i> , 275: 775-780.	37 7/9/2015	<i>Brachylophosaurus</i> collagen sequence	75MY	Bertazzo, S. et al, <i>Nature Communications</i> , 6: 7352.
17 7/8/2008	Feather melanocytes	100MY	Vinther, J. et al, <i>Biology Letters</i> , 4: 522-525.	38 9/15/2016	<i>Psittacosaurus</i> skin scale keratin	120MY	Vinther, J., et al, <i>Current Biology</i> , 26 (18): 1-7.
18 4/30/2009	Hadrosaur blood vessels	80MY	Schweitzer, M. et al, <i>Science</i> , 324 (5927): 626-631.	39 1/31/2017	<i>Lufengosaurus</i> rib collagen	190MY	Lee, Y.-C. et al, <i>Nature Communications</i> , 8: 14220.
19 8/26/2009	Purple Messel feather nanostructure	40MY	Vinther, J. et al, <i>Biology Letters</i> , 6 (1): 128-131.	40 8/29/2017	Dinosaur eggshell protoporphyrin, biliverdin	66MY	Wiemann, J. et al, <i>PeerJ</i> , 5: e3706.
20 5/19/2009	Primate “Ida” soft body outline	40MY	Franzen, J. L. et al, <i>PLoS ONE</i> , 4 (5): e5723.	41 4/18/2018	Conodont keratin residue	252MY	Terrill, D. F. et al, <i>J. of Analytical Spectrometry</i> , 33: 992-1002.
21 7/1/2009	Hadrosaur skin cell structures	66MY	Manning, P. et al, <i>Proc. Royal Soc. B</i> , 276: 3429-3437.	Selection of Published Reports of Original Soft Tissue Fossils Papers that were excluded from the list include those with dubious verbiage, especially those that discussed “soft tissues” but failed to specify whether or not the tissues were original or chemically altered to a more resistant material. Those papers that specified the latter were also excluded, to the best of the author’s ability to discern. The chart demonstrates that a multitude of verified original soft tissue and biochemical “clocks” have set maximum ages of thousands of years to samples that had all been assigned ages of millions of years.			

<https://www.icr.org/soft-tissue-list>



Answers4Seekers: Session #12A (semi-technical)

8.9. Tyrannosaurus Rex Fossil contained soft-tissue and blood-cells: Supports a young-Earth interpretation. [UCSA]



8.9.1. Bone slices from the fossilized thigh bone (femur) of a Tyrannosaurus rex found in the Hell Creek formation of Montana were studied under the microscope by Schweitzer. To her amazement, the bone showed what appeared to be blood vessels of the type seen in bone and marrow, and these contained what appeared to be red blood cells with nuclei, typical of reptiles and birds (but not mammals). The vessels even appeared to be lined with specialized endothelial cells found in all blood vessels. [Schweitzer, et al., "Soft-Tissue Vessels and Cellular Preservation in Tyrannosaurus rex," Science, \(2005\).](#) **This evidence supports a young Earth interpretation.**

8.9.2. <https://answersingenesis.org/fossils/3-soft-tissue-in-fossils/>

8.9.3. <https://answersingenesis.org/dinosaurs/bones/two-those-not-so-dry-bones/>

8.9.4. <https://answersingenesis.org/dinosaurs/bones/more-soft-tissue-in-old-fossils/>

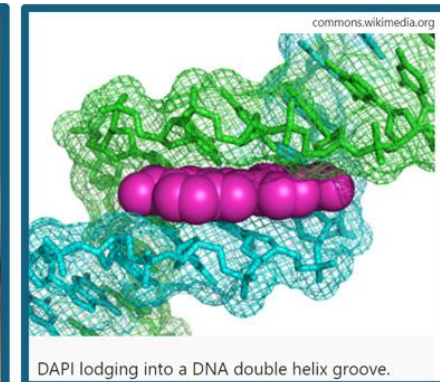
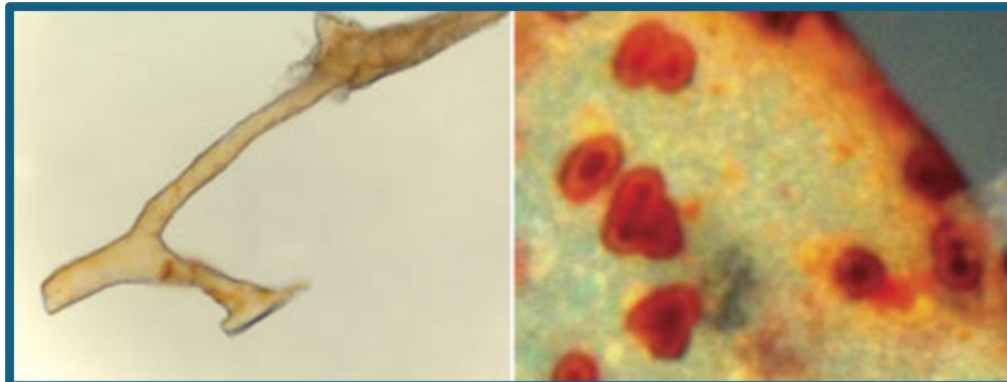


Answers4Seekers: Session #12A (semi-technical)

8.10. Many fossil bones “dated” at many millions of years old are hardly mineralized: Supports a young-Earth interpretation. [UCSA]

8.10.1. Low mineralization in fossils contradicts the widely believed old age of the earth. See, for example, [Dinosaur bones just how old are they really?](#) Tubes of marine worms (sabellidites), “dated” at 550 million years old, are soft and flexible and apparently composed of the original organic compounds ([original 2014 JOP paper](#)). **This evidence supports a young Earth interpretation.**

8.10.2. Dinosaur blood cells & DNA found in Fossils:



8.10.3. The current existence of [Dinosaur blood cells](#), [blood vessels](#), [proteins](#) ([hemoglobin](#), [osteocalcin](#), [collagen](#), [histones](#)) 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). **This evidence supports a young Earth interpretation.**

8.10.3.1. [Schweitzer, Dino DNA, BONE, 2012](#)

8.10.3.2. <https://youtu.be/XEtL6XjRqMg> T-rex red blood cells



Answers4Seekers: Session #12A (semi-technical)

8.11. Carbon-14 in Fossils, Coal, Petrified Wood, and Diamonds: Must be less than 90K [UCSA]

This evidence supports a young Earth interpretation.



Taxon	Radio-carbon Years BP	pmc	$\delta 13$	Stratigraphy	Sample date	Note
<i>Tectocarya rhenana</i>	17850 ± 40	10.84	-25.4	Braunkohle Lignite	6/1/2011	mummified fruit
hadrosaur vert (ICR)	20850 ± 90	7.46	-24.51	Hell Creek Fm.	3/20/2013	Medullary bone
<i>Edmontosaurus sp.</i>	25550 ± 60	4.15	-0.5	Lance Fm.	5/30/2014	vertebra
<i>Phareodus sp.</i>	26,110 ± 60	3.87	-0.4	Green River Fm.	5/30/2014	skull bones & scales
ceratopsian	26300 ± 60	3.78	-3.6	Horseshoe Canyon Fm.	7/14/2014	metacarpal V
hadrosaur vert (ICR)	28790 ± 100	2.78	-20.11	Hell Creek Fm.	3/20/2013	cortical bone
<i>Edmontosaurus sp.</i>	32420 ± 160	1.77	-6.1	Lance Fm.	2/26/2013	phalanx
hadrosaur (ADM)	32770 ± 100	1.69	-3.5	Horseshoe Canyon Fm.	7/14/2014	caudal vertebra
<i>Crossopholis magnicaudatus</i>	33530 ± 170	1.54	-26.18	Green River Fm.	3/20/2013	Paddlefish "cartilage"
<i>Triceratops horridus</i>	33570 ± 120	1.53	-17.1	Hell Creek Fm.	8/14/2012	horn core bulk bone
ceratopsian	36760 ± 130	1.03	-1.7	Horseshoe Canyon Fm.	7/14/2014	caudal vertebra
Axel wood	39720 ± 270	0.71	-22.2	Buchanan Lake Fm.	5/5/2014	unmineralized
Drumheller wood	40040 ± 160	0.68	-24.1	Horseshoe Canyon Fm.		peat-like
<i>Triceratops horridus</i>	41010 ± 220	0.61	-4.3	Hell Creek Fm.	8/14/2012	horn core bioapatite
Czech wood	48160 ± 330	0.25	-22.7	Boskovice Furrow	2/26/2013	carbonized wood
<i>Captorhinus aguti</i>	49470 ± 510	0.21	-29.7	Admiral Fm.	8/5/2014	vert, jaw, leg

Table 1. Carbon isotope data used to plot Figures 1 and 6 are shown from 14 fossils. Radiocarbon ages were copied from referenced sources without calibration or other normalization. Plus/minus value represents 1 σ confidence error margins. Pmc refers to percent modern carbon, a ratio of the fraction of ^{14}C to ^{12}C in the sample to the fraction of ^{14}C to ^{12}C in the international standard (where "modern" means AD 1950, and the absolute radiocarbon standard is a sample of wood from a tree that died in AD 1890). Radiocarbon years in "Before Present" are calculated based on pmc. Radiocarbon analyses also supply ^{13}C isotope results, shown as $\delta 13$, which represents the parts of ^{13}C in the sample per thousand parts ^{13}C in an international standard. Negative values, below the standard zero value, are typical for samples of great antiquity.

https://www.creationresearch.org/crsq-2015-volume-51-number-4_radioncarbon-in-dinosaur-and-other-fossils



Answers4Seekers: Session #12A (semi-technical)

8.12. Carbon-14 in Fossils: - Maximum 90K years old (Supports a Young Earth Interpretation) [UCSA]



A sea creature, called an ammonite, was discovered near Redding, California, accompanied by fossilized wood. Both fossils are claimed by strata dating to be 112–120 million years old but yielded radiocarbon ages of only thousands of years.

8.12.1. Carbon-14 (or radiocarbon) is a radioactive form of carbon that scientists use to date fossils. But it decays so quickly—with a half-life of only 5,730 years—that none is expected to be detected in fossils after 90 thousand years. Yet carbon-14 has been detected in “ancient” fossils—supposedly up to hundreds of millions of years old—ever since the earliest days of radiocarbon dating. **This evidence supports a young Earth interpretation.**

8.12.2. <https://answersingenesis.org/geology/carbon-14/7-carbon-14-in-fossils-coal-and-diamonds/>

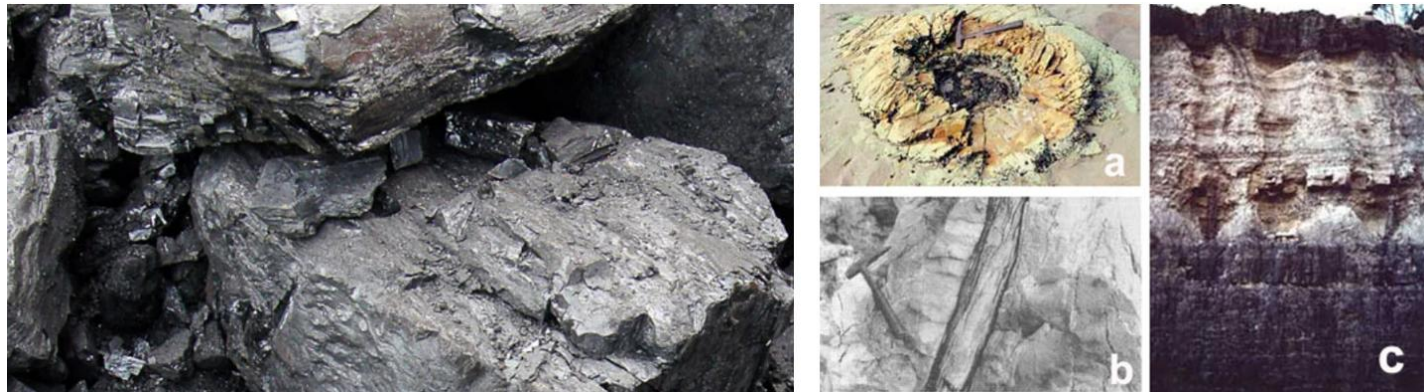
8.12.3. <https://www.creationresearch.org/crsq-2015-volume-51-number-4-radiocarbon-in-dinosaur-and-other-fossils>

8.12.4. Paul Giam, “[Carbon-14 Content of Fossil Carbon](#),” *Origins* 51 (2001): 6–30



Answers4Seekers: Session #12A (semi-technical)

8.13. Carbon-14 in Coal: - must be less than 90K years old (Supports a Young Earth Interpretation) [UCSA]



8.13.1. Measurable ^{14}C in Fossilized Organic Materials: Confirming the Young Earth Creation-Flood Model. Carbon-14 in coal suggests ages of thousands of years and clearly contradict ages of millions of years. Experiments show that with conditions mimicking natural forces, [coal forms quickly](#); in weeks for brown coal to months for black coal. It does not need millions of years. Furthermore, long time periods could be an impediment to coal formation because of the increased likelihood of the permineralization of the wood, which would hinder coalification. Which speaks against the hundreds of millions of years normally claimed for this. ^{14}C in coal strongly support a young-Earth interpretation. **This evidence supports a young Earth interpretation.**

- 8.13.1.1.1.1. <https://www.icr.org/article/carbon-14-evidence-for-recent-global/>
- 8.13.1.1.1.2. <https://www.icr.org/article/young-earth-creation-flood-14c>
- 8.13.1.1.1.3. <http://static.icr.org/i/pdf/technical/Measurable-14C-in-Fossilized-Organic-Materials.pdf>
- 8.13.1.1.1.4. <https://d10.creation.com/articles/p066/c06685/chapter4.pdf>
- 8.13.1.1.1.5. [Evidence for rapid, catastrophic formation of coal beds](#)
- 8.13.1.1.1.6. <https://creation.com/coal-memorial-to-the-flood>



Answers4Seekers: Session #12A (semi-technical)

8.14. Carbon-14 in Petrified Wood: less than 90K years old (Supports a Young Earth Interpretation) [UCSA]



8.14.1. Carbon-14 in fossil wood also indicates ages of thousands, not millions, of years. Evidence for rapid petrification of wood speaks against the need for long periods of time and is consistent with an age of thousands of years. **This evidence supports a young Earth interpretation.**

8.14.2. <https://creation.com/radioactive-dating-in-conflict>

8.14.3. <https://creation.com/instant-petrified-wood>



Answers4Seekers: Session #12A (semi-technical)

8.15. Carbon-14 in diamonds: - must be less than 90K years old (Supports a Young Earth Interpretation) [UCSA]

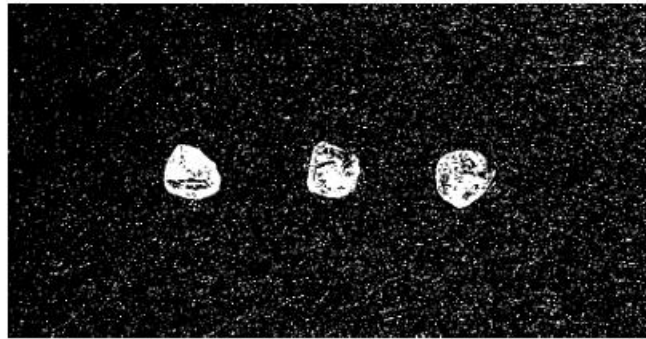


Figure 5. Photo of three diamonds from the Orapa mine, Botswana, from the set analyzed in this study. Weight of each is approximately 0.20 carats, or 40 mg. The average diameter is about 2.5 mm.

8.15.1. Carbon-14 in [diamonds](#) suggests ages of thousands, not billions, of years. Attempts to explain away carbon-14 in diamonds, coal, etc. (such as by neutrons from uranium decay converting nitrogen to C-14) do not work. See why these explanation don't work: Link, [Objections](#). ***For a full thorough discussion on the techniques and the analytical equipment measuring C14 in diamonds, please see the "C14 in diamonds" section in Session-#12B (Age of the Earth Models – Old Earth Models.)*** This evidence supports a young Earth interpretation.

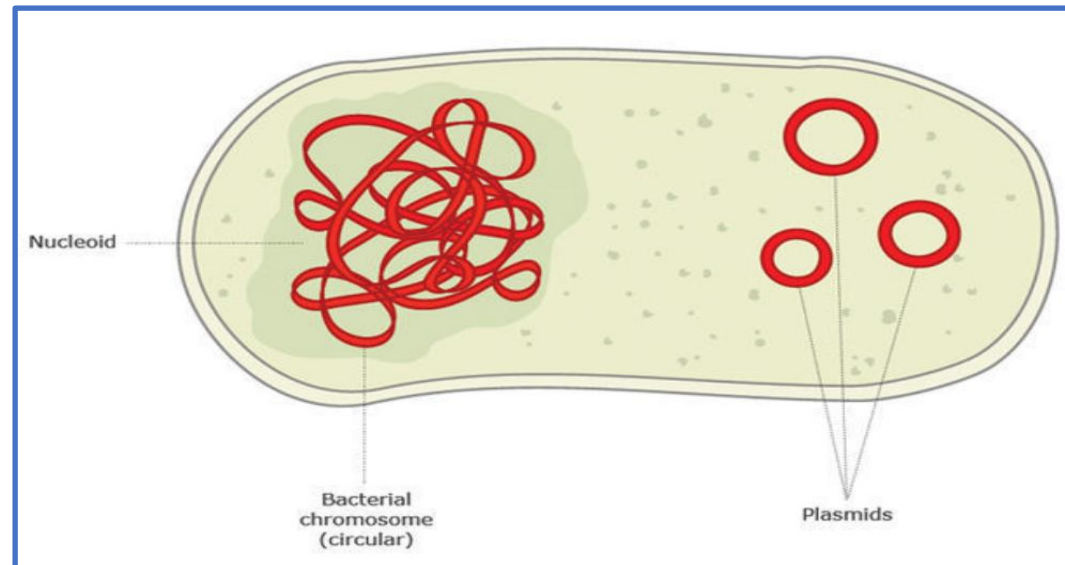
8.15.2. <https://creation.com/diamonds-a-creationists-best-friend>

8.15.3. <https://creation.com/diamonds-a-creationists-best-friend#objections>



Answers4Seekers: Session #12A (semi-technical)

8.16. DNA in “Ancient” Bacteria: Supports a young-Earth interpretation [UCSA]

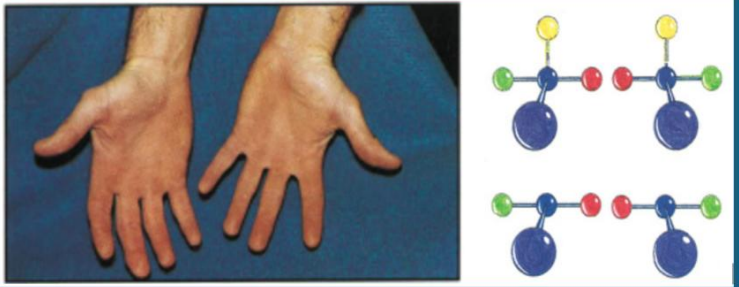


- 8.16.1. [DNA in ‘ancient’ fossils](#). DNA extracted from bacteria that are supposed to be 425 million years old brings into question that age, because DNA could not last more than thousands of years ([not millions](#)). **This evidence supports a young Earth interpretation.**
- 8.16.2. <http://answersingenesis.org/natural-selection/antibiotic-resistance/10-dna-in-ancient-bacteria/>
- 8.16.3. <http://answersingenesis.org/origin-of-life/bacterial-life-in-ancient-salt>
- 8.16.4. 2007, SCIENCE, Analyses of Soft Tissue from Tyrannosaurus rex Suggest the Presence of Protein ([Not Millions](#))



Answers4Seekers: Session #12A (semi-technical)

8.17. Lack of 50:50 racemization of amino acids in fossils: 20M years or less [UCSA]



In chemistry, racemization is a conversion, by heat or by chemical reaction, of an optically active compound into a racemic (optically inactive) form. This creates a 1:1 molar ratio of enantiomers and is referred to as a racemic mixture (i.e. contain equal amount of (+) and (-) forms). Chiral molecules have two forms (at each point of asymmetry), which differ in their optical characteristics.

8.17.1. When a living thing dies, the amino acids it contains (all of the left-handed form) begin this process of heading towards a 50:50 mix of left-handed and right-handed forms. This immediately suggests the possibility of using the process as some sort of 'clock' to see how long it has been since a particular specimen died. There are problems in doing this exactly, because the process rate is affected by such things as temperature, for instance. Dr Larry S. Helmick, Professor of Chemistry at Cedarville College in Ohio, calculates a reasonable and generous upper limit of some 20 million years. That is, after a maximum of 20 million years, any quantities of amino acid found would be a 50:50 mix of both forms, even if they were all the left-handed form to begin with. Complete racemization should occur in thousands of years. There has simply not been anywhere near the 20 million years required to completely 'racemize' the amino acids, let alone the alleged three billion years. **Amino acids are found in fossils which are not completely racemic. This evidence supports a young Earth interpretation.**

8.17.2. <https://creation.com/shaking-hands-on-a-recent-creation#>



Answers4Seekers: Session #12A (semi-technical)

8.18. Living fossils: Coelacanth, Limulus, Stromatolites, & Wollemi Pine: [UCSA] Supports a Young Earth Interpretation.



Many hundreds of species remain unchanged today from their earliest record. For example, Stromatolites are thought to be “billions of years old” but they are also present-day living organisms (living fossils), which evidences against extreme old age. These “supposed ancient” fossils have living counter-parts living on Earth today. Also, [Dinosaurs and mammals were shown to be living together](#). With only 5,100 years of recorded history along with the fact the “ancient fossils” have been found to have living counterparts, **this is evidence that supports a young Earth interpretation.** [Living Fossils book \(creation.com\)](#)

8.18.1. Coelacanth were thought to extinct for 65 million years, but this organism is still alive today – this provides evidence supports a young Earth interpretation



8.18.1.1. <https://creation.com/correcting-the-headline-coelacanth-yes-ancient-no>

8.18.1.2. <http://news.bbc.co.uk/2/hi/science/nature/6925784.stm>

8.18.1.3. [Coelacanths: the fish that 'outdid' the Loch Ness Monster | Natural History Museum \(nhm.ac.uk\)](#)



Answers4Seekers: Session #12A (semi-technical)

8.18.2. **Horseshoe Crab Fossils were thought to have lived 180–225 million years ago, but this organism is still alive today – this provides evidence supports a young Earth interpretation**



Modern Horseshoe Crab, *Limulus polyphemus*, World Aquarium, Missouri, USA



Dinosaur-Era (Jurassic) Horseshoe Crab, *Mesolimulus walchi*, Jura Museum, Germany

8.18.2.1. <https://creation.com/dodging-living-fossils>

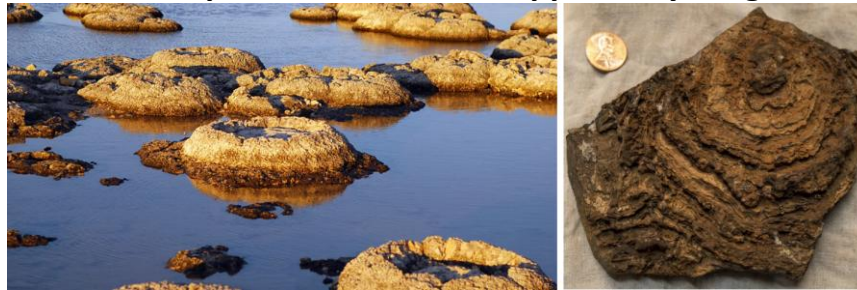
8.18.2.2. <https://www.icr.org/article/horseshoe-crabs-living-fossils-living-laboratories>

8.18.2.3. <https://www.livescience.com/9554-oldest-horseshoe-crab-fossil-discovered.html>



Answers4Seekers: Session #12A (semi-technical)

8.18.3. Stromatolite (cyanobacteria biomats) fossils are thought to be 3 billion-years old, but this process is still found alive today, and some current fossils were found containing “organic matter” preserved as strands of filaments within them – this provides evidence supports a young Earth interpretation.



8.18.3.1. <https://www.icr.org/article/preserved-organics-found-in-ancient-stromatolites>

8.18.3.2. <https://answersingenesis.org/fossils/stromatolites-rare-reminders-lost-world/>

8.18.4. Wollemi Pine: Fossils thought to be from 66 to 145 Million years ago, but this organism is still alive today – this provides evidence that supports a young Earth interpretation.



8.18.4.1. <https://creation.com/sensational-australian-tree-like-finding-a-live-dinosaur>

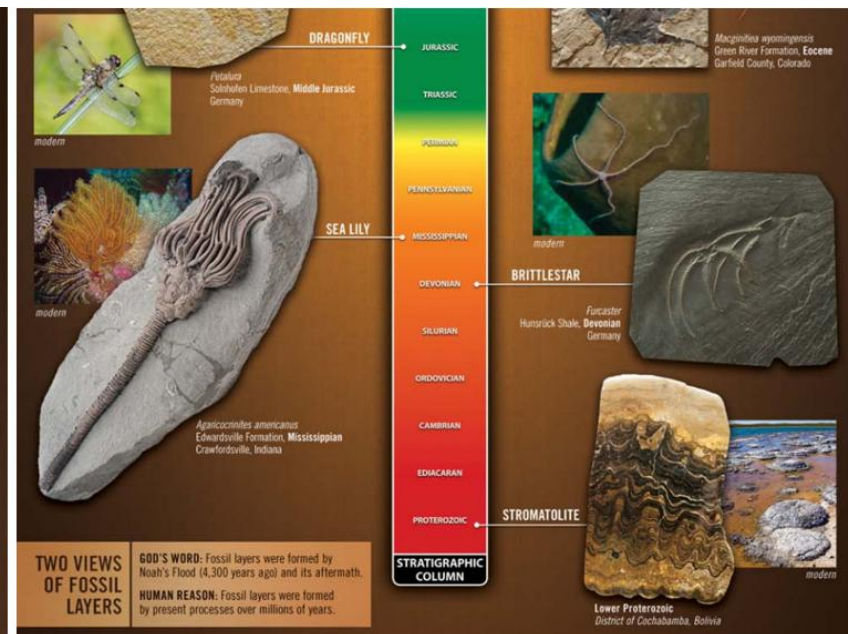
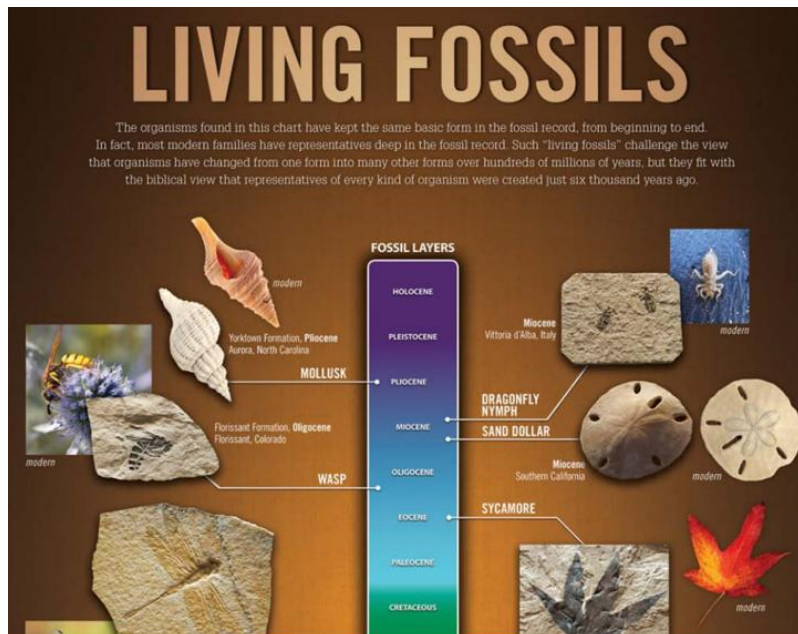
8.18.4.2. <https://www.livescience.com/planet-earth/plants/mystery-of-living-fossil-tree-frozen-in-time-for-66-million-years-finally-solved>



Answers4Seekers: Session #12A (semi-technical)

8.19. Discontinuous fossil sequences – Fossils Existing in supposedly ancient strata, then missing in following strata representing many millions, and then again still living today. [UCSA]

8.19.1. For example, Coelacanth, Wollemi pine, and various 'index' fossils, which are present in supposedly ancient strata, but missing in strata representing many millions of years since, but still living today. Such discontinuities evidences against the interpretation of the rock formations as vast geological ages—how could Coelacanths have avoided being fossilized for 65 million years. **This evidences supports a Young Earth interpretation.**



<https://assets.answersingenesis.org/doc/articles/am/v6/n1/fossil-chart.pdf>



Answers4Seekers: Session #12A (semi-technical)

8.20. **The Arches National Park (USA) has over 2,000 rock arches:** This support a young-Earth interpretation. [UCSA]



8.20.1. Forty-Three (43) Arches have collapsed since 1970, that's a 45 year period (2015), giving a rate of collapse of about 1 per year, which means that at that rate all the arches would be gone in around 2,000 years. This is thoroughly consistent with the biblical timeframe but not the evolutionary one of millions of years. **This evidences supports a Young Earth interpretation.**

8.20.2. <https://creation.com/a-dangerous-view>

8.20.3. <https://answersingenesis.org/geology/natural-features/arches-utah/>



Answers4Seekers: Session #12A (semi-technical)

8.21. **Observed Examples of Rapid Canyon Formation:** Evidences rapid processes and supports a young-Earth interpretation.

8.21.1. **Examples:** [Burlingame Canyon](#) (took 6 days to create) near Walla Walla, Washington, [Lower Loowit Canyon, Wa.](#) (took a few months to create), and [North Toutle River “Little Grand Canyon” Wa.](#) (took 1 day to create). These canyons formed rapidly, but they look similar to canyons that others think are took many millions of years to form. Canyons (especially those created by hydraulic “water & debris” pressure) can form quickly. **This evidences supports a Young Earth interpretation.**



[Burlingame Canyon \(Walla Walla, Washington\)](#)



[North Toutle River “Little Grand Canyon”](#)



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Figure 7. Loowit Canyon, initially carved by mudflows within a few months, partly through hard volcanic rock.



Figure 6. 'Little Grand Canyon' was carved by a catastrophic mudflow within a day.

- 8.21.2. <https://creation.com/lessons-from-mount-st-helens>
- 8.21.3. https://en.wikipedia.org/wiki/North_Fork_Toutle_River
- 8.21.4. <https://assets.answersingenesis.org/vid/am/v10-n2/mt-st-helens-clip.mp4>



Answers4Seekers: Session #12A (semi-technical)

8.22. **Rate of erosion of coastlines, horizontally:** Coastlines supports a young-Earth interpretation. [UCSA]



8.22.1. Mainstream geologists say the billions of tiny, crushed shells that make up the White Cliffs of Dover, England were deposited during the Cretaceous period (the age of chalk) that concluded 65 million years ago. Yet, Beachy Head, UK, loses one meter of inland coast to the sea every six years. Do a simple calculation. If the cliffs have been eroding at one meter inland every six years since the end of the Cretaceous, **more than 10,000 km (6213 miles) of inward coastline would have eroded away.** But, when we think about what these unimaginable eons of time actually mean, we find they do not match what we observe. The erosion we see on the coastlines all over the world is not consistent with the idea of millions of years. It *is* consistent with a process that has only been working for thousands of years. Coastal erosion is in line with and supports a young-Earth perspective. **This evidences supports a Young Earth interpretation.**

8.22.2. <https://creation.com/vanishing-coastlines>



Answers4Seekers: Session #12A (semi-technical)

8.23. The Recent and Almost Simultaneous Origin of all the High Mountain Ranges: Rapid Processes support and Young Earth Interpretation. [UCSA]



8.23.1. An ongoing enigma for the “standard geological community” is why all the high mountain ranges of the world—including the Himalayas, the Alps, the Andes, and the Rockies—experienced most of the uplift to their present elevations in what amounts to a blink of the eye, relative to the standard geological time scale. In terms of this time scale, these mountain ranges have all undergone several kilometers of vertical uplift since the beginning of the Pliocene **supposedly** about five million years ago. This presents a profound difficulty for **uniformitarian** thinking because the driving forces responsible for mountain building are **assumed** to have been operating steadily at roughly the same slow rates as observed in today's world for at least the past several hundred million years. Observational evidence indicates that the terrain where these mountains now exist, in many if not most cases, was nearly flat and near sea level when the recent intense pulse of uplift began. This was process at least 60 times faster than expected by the secular geological community. **This evidences supports a Young Earth with rapid processes interpretation.**

8.23.2. [Recent uplift of today's mountains](https://www.icr.org/article/98). *Impact* **381**, March 2005. <https://www.icr.org/article/98>

8.23.3. <https://www.icr.org/article/when-did-mountains-rise>

8.23.4. <https://creation.com/mountains-rose>

8.23.5. <https://youtu.be/8dxotQINycE> **Marine Fossils on Mount Everest**



Answers4Seekers: Session #12A (semi-technical)

8.24. The age of placer deposits: Placer began to form some 5,500 years ago (Supports a Young Earth Interpretation). [UCSA]



8.24.1. In geology, a placer deposit (or placer) is an accumulation of valuable minerals formed by “gravity separation” from a specific source rock during sedimentary processes. Concentrations of heavy metals such as tin in modern sediments and consolidated sedimentary rocks. The **measured rates of deposition** indicate an age of thousands of years, not the assumed millions. **This evidence supports a Young Earth interpretation.**

8.24.2. See Lalomov, A.V., and Tabolitch, S.E., 2000. [Age determination of coastal submarine placer, Val’cumev, northern Siberia](#). *J. Creation (TJ)* 14(3):83–90.



Answers4Seekers: Session #12A (semi-technical)

8.25. Rates of stalactite and stalagmite growth: Supports a Young Earth Interpretation [UCSA]



8.25.1. Those beautiful stone 'icicles' you see hanging from the ceiling of limestone caves are called stalactites (they 'stay tight' on the ceiling). The forms you see growing up from the cave floor are called stalagmites. When they meet, the joined pair becomes a column. Sheet-like layered deposits on cave walls or floors are called flowstone. Although these fantastic features are commonly thought to represent perhaps tens of thousands of years or more of groundwater action, there is significant evidence that they can form rapidly under certain conditions. Limestone caves are consistent with a young age of several thousand years. **This evidence supports a Young Earth interpretation.**

8.25.1.1. <https://creation.com/instant-stalagmites>

8.25.1.2. <https://creation.com/rapid-stalactites>



Answers4Seekers: Session #12A (semi-technical)

8.26. Evidence of a period of rapid radioactive decay in the recent past: Supports a Young Earth Interpretation) [UCSA]



8.26.1. Lead and helium concentrations and diffusion rates (in zircons) point to a young earth explanation. The amount of helium, a product of alpha-decay of radioactive elements, retained in zircons in granite **is consistent with an age of 6,000 ±2000 years**, not the supposed billions of years. See *“Young helium diffusion age of zircons” Chapter 2 (pages 25–100) “Radioisotopes and the Age of the Earth” Volume II, Institute for Creation Research and Creation Research Society, 2005.* **This evidence supports a Young Earth interpretation.**

8.26.2. <https://www.icr.org/article/young-helium-diffusion-age-zircons/>

8.26.3. <https://www.asa3.org/ed/RATE/Humphreys.pdf>

8.26.4. <https://creation.com/radiometric-dating-breakthroughs>



Answers4Seekers: Session #12A (semi-technical)

8.27. Where are all the buried people? (This supports a Young Earth Interpretation) [UCSA]

8.27.1. The population grows when more people are born than die. The current growth rate of the world population is about **1.7%** per year. In other words, for every 100 million people, 1.7 million are added every year, i.e. births net of deaths. It is relatively easy to calculate the growth rate needed to get today's population from Noah's three sons and their wives, after the Flood. With the Flood about 4,500 years ago, it needs less than **0.5%** per year growth. That's not very much. **Evolutionists claim that mankind evolved from apes about a million years ago.** If the population had grown at just **0.01%** per year since then (doubling only every 7,000 years), there could be 10^{43} people today—that's a number with 43 zeros after it (10,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000). Where are all the buried people? **This evidence supports a Young Earth interpretation.**

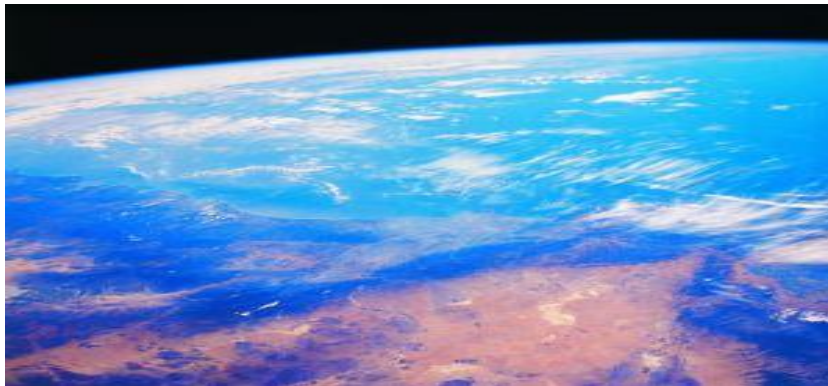


<https://creation.com/where-are-all-the-people>



Answers4Seekers: Session #12A (semi-technical)

8.28. Flood Legends from all global Cultures: (This supports a Young Earth Interpretation)



8.28.1. Funk and Wagnall's 1950 *Dictionary of Folklore, Mythology and Legend* stated under the heading 'Deluge or Flood': "A world cataclysm during which the earth was inundated or submerged by water: **a concept found in almost every mythology in the world.** The near global possession of a global flood story or legend not only support the Bible's view of history, but proposes the existence of catastrophic and fast processes, which supports a young-Earth perspective. **This evidence supports a Young Earth interpretation.**

8.28.2. <https://creation.com/many-flood-legends>

8.28.3. https://en.wikipedia.org/wiki/List_of_flood_myths



Answers4Seekers: Session #12A (semi-technical)

9. Evidences supporting a Young Solar System

Main Sources:

<https://answersresearchjournal.org/astronomical-age-solar-system/> (part-1)

<https://answersresearchjournal.org/astronomical-age-galactic/> (part-2)

9.1. COMETS (Short & Long) - Supports a young-Earth Interpretation [UCSA]



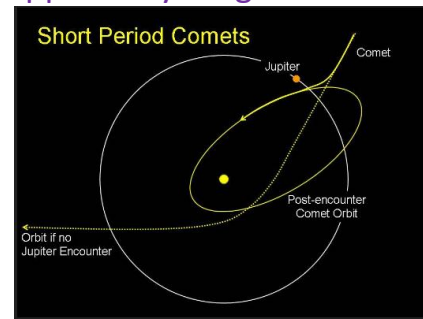
SUMMARY: It is difficult to conceive that any comets could exist, if the solar system is billions of years old. This difficulty was recognized by astronomers long before creationists began using the existence of comets as an argument for recent origin. When these nuclei are close to the sun, solar radiation sublimates volatile materials briefly to produce the bright coma and tail of the comet. Astronomers recognize two types of comets: Short-period comets Long-period comets. Short-period comets generally are defined to have orbital periods of less than 200 years, while long-period comets generally are defined to have periods greater than 200 years. Despite the names of this classification, the more important distinction is the types of orbits the two groups follow. Short-period comets tend to have relatively low eccentricity, low inclination, prograde orbits (orbiting the same direction planets orbit the sun). However, long-period comets have high eccentricity, high-inclination orbits, with about half being prograde and half being retrograde. To illustrate that these generalities have exceptions, the most famous comet, 1P/Halley, has a period of about 75 years, but with an inclination of 162.3° , its orbit is highly inclined (alternately, 1P/Halley has an inclination of 17.7° and orbits retrograde). **See the Short & Long Periods comets sections below for details.**



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Since comets are an argument for recent origin of the Solar System, for more than three decades, many astronomers generally have believed that a Oort cloud is the source for long-period comets, while the Kuiper belt is the source for short-period comets. Do the Oort cloud and Kuiper belt exist? There is no evidence for the Oort cloud, nor could there be, given the very small size of comet nuclei and their extreme distance from both the sun and earth that hypothetical denizens of the Oort cloud would be. <https://answersresearchjournal.org/astronomical-age-solar-system>

9.1.1. Short-Period Comets: Supports a young-Earth Interpretation [UCSA]



The existence of short-period comets (orbital period less than 200 years), e.g. Halley, which have a life of less than 20,000 years, is consistent with an age of the solar system of less than 10,000 years. 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. Two other mechanisms can destroy comets: 1) ejections from the solar system and 2) collisions with planets. **This evidence supports a young-Earth model.**

- 9.1.1.1. <https://answersresearchjournal.org/astronomical-age-solar-system/>
- 9.1.1.2. <https://answersingenesi.org/astronomy/comets/8-short-lived-comets/>
- 9.1.1.3. <https://answersingenesi.org/astronomy/comets/comets-and-the-age-of-the-solar-system/>
- 9.1.1.4. <https://answersingenesi.org/astronomy/comets/oort-cloud-no-evidence-required/>
- 9.1.1.5. <https://creation.com/kuiper-belt-objects-solution-to-short-period-comets>
- 9.1.1.6. <https://creation.com/comets-and-the-age-of-the-solar-system>



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9.1.2. Long-Period Comets: Supports a young-Earth Interpretation [UCSA]



9.1.2.1. Orbital periods 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 4.6 billion years ago. However, their existence is consistent with a young age for the solar system. 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. Two other mechanisms can destroy comets: 1) ejections from the solar system and 2) collisions with planets. Given the loss rates, it’s easy to compute a maximum age of comets. That maximum age for comets and the Solar System is only a few million years, or less. **This evidence supports a young-Earth model.**

9.1.2.2. <https://answersresearchjournal.org/astronomical-age-solar-system/>

9.1.2.3. <https://answersingenesis.org/astronomy/comets/comets-and-the-age-of-the-solar-system/>

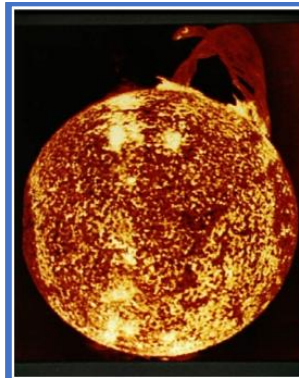
9.1.2.4. <https://answersingenesis.org/astronomy/comets/oort-cloud-no-evidence-required/>

9.1.2.5. <https://creation.com/comets-and-the-age-of-the-solar-system>



Answers4Seekers: Session #12A (semi-technical)

9.2. Faint Sun Paradox - Supports a young-Earth Interpretation [UCSA]



Unsolved problem in astronomy:

How can the early Earth have had liquid water if the Sun's output is theorized to have been only 70% as intense as it is today?

?



<https://answersresearchjournal.org/astronomical-age-galactic/>

- 9.2.1. The Faint Young Sun Paradox:** While we have confidence that the standard solar model is correct, that does not mean the sun is billions of years old. If the sun were billions of years old, then the standard solar model implies that the sun gradually has brightened throughout its history. This is caused by changing composition of the solar core as the sun fuses hydrogen into helium. With time, hydrogen in the core is depleted while helium is enriched.
- 9.2.2.** This changes the mean molecular weight of the core. A better way to look at this is to consider the number of particles involved. The net fusion reaction in the sun is to transmute four hydrogen nuclei into one helium nucleus. The solar core is so hot (approximately 15 million K) that all the matter there is completely ionized, so we must also count the electrons freed from their atoms. Hence, the four inputted hydrogen atoms represent eight particles, but the outputted helium atom represents three particles (two of the original electrons are annihilated by collisions with positrons, or anti-electrons, produced in the nuclear reactions). Therefore, there is an 8:3 reduction in the number of particles in the core. There probably were some helium nuclei present in the core initially, so the actual reduction in particles in the core probably is a little less than 8:3.



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- 9.2.3.** That is, the core gradually contracts and heats under increasing pressure. Most notably, the fusion reactions that power the sun are very temperature sensitive. Even a small increase in temperature drives up the rate of fusion, releasing more energy. Therefore, as the sun ages, its energy output must gradually increase. The increased energy production transports outward from the core to the photosphere. The additional heat introduced into the solar envelope expands the envelope. The net result is that the sun slowly expands and brightens, but only on the “assumed” timescale of billions of years. Conversely, when the sun was younger, it was fainter than it is today. **A fainter young sun means that early earth received far less heat than it does today.** How much fainter was the sun in the past? Computation shows that if the sun formed 4.5 billion years ago (as old-agers propose), it was about 40% fainter then. And the sun was about 25% fainter supposedly 3.5 billion years ago, when life supposedly first developed on earth. A change in 25% in the sun’s luminosity translates to a 17°C downward change in the earth’s average temperature. The average temperature of the earth today is 15C, so the expected average temperature 3.5 billion years ago would have been –2C. No one believes the earth was that cool 3.5 billion years. Instead, most scientists think that the earth has maintained roughly the same average temperature for 3.5 billion years, with some fluctuations around that mean.
- 9.2.4.** But the situation is even worse. Had the earth been this cold in the past, it would have substantially iced over. The increased ice cover would have increased the earth’s reflectivity, decreasing the amount of incoming sunlight absorbed. Therefore, even as the sun’s brightness increased, earth would not have warmed. **This disparity is called the faint young sun paradox.** Clearly, this is not a problem if the earth is only thousands of years old, so the young faint paradox provides evidence for the sun’s youth (Brown 2008, 28–29; Faulkner, 1998, 2001), **which evidences support for a young Earth.**
- 9.2.4.1.** <https://answersresearchjournal.org/astronomical-age-galactic/>
- 9.2.4.2.** <https://creation.com/the-young-faint-sun-paradox-and-the-age-of-the-solar-system>
- 9.2.4.3.** <https://answersingenesis.org/astronomy/sun/4-faint-sun-paradox/>
- 9.2.4.4.** <https://answersingenesis.org/astronomy/sun/the-young-faint-sun-paradox-and-the-age-of-the-solar-system/>
- 9.2.4.5.** www.nature.com/nature/journal/v464/n7289/full/464687a.html.
- 9.2.4.6.** <https://www.giss.nasa.gov/events/lunch/2011/Nature-2010-Kasting.pdf>



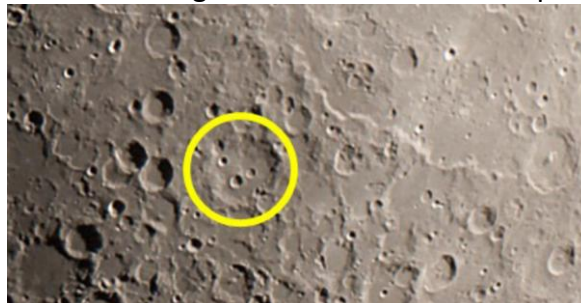
Answers4Seekers: Session #12A (semi-technical)

9.3. Lunar Ghost Craters - Supports a young-Earth Interpretation [UCSA]

9.3.1. We can employ several principles to determine relative ages of lunar features. One principle is stratigraphy: if one feature appears to be on top of another feature, we safely infer that the feature on top is younger than the feature underneath. Consider craters. Most lunar craters appear to be the result of impacts. Where two craters overlap, one crater clearly is on top of the other crater. We say that the more recent crater has modified the older crater.



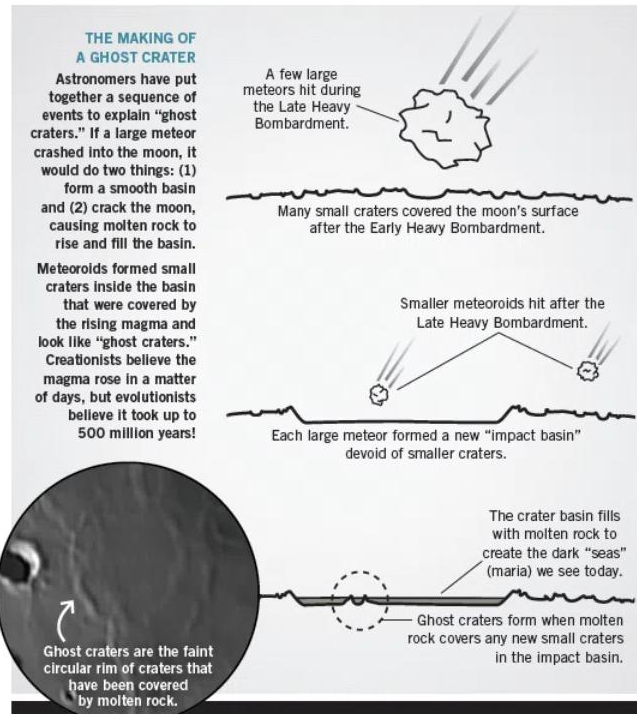
9.3.2. A second principle of determining relative ages of lunar craters is to examine their morphology. Craters are subject to various erosion processes, the most pronounced being churning by additional impacts. When a crater first forms, it appears very sharp, but over time erosion softens that appearance. Therefore, there is an inverse relationship between relative ages of craters and the sharpness of their morphology.





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9.3.3. LHB = (Late Heavy Bombardment): The Late Heavy Bombardment (LHB), or lunar cataclysm, is a hypothesized astronomical event thought to have occurred billions of years (Ga) ago. According to the hypothesis, during this interval, a disproportionately large number of asteroids and comets collided into the terrestrial planets and their natural satellites in the inner Solar System, including Earth (and the Moon). **[UCSA]**

9.3.4. EHB = (Early Heavy Bombardment): The hypothesized period of early heavy bombardment is thought to have taken place during the first 0.5 billion years of solar system History.



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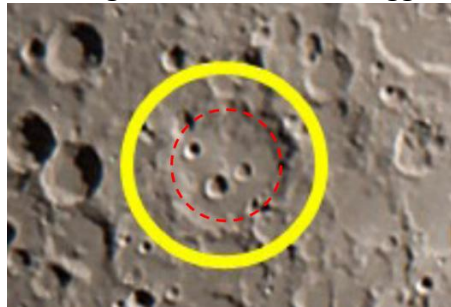
9.3.5. A third principle for determining the relative ages applies to lunar regions: some regions have higher crater density, while other regions have lower crater density. Presumably, impacts on the moon are randomly distributed over large areas, so if two regions display different crater densities, it probably is because the region with lower crater density is younger. Therefore, there is an inverse relation between crater density and age. Let us apply this third principle to the two types of lunar **topographies**, the maria and the highlands. As the name suggests, the highlands are at higher elevation than the maria. Even the name maria (Latin for “seas”) suggests that they are at lower elevation, but that is not why the maria are named so. The maria are the darker regions on the moon, while the highlands are the lighter regions (to the naked eye, these disparate regions give the impression of the “man in the moon” when the moon is full). The highlands are saturated with craters, but the maria have very low crater density, making them appear relatively smooth.





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- 9.3.6. Absolute ages must be determined by other means. Faulkner (1999, 2000, 2014a) and Samec (2008a, 2008b) have proposed that recent creationists can adapt this inferred lunar history within a biblical timeline. **This proposal associates the EHB (Early Heavy Bombardment) with the formation of the moon and other astronomical bodies on Day Four and the LHB (Late Heavy Bombardment) with a catastrophic event at the time of the Flood Faulkner (1998; 2017, 119–120) and Samec (2008a) have suggested that ghost craters imply a recent origin for the moon.** Ghost craters appear as faint circular outlines in the otherwise smooth looking maria, with small rugged segments of their walls occasionally protruding.



- 9.3.7. All lunar maria contain at least some ghost craters. From their appearance, it is obvious that ghost craters were modified by the volcanic overflow that formed the maria. Therefore, these craters must have predated the volcanic overflow. However, the ghost craters in each mare must have postdated the formation of the mare's impact basin, or otherwise the impact would have obliterated the craters. If we believe the volcanic overflow was triggered by the fracturing resulting from the formation of the impact basin, then one logically would conclude that the volcanic overflow rapidly followed the creation of the impact basin. This would seem to establish a rather short timescale between the volcanic impact and subsequent volcanic overflow. Most astronomers assign a time-varying cratering rate based upon the supposed 4.6 billion-year age of the moon and solar system. However, the existence of ghost craters directly challenges this rate, because the inferred cratering rate is far too low to account for the density of ghost craters in the maria. **This evidence supports a young Earth interpretation.**

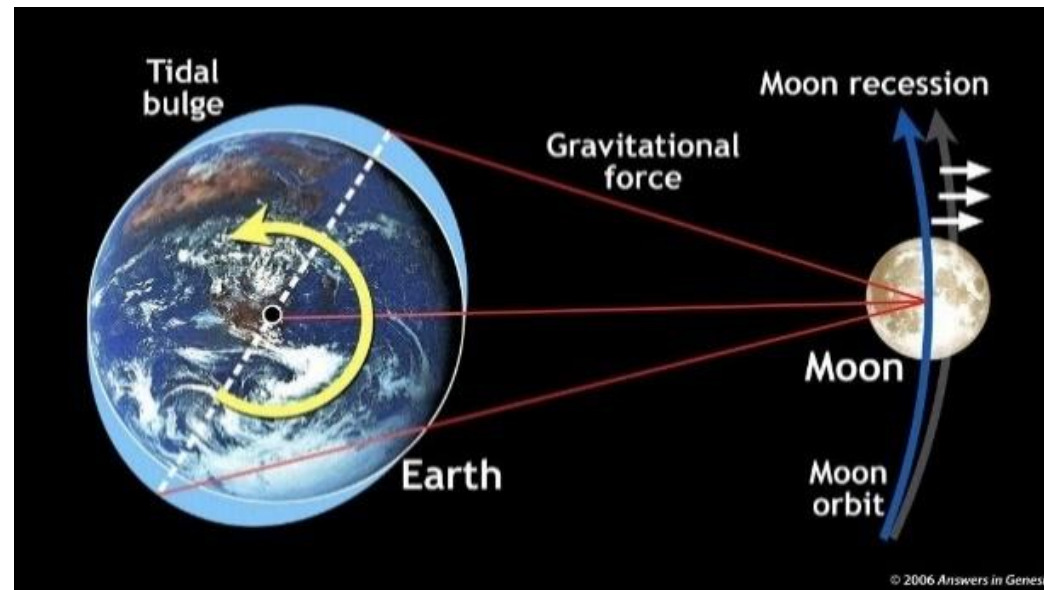
9.3.8. <https://answersresearchjournal.org/astronomical-age-solar-system/>

9.3.9. <https://answersingenesis.org/astronomy/moon/ghost-craters-evidence-of-a-young-moon/>



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9.4. Lunar Recession - Supports a young-Earth Interpretation [UCSA]



9.4.1. Gravitational force varies with the inverse square of the distance. However, tidal force is the differential force of gravity, so it varies by the inverse cube of the distance. Consequently, while the sun's gravitational force on the earth is greater than the moon's (owing to its much greater mass), the moon's tidal force is greater than the sun's tidal force. Therefore, tides raised by the moon dominate over tides raised by the sun. The moon's tidal force causes a high tide on either side of the earth, with low tides in between. The tidal bulges (high tides) on either side of the earth ought to align with the moon. However, the earth's rapid rotation carries the two tidal bulges forward so that at most locations, high tides occur before the moon reaches the meridian.



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- 9.4.2.** This advancement of the tidal bulges from the line connecting the centers of the earth and moon leads to a complex long-term interaction usually referred to as tidal evolution. The advancement introduces an axis that acts as a handle for the moon's gravity (note that it's gravity, not tidal force) to pull on. The moon pulls both tidal bulges toward itself, but since the earth's center is between the two tidal bulges, the moon's gravity on either tidal bulge produces opposite torques on the earth. Since one tidal bulge is closer to the moon, the torques are not equal. Taking the direction of the earth's rotation as positive, the larger torque is negative, while the lesser torque is positive. The net result is a negative torque, leading to a slowing rotation for the earth. Hence, the length of the day slowly is increasing. At the same time, Newton's third law of motion requires that the tidal bulges act on the moon with an equal but opposite force. This accelerates the moon forward in its orbit, causing the moon slowly to spiral away from the earth. While it is relatively straightforward application of physics to understand this process, we cannot model it, because the exact value of the tidal evolution of the earth-moon system depends critically upon the distribution of the continents and the continental shelves, and details of how tidal flow interacts with landmasses. Furthermore, there is an interaction within rocks in the upper mantle and crust, because, in addition to water tides, there are tides raised in the earth itself.
- 9.4.3.** However, we can measure the rate at which the earth's rotation is slowing and the moon is receding from the earth. The former is deduced from historical total solar eclipse records. We can compute precisely the tracks of past total solar eclipses if tidal evolution has not occurred. Comparison of those calculated tracks with observed paths determines the accumulated slowing in the earth's rotation since the epoch of each eclipse. Studies show that the earth's rotation is slowing by about 0.0016 of a second per century. The rate of lunar recession is fixed by reflecting laser lights off mirrors that Apollo astronauts left on the lunar surface. Half the transit time gives the distance between the observatory and the lunar reflectors. The result is not as straightforward as that, because there are several other factors that continually perturb the moon's orbit. However, all those terms are well understood, so when they are removed, the residual is the lunar recession. **The best value for lunar recession is about 4 cm/year.** There are at least two common misconceptions one must avoid in discussing the tidal evolution of the earth-moon system. One misconception is to assume that the leap second that is added to clocks worldwide at roughly 18-month intervals is due to this lengthening of the day. However, there is a second factor that is changing the length of the day. The tidal evolution portion is called the secular change, and it always acts to increase the length of the day.
- 9.4.4.** The other factor is called the periodic change, because it alternates between increasing and decreasing the length of the day. Currently, the periodic change has the same sign as the secular change, and its amplitude is greater than the secular change, so the leap seconds occasionally added to our time standards primarily are due to the periodic, not the secular, change. The other misconception is to assume the rate of lunar recession is linear. With this assumption, "supposing" over 4.5 billion years the moon would have receded



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approximately 170,000km. The moon's current average distance from the earth is nearly 400,000km. **So, if the earth-moon system were 4.5 billion years old, then the moon's distance at the beginning would have been about half its current distance.** However, rather than being linear, the force driving tidal evolution goes as the inverse sixth-power of the distance. This is a very steep function of distance. This means that in the past, when the moon was closer to the earth, the rate of lunar recession was much higher. Therefore, assuming a linear function will work only over the short term. Barnes (1974, 1982) was the first to discuss the recession of the moon as an indication of recent origin in the creation literature. DeYoung (1990) plotted the moon's orbital radius as a function of time based upon the inverse sixth-power dependence of the tidal evolution. The plot showed a nearly linear trend over the past 'proposed' billion years. However, at earlier time, the plot makes a drastic plunge toward zero. To quantify this, DeYoung solved the inverse sixth-power of distance differential equation, treating the current measured rate of lunar recession as a boundary condition. **His solution showed that the earth and moon would have had zero separation 1.37 billion years ago.** Apparently unaware of DeYoung's work, Rybka (1993, 42–45) assumed a constant rate of tidal evolution to obtain a flawed result. More recently, Henry (2006b) reached a similar conclusion to DeYoung. Of course, working backward in time, contact would have occurred at a time slightly less than this, with tidal distortion resulting in disruption of the moon at an even slightly earlier epoch. However, with the steep functional dependence of time, it does not matter, because to a good approximation, all these catastrophic events would have been about 1.4 billion years ago.

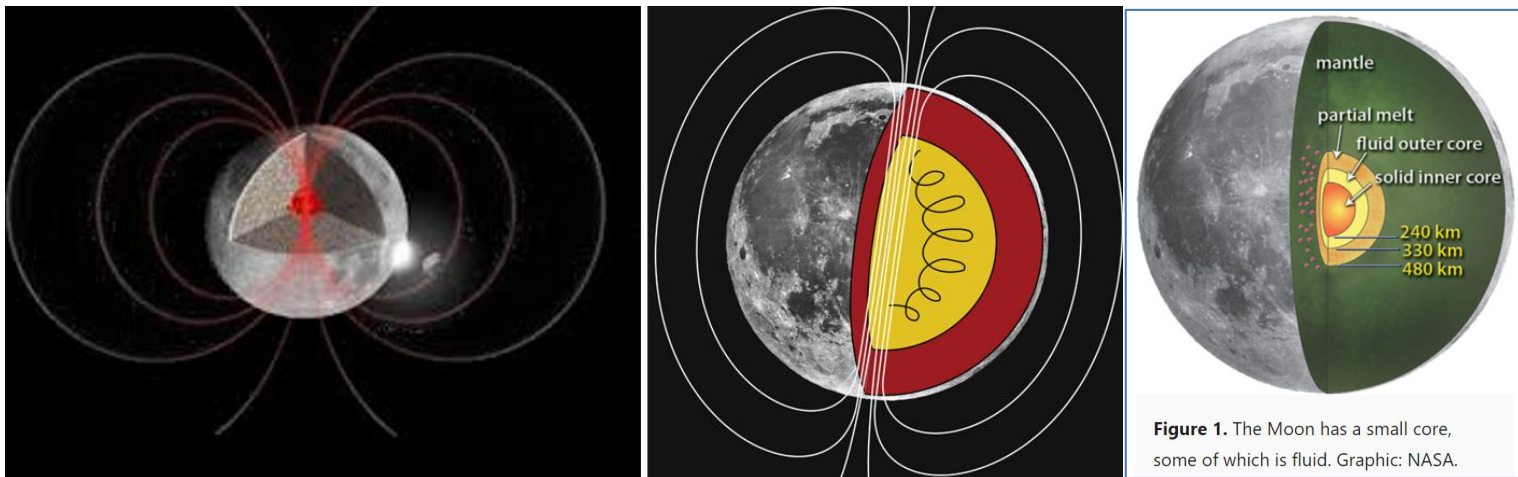
9.4.5. Furthermore, catastrophic tides a mile high would have prevailed approximately a billion years ago. No one believes such tides ever existed. With these considerations, lunar recession sets an upper limit to the age of the earth-moon system that is far less than the generally assumed 4.5-billion-year age for the earth and moon. Several important points must be stressed first. First, recent creationists do not claim that the tidal evolution of the earth-moon system directly proves that the earth is thousands of years old. Rather, we point out that it demonstrates an upper limit of 1.4 billion years, about 30% of the generally assumed age of 4.5 billion years. That is, the expected tidal evolution of the earth-moon system is incompatible with an age of 4.5 billion years (Rybka 1993, 56–57). Second, while simple, DeYoung's analysis is basically correct. Furthermore, Lisle (2013) has pointed out that these solutions violate the assumptions of uniformitarianism and naturalism, without which there is no reason to believe in an old age for the earth and moon to begin with. **This evidence supports a younger Earth perspective.**

9.4.6. <https://answersresearchjournal.org/astronomical-age-solar-system/>



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9.5. The Moon's Former Magnetic Field - Supports a young-Earth Interpretation [UCSA]



9.5.1. Rocks sampled from the moon's crust have residual magnetism that indicates that the moon once had a magnetic field much stronger than earth's magnetic field today. No plausible 'dynamo' hypothesis could account for even a weak magnetic field, let alone a strong one that could leave such residual magnetism in a billions-of-years time-frame. The evidence is much more consistent with a recent creation of the moon and its magnetic field and free decay of the magnetic field, if 6,000 years since then. Humphreys, D.R., [The moon's former magnetic field—still a huge problem for evolutionists](#), *J. Creation* 26(1):5–6, 2012. **This evidence supports a young Earth interpretation.**

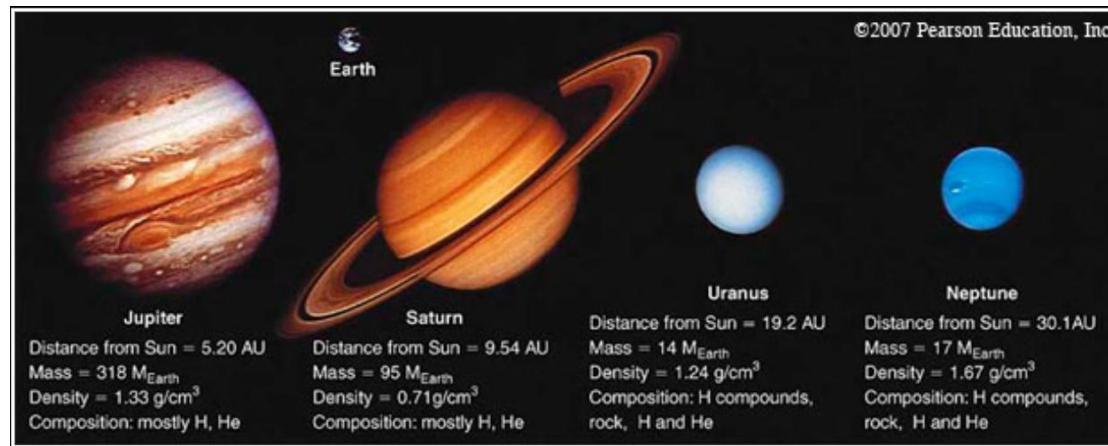
9.5.2. <https://creation.com/moons-magnetic-puzzle> (2011)



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9.6. Heat Loss from Jovian Planets - Supports a young-Earth Interpretation [UCSA]



THE JOVIAN PLANETS

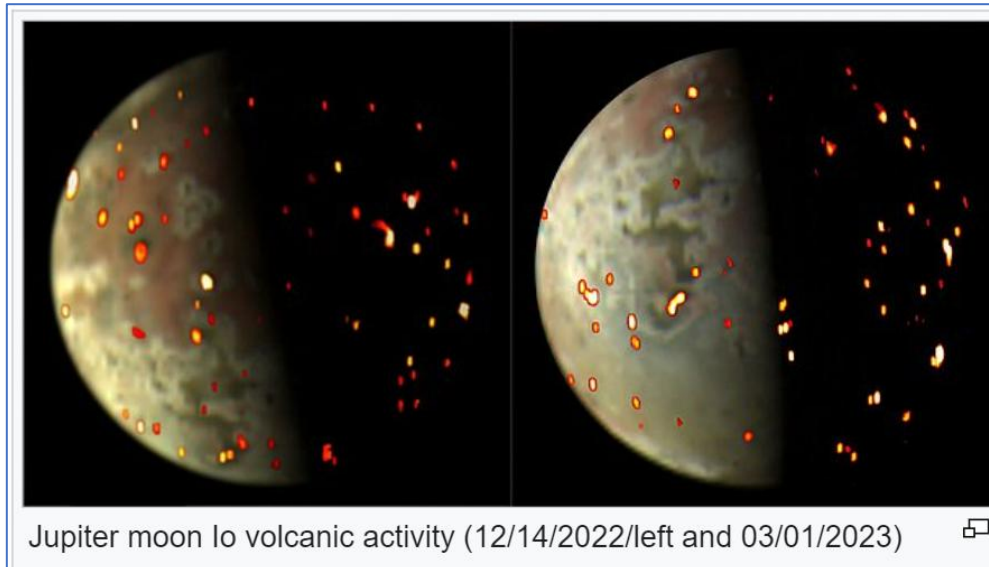
9.6.1. Three of the four Jovian planets emit far more radiation than they receive from the sun (Samec 2000). The one exception is Uranus (Henry 2001). What is the source of this excess energy? There are two obvious answers. One possibility is that these three planets are radiating primordial heat. However, the timescale for shedding all their primordial heat is far less than the supposed 4.5-billion-year age of the solar system. Another possibility is that these planets are undergoing settling, with denser material falling to greater depth and liberating gravitational potential energy in the process. However, timescale for this process also is far less than the supposed 4.5-billion-year age of the solar system. Samec (2000) critiqued a desperate attempt to explain this energy crisis in an ancient solar system by invoking unusual conditions within Jupiter that allowed a deuterium-deuterium nuclear reaction. The internal conditions of Jupiter would seem to rule out this possibility. Furthermore, this proposed mechanism would not explain the energy surplus of Saturn and Neptune. **The presence of primordial heat or settling works within the timescale of recent creation.** **Note:** the adjective “Jovian” has come to mean anything associated with Jupiter; and by extension, a Jupiter-like planet. **This evidence supports a young Earth interpretation.**

9.6.2. <https://answersresearchjournal.org/astronomical-age-solar-system/>



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9.7. Volcanism on Io (a Jupiter's Moon) - Supports a young-Earth Interpretation [UCSA]



9.7.1. In 1979, the Voyager spacecraft revealed many volcanic eruptions on the surface of **Io**, the innermost Galilean satellite of Jupiter. The extent of this activity has been more fully documented by the more recent Galileo probe. This work revealed that **Io** is the most volcanically active body in the solar system. Volcanism requires an internal heat source. **As with the Jovian planets, primordial heat is a possible source of the heat, but the timescale for this mechanism is far too short to work if the age of Io is 4.5 billion years** (Ackerman 1986, 43–45; Rybka 1993, 70–71; Steidl 1983, 89–90). The problem is even worse for smaller members of the solar system such as **Io**, because their heat loss rate is so much greater than for larger objects. The earth's internal heat is explained by the likely presence of radioactive isotopes within the earth's interior. However, the radioactive isotopes required for this typically are dense, and the low density of **Io** makes this an unlikely heat source. To explain **Io's** internal heat, secular scientists have resorted to tidal flexing as a heat source. Spencer (2003) has reviewed the tidal mechanism to explain **Io's** internal heat and found it wanting. **This evidence supports a young Earth interpretation.**

9.7.2. <https://answersresearchjournal.org/astronomical-age-solar-system/>



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9.8. Dispersion of Meteor Showers - Supports a young-Earth Interpretation [UCSA]



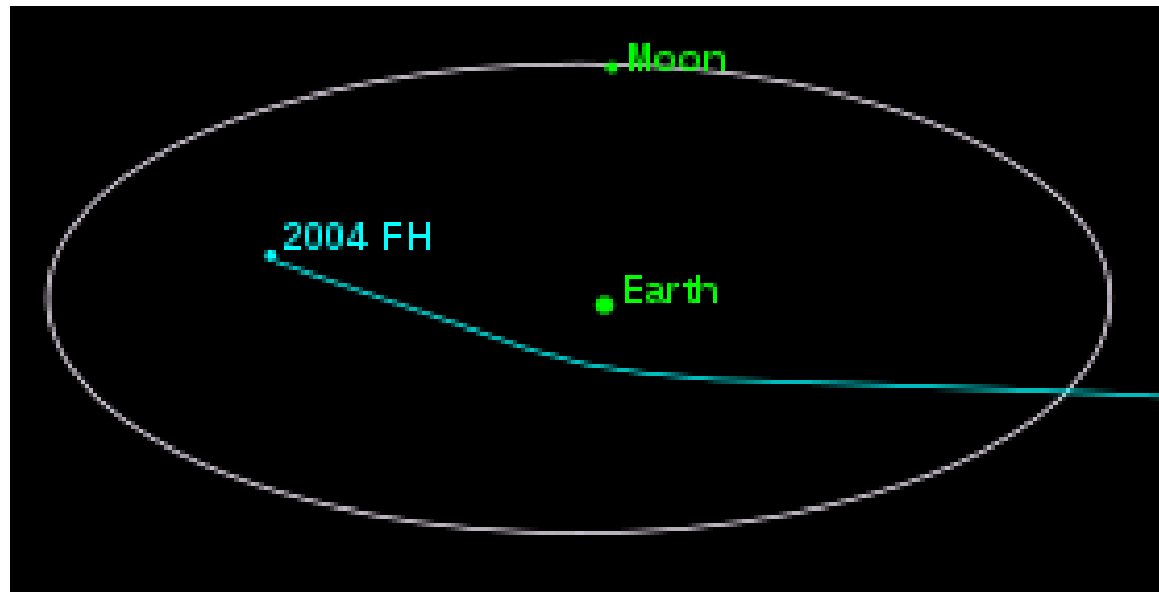
9.8.1. Comets are flimsy objects, losing many small, solid particles with each perihelion passage. This disintegration tends to spread debris along the orbital path of the comet. Throughout the year, the earth experiences meteor showers as it crosses the orbits of various comets and collides with the debris scattered along their orbits. We know of the association between shower meteors and comets, because by observing meteor trails from two locations simultaneously, we can infer the motions of the meteoroids prior to entering the earth's atmosphere. The orbits of these meteoroids have characteristics of comet orbits. Indeed, some meteor shower streams are identified with the orbits of known comets. Presumably, those meteor shower streams unassociated with any known comet are debris of now-defunct comets. The Poynting-Robertson effect ought to segregate meteoroids within a meteor shower stream according to size on a relatively short timescale, yet this generally is not observed (Rybka 1993, 96–97; Slusher 1980, 60–63). **Hence, the lack of segregation may indicate recent origin. This evidence supports a young Earth interpretation.**

9.8.2. <https://answersresearchjournal.org/astronomical-age-solar-system/>



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9.9. Earth-Crossing Asteroids - Supports a young-Earth Interpretation [UCSA]



9.9.1. As their name suggests, earth-crossing asteroids are asteroids whose orbits cross earth's orbit, introducing the potential of collisions. Impacts of asteroids of sufficient size would produce significant craters that should survive in some form for considerable time. Indeed, many astroblemes, or "fossil craters" have been identified on earth (Spencer 1998; 1999). However, there appear to be fewer astroblemes than can be accounted for on the evolutionary timescale (Austin 1984; Rybka 1993, 96; Steidl 1983, 101–102). **This suggests that the evolutionary timescale is too long. This evidence supports a young Earth interpretation.**

9.9.2. <https://answersresearchjournal.org/astronomical-age-solar-system/>



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9.10. Persistence of Spiral Arms in Galaxies [UCSA]



9.10.1. There are two basic types of galaxies: ellipticals and spirals. As the name suggests, elliptical galaxies appear elliptical. Other than a central condensation, elliptical galaxies generally have no internal structure. On the other hand, spiral galaxies have spiral arms that are connected either to a spherical nucleus (unbarred spirals) or a bar passing through a spherical nucleus (barred spirals). Spiral arms are an enhancement in the interstellar medium, with large clouds of gas and dust. Additionally, there are many bright, hot O and B spectral type stars along spiral arms. While spiral arms are obvious in many photographs, there is less to the spiral arms than the photographs suggest. Many early photographic emulsions were blue-sensitive with little red response. The blue sensitivity accentuated the O and B type stars in the spiral arms. However, red-sensitive emulsions eventually were developed, and in photographs taken with those emulsions, the spiral arms nearly disappear. Instead, spiral galaxies in red-sensitive photographs show the full disks of the galaxies. This is because the bulk of the stars in galaxies are faint, red, lower main sequence stars, and they are not concentrated along the spiral arms. Therefore, contrary to the impression one may get from most photographs of spiral galaxies, the density of stars between the spiral arms is about the same as the density of stars within the spiral arms. A galaxy is a vast system of stars orbiting around a common center of mass. Both orbital speed and the distance to complete one orbit varies with distance from the center of a galaxy.

9.10.2. Therefore, outside the central region, the orbital period varies with distance, with the period generally increasing with increasing distance from the center. Since the objects within spiral arms orbit with different periods, after a few orbits the



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spiral arms ought to spread around, effectively smearing the arms until they are no longer recognizable. **Thus, spiral arms suggest that galaxies are not billions of years old** (Slusher 1980a, 15–16; Slusher 1980b, 53–57). The sun would take approximately 250 million years to orbit the galaxy, so in the supposed ten-billion-year history of the Galaxy, objects in the solar neighborhood would have orbited 40 times. Clearly, spiral arms could not have persisted for nearly this long.

- 9.10.3.** In the 1920s, Bertil Lindblad was the first to draw attention to this winding dilemma in a universe that is billions of years old. The most popular solution to the winding dilemma is density wave theory (Lin and Shu 1964). Density wave theory proposes that a wave in the interstellar medium rotates more slowly than material objects, such as stars and galaxies. When gas in the interstellar medium encounters the wave, the gas is compressed, leading to star formation. Some of the stars formed are O and B stars that have short lifetimes. Consequently, these stars do not travel very far before they exhaust their fuel and cease to exist, at least as bright stars. Therefore, we observe them near the places of their birth, along the spiral arms. In this view, spiral arms persist, because, like any wave, they are not subject to gravity and hence propagate at their own speed. In what originally was a competing theory (Mueller and Arnett 1976), shock waves in the interstellar medium from stellar winds and supernova explosions drive star formation. However, many elements of this theory are now combined with density wave theory. Humphreys (2005) has said that density wave theory “has conceptual problems, [and] has to be arbitrarily and very finely tuned” to work. Furthermore, he cited a study (Zaritsy, Rix, and Rieke 1993) that called density wave theory into question. There have been other studies (e.g. Foyle et al. 2011) that have shown difficulties with density wave theory.
- 9.10.4.** There have been other suggested mechanisms to cause and/or maintain spiral structure in galaxies. For instance, Purcell et al. (2011) suggested that a periodic interaction between the Milky Way and a satellite galaxy may have produced our Galaxy’s spiral structure, and that other spiral galaxies have encountered similar processes. Dark matter probably will be increasingly invoked as a contributing factor in maintaining spiral structure in galaxies. Density wave theory appears to have difficulties. This is despite widespread acceptance among astronomers, who are motivated by the need to explain the persistence of spiral structure in galaxies over billions of years. Proposed ages of spiral galaxies (less than 200 million years) is not consistent with their supposed age of many of 5-10 billions of years. **The persistence of spiral structure is evidence for a young-Earth perspective.**

9.10.5. <https://answersresearchjournal.org/astronomical-age-galactic/>

9.10.6. The [discovery of extremely ‘young’ spiral galaxies](#)

9.10.7. (2003) <https://creation.com/early-galaxies-dont-fit>



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10. Summary:

- 10.1. The strongest level of evidence for any aspect of History is an “observed and recorded account made by a reliable and capable eye-witness and confirmed by their concurrent society.”
- 10.2. Recorded history has only existed for the past 5100 years (and only 3900 years with calendar accuracy). When this is lacking, estimating the age of an event in history can only be pursued through “models with many assumptions.”
- 10.3. The strength of “young-Earth” models over “old-Earth” models of equal plausibility is that Young Earth models possess less duration of time for “unknowns” to influence and affect the model’s results, and theoretically “young-Earth” models have access to a capable and reliable eye-witness observer of past events (a Creator). The Old-Earth models possess neither of these.
- 10.4. **Conclusion: As shown, there are significant natural evidences that can only be understood and interpreted as supporting the Earth as young – that is, a recent creation.**



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11. Additional Resources:

11.1. References & Books:

- 11.1.1. [Web Links are placed next to each evidence point in this topic.](#)
- 11.1.2. [2020, Creation Basics & Beyond, ICR](#)
- 11.1.3. [2014, Genetic Entropy, Sanford](#)
- 11.1.4. [2014, The Young Earth, John Morris](#)
- 11.1.5. [1973, Before Civilization, Renfrew](#)
- 11.1.6. [1966, Pre-History an Earth Models, Cook](#)

11.2. Internet Resources:

- 11.2.1. <https://creation.com/>
- 11.2.2. <https://answersingenesis.org/>
- 11.2.3. <https://www.icr.org/>
- 11.2.4. <https://biblicalscienceinstitute.com/>
- 11.2.5. [Is Genesis History, YouTube Video](#)