Wk 9

**Geologic catastrophe and the young earth**

Tas Walker talks to *Steve Austin* about his research career in Flood geology

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Geologist Dr. Steven A. Austin has rafted through Grand Canyon, helicoptered into the Mount St. Helens volcano, and flown onto glaciers in Alaska. He is currently Senior Research Scientist with the Institute for Creation Research where he has worked for over 37 years. His geological adventures have taken him high into the Sierra Nevada, deep underground into coal mines, over plateaus, through deserts, and beneath the ocean.



For as long as he can remember, Steve has loved rocks.

“I saw my first geologic map when I was three. My dad often took me fishing, which meant going over mountain ridges where I saw lots of rocks. Before I could read I was classifying minerals and by five I had a large rock collection.”

**Mt St Helens and geologic catastrophe**

Steve is known for his remarkable research on the Mt St Helens volcano in Washington State, USA, which erupted catastrophically in May 1980.

“I had just defended my PhD thesis at Penn State University on the floating log-mat model for the origin of the Kentucky coal beds, which means the coal deposits formed much faster than traditionally believed. Mt St. Helens exploded ten months later and made Spirit Lake into a giant bath tub covered with floating logs. That’s why I had to go there.”

What he saw was overwhelming. “It happened at the right time and in the right place,” Steve said. “The volcano was so well monitored that it was indisputable what catastrophic processes do to a landscape in super-quick time.” Steve sees Mt St Helens as having application to geologic features everywhere: Yellowstone National Park, petrified forests, coal layers and Grand Canyon. It transformed geological thinking by showing dramatically how geologic features form quickly.1 It even illustrates how animals could have repopulated the earth after the Flood.2

When Steve did his training in the 1970s, the idea of uniformitarianism held sway—the belief that geological processes happened slowly and that the earth must be millions of years old. But Mt St Helens helped blast that idea away. Geologists began to see evidence for past catastrophe everywhere.

“That led to a change in thinking,” Steve said. “I could go back to my professors and say, ‘I told you so.’ The fact is that geologic features form rapidly and not over millions of years. The geologic evidence is entirely consistent with the biblical timescale.”

**Grand Canyon is now a creationist icon**



Grand Canyon has figured prominently in Steve’s geological career. In 1994, he published a creationist classic, [*Grand Canyon: Monument to Catastrophe*](https://creation.com/s/10-2-024).3

“That book came out of the guide books I produced for the tours we conducted,” Steve said. “Grand Canyon is supposedly an icon for evolution but now it’s an icon of Creation and the Flood.”

One spectacular evidence of catastrophe that Steve discovered in Grand Canyon was a thick bed containing multitudes of fossil nautiloids.4 Shaped like a skinny dunce’s cap, nautiloid shells came from an animal that was like an octopus, or cuttlefish.

The shells are exposed in the walls of Grand Canyon in a 2-metre layer of rock called the Whitmore Nautiloid Bed. It’s a huge bed that extends over 300 km (200 miles), as far west as Las Vegas, Nevada.

“I believe the bed was formed by an underwater mud flow,” Steve said. “The water was full of mud, what we call a slurry, and so was much denser than the surrounding water. The slurry rushed down the steep slopes of the underwater mountains, gathering speed like an avalanche. And it careered across the ocean floor as fast as a semi on the freeway.”

“As the avalanche swept past it trapped the nautiloids and carried them along. I believe that these mud flows were highly pressurized and the fluid kept the sand and mud in suspension. It works like a water cushion and has very low friction, so the mud flow careers across the flat surface of the ocean floor for hundreds of miles.”

“These flows can change suddenly. A high speed slurry can start out as a laminar flow, where the fluid travels in regular, streamlined paths. Then, it can suddenly turn turbulent where the fluid flow is curly and irregular. You can see the same effect in the smoke from a candle that has just been put out.”

*There is real science in measuring amounts of radioisotopes, but age is an interpretation of these amounts.*

“Turbulent flow can’t carry the mud so it dumps its load suddenly across the ocean floor.”

“And that is what happened to the nautiloid shells. They were deposited quickly, frozen in time. One in every seven is standing vertical in the bed. The others tend to point the same way indicating the direction of the slurry flow. It’s a very interesting arrangement of fossils.”

For a long time geologists have thought that limestone rock, like the rock containing the nautiloid fossils, takes many thousands of years to form. “But this bed formed rapidly,” Steve said, “like in minutes. There’s something like 40 or 50 cubic kilometres of sediment in that bed and it was all deposited rapidly. This bed alone illustrates the title of my book, *Grand Canyon, Monument to Catastrophe*.”

**Radioactive dating research**

One of the big obstacles to the idea of a young earth is radioactive dating. Steve has researched this for many years, and found that there are lots of problems with the methods. He said, “I don’t feel particularly fulfilled by having people say that I debunked radioisotope dating. There is real science in measuring amounts of radioisotopes, but age is an *interpretation* of these amounts. My research shows it is a faulty interpretation. I’ve been trying to figure out the real explanation for the radioisotope abundances. I don’t think things have been successfully dated by radioisotope methods.”

He spent 14 years analysing radioisotopes in samples from rocks known as the Cardenas Basalt deep within Grand Canyon.5 This igneous rock is considered to be over one billion years old. “I was able to ‘date’ samples from many different locations using different dating methods based on potassium-argon and rubidium-strontium analyses. The methods gave different ages. How can supposedly ‘infallible’ methods do that? Obviously the assumptions are wrong.”

Steve has also ‘dated’ some lava flows from the young volcanoes at the top of Grand Canyon. Once again, he used two different methods: rubidium-strontium and potassium-argon. And again, the dates from the different methods did not agree. Even one internationally known researcher on radioisotope dating admitted to Steve that half of the ‘dates’ from whole-rock samples from Grand Canyon are wrong.

*There’s something like 40 or 50 cubic kilometres of sediment in that bed and it was all deposited rapidly.*

Steve discovered a very concealed secret about potassium argon dating that further challenges the basic assumptions of the method. From his rock samples he carefully separated minerals such as pyroxene and olivine, which contain very little potassium, and dated these with conventional potassium argon techniques. In one example, Steve selected pyroxene crystals from samples of rock from the new lava dome on Mt St Helens. The rock was only 11 years old when he collected them yet the pyroxene gave dates of two million years and more.

He also collected rocks from one of the more recent lavas (geologically speaking) that had flowed into the canyon, and separated a very pure extract of olivine. The labs found it had virtually no potassium in it, but contained lots of argon. That means the argon did not come from the radioactive decay of potassium but was trapped within the mineral when the rock crystallized.

“That is a bombshell for potassium argon dating,” Steve said. “It shows the fundamental assumption of the method (that there is no argon initially) is flawed. It shocked the scientists doing the work in the labs.”

**Large-scale Flood models**

In 1994, Steve, along with five other PhDs from a variety of specialties, published a paper about catastrophic plate tectonics, at the International Conference on Creationism in Pittsburgh, Pennsylvania.6 CPT was a little controversial at that time, and still is. In that paper, the creationist scientists described the Flood as a global tectonic event powered by the gravitational pull of the sea floor as it plunged into the earth’s mantle. In their model the plates moved during the Flood catastrophe, not at rates of centimetres per year, but at metres per second. The CPT model explains many of the features of the earth including the uplift of the mountains at the end of the Flood. These were pushed up as a result of plate collision, again, rapidly.

“Before that paper,” Steve said, “there wasn’t really a tectonic model for the Genesis Flood. Whitcomb and Morris in their classic work *The Genesis Flood* did not have a tectonics emphasis. They didn’t need to because they published in 1961 before global tectonics became popular. But with the publication of our paper, plate tectonics is now a creationist option. This means that Flood geology is in a very healthy situation, especially since there are now other creationist theories out there as well.”

**The race-track flume**



Steve still has big ambitions for geological research.

“I want to build a race-track flume,” he said. “It will hold enough water to fill two swimming pools. The channel containing the water will be like an oval race track and I’ll circulate the water with lots of moving paddles.”

“I want to make shale with it,” Steve said.2

The standard thinking is that shale forms slowly over long periods of time in quiet, still water, but Steve is convinced it forms in fast-flowing water.

“I want to create the boundary between the clean and muddy water. If we can understand the hydrodynamics of the boundary we will know how the flow deposits thinly laminated sediment. It needs to be big so it can run about three times faster than flumes in use at present.”

Steve believes that lots of shale layers were built like this including the Marcellus Shale in the Appalachians, the Pierre Shale in the Rockies and the Bright Angel Shale in Grand Canyon.

“If I can show that fine strata can be formed rapidly that would account for basically 70% of the stratigraphic record.3 I believe I can do it with this type of machine.”

“It will make a talking point to the world to show how fine grain rocks form rapidly. And I would like to do it by 2011, the 50th anniversary of the publication of *The Genesis Flood*. It would be wonderful to honour Henry Morris with a flume that illustrated his ideas on the Flood.”

**Augustine: young earth creationist1**

—theistic evolutionists take Church Father out of context

***by***[***Prof. Benno Zuiddam***](https://creation.com/benno-alexander-zuiddam)

Wikipedia.orgAs his theology matured, Augustine abandoned his earlier allegorizations of Genesis that old-earth creationists and theistic evolutionists have latched onto in an attempt to justify adding deep time to the Bible. Furthermore, he always believed in a young earth (painting by Sandro Botticelli, c. 1480).

1) How did St. Augustine read the first chapters of Genesis and why?

Augustine read the first eleven chapters of Genesis as God’s revelation. For that reason he took what is described there quite literally.

2) Was he ambiguous, to such extent that both sides in the evolution debate might refer to him for support?

Augustine was not vague about the age of the earth, the historicity of Adam and Eve as our first ancestors, or the events in the Garden of Eden and the worldwide flood later in Genesis. However, his doctrine of creation was complex. All matter, according to him, was created on the first day. Subsequently God created pregnant ideas that Augustine called *rationes seminales,* which were imbedded in creation. Some only came to fruition afterwards, even, it might be argued, after the Fall. Augustine thought that God could even have catered for the eventuality of the Fall of man into sin and the subsequent curse. But, all speculations set aside, Augustine did not teach a process of one kind changing into another. As a result of his rather philosophic view of creation he took the word “day” in Genesis as symbolic. “Hooray”, cry those who hold the day-age view of Genesis one. This optimism is unwarranted. Augustine’s symbolic use did the very *opposite*. He wanted a period that was actually shorter than six earth days. In Augustine’s mind, God would have created all matter as well as the seminal ideas in the blink of an eye. The material expression of those ideas followed later. We have to combine his instant creation theory with his literal reading of other events in Genesis. Adding his belief that the world is about 8000 years old makes it extremely hard to call on him to support Darwinian evolution of any kind or deep time.

3) Isn’t it obvious from his *City of God (De Civitate Dei)* that Augustine believed that God created Man 6000 years ago?

His belief that the world is about 8000 years old makes it extremely hard to call on him to support Darwinian evolution of any kind or deep time

Not quite, but a young earth definitely. Augustine wrote in *De Civitate Dei* that his view of the chronology of the world and the Bible led him to believe that Creation took place around 5600 BC [Ed. note: he used the somewhat inflated Septuagint chronology—see [Biblical chronogenealogies](https://creation.com/biblical-chronogenealogies) for more information.]. One of the chapters in his *City of God* bears the title “On the mistaken view of history that ascribes many thousands of years to the age of the earth.” Would you like it clearer? Several pagan philosophers at the time believed that the earth was more or less eternal. Countless ages had preceded us, with many more to come. Augustine said they were wrong. This goes to show that theistic evolutionists who call in Augustine’s support do so totally out of context. All they allow themselves to see is his symbolic use of “day” in Genesis, and a very difficult philosophical doctrine of creation with ideas that develop. “Wonderful!” they think, “Augustine really supports our post-Darwinian theories!” It takes a superficial view of Genesis and Augustine to arrive at such conclusions. His instant creation, his young earth and immediate formation of Adam and Eve rule out Augustine’s application for this purpose.

4) Is there a development in Augustine’s view of the days of creation?

In this later work of his [On the necessity of taking Genesis literally], Augustine says farewell to his earlier allegorical and typological exegesis of parts of Genesis and calls his readers back to the Bible.

As Augustine became older, he gave greater emphasis to the underlying historicity and necessity of a literal interpretation of Scripture. His most important work is *De Genesi ad litteram.*The title says it: *On the necessity of taking Genesis literally*. In this later work of his, Augustine says farewell to his earlier allegorical and typological exegesis of parts of Genesis and calls his readers back to the Bible. He even rejected allegory when he deals with the historicity and geographic locality of Paradise on earth.

5) Some say that one of the reasons for Augustine taking the days of creation less literally is that he did not have a great command of the Hebrew language. They also question his knowledge of Greek. He would have been misled by a bad Latin translation of [Genesis 2:4](https://biblia.com/bible/esv/Gen%202.4) that suggested that Creation took place instantly, giving rise to his particular theory. Is this correct?

Augustine was not a Hebrew scholar, nor exactly an expert in Greek. I would be inclined to say the basis for his theory was in one of the deutero-canonical books. He used an old Latin version when he quoted from Jesus [Sirach 18:1](https://biblia.com/bible/esv/Sirach%2018.1) (“He who lives eternally has made *omnia simul*”). Augustine interpreted the Latin words *omnia simul* as “everything at the same time”. He consequently thought that God would have created everything instantaneously. That is why he came up with the theory that Creation should have been shorter than six earth days. He was comparing Scripture with what he saw as Scripture, not editing the Bible with Darwinism. There is a profound difference. His conclusion, however, was based on a wrong interpretation of the Latin, which doesn’t do justice to the Greek original. The Greek says that God made all things together (*panta koinee*), or “the whole world”. The New Revised Standard Version translates it that way, for instance. This history contains a warning for today’s theologians: know your Greek! It might help you to avoid speculative theories that people take seriously because you are a well known church leader.

6) What was Augustine’s view on the relation of faith and science? Is there a conflict?

There is no conflict between faith and science on the data, or the facts. Sometimes faith and science clash on the level of interpretation and theorizing. We see this particularly in our time, now science in the post-Christian West has embraced worldview presuppositions that are incompatible with Christianity. Augustine’s main aim in writing his Commentary on Genesis (*De Genesi ad litteram)* was to show that there needn’t be any conflict between the Genesis account, even if this was to be taken literally, and science and philosophy. If one cannot come up with a scientific explanation that supports the Scriptures, one should still accept that God’s Word is true and trust that we will find out later. Augustine takes this attitude, for instance, when he writes on the waters above the earth ([Gen 1:7](https://biblia.com/bible/esv/Gen%201.7)).

7) Would you give a short overview of the doctrine of Creation over the last two thousand years?

Early Church leaders like [Origen](https://creation.com/id-theorist-blunders-on-bible-response-to-dembski#origen), Augustine and [Basil](https://creation.com/genesis-means-what-it-says-basil-ad-329379) were young earth creationists. This view was commonly held within the Church until the 19th century (including [Aquinas](https://creation.com/church-of-england-apologises-to-charles-darwin), Bede, the fourth Lateran council in AD 1215 and Pius X). The Catholic2 Church of all times and places embraced the traditional doctrine of Creation from the day of Pentecost until the Enlightenment. In the Roman Catholic Church this even continued until the Great War. But after the Enlightenment, darkness reigned. Miracles disappeared. Divinity became part of the humanities. Divine revelation was doubted or outright denied. Human religiosity was the new object. Theology became a science that explained the Bible as if there never was Divine intervention in history. Mythology, comparative religion and egalitarianism were the new keys of interpretation. There was no revelation, but a democratic process where earliest Christianity produced ideas about Jesus and decided what to think about God, creating a god after our likeness. The seeds were sown in 17th century philosophy and the political changes of the French revolution. The implications become fully visible in the 19th century. Especially from the early part of that century onward the natural sciences started to filter out God as a relevant factor. We observe a similar move in continental theology around the same time.

**Geology and the young earth**

Answering those ‘Bible-believing’ bibliosceptics

***by***[***Tas Walker***](https://creation.com/dr-tasman-bruce-walker)

Photo: David Swincer

The hand-written note pinned to some photocopied pages was typical. ‘I wonder if you could help with a geological problem?’ The writer, who identified himself as a Bible-believing Christian, was confused. He had just encountered some tired old geological arguments attacking the straightforward biblical account of earth history—i.e., denying a recent creation and a global Flood on the basis of ‘geological evidences’.

A number of books in the last 25 years have stirred up these so-called ‘geological problems’ and undermined faith in the Bible for many people. Sadly, the ones which cause most confusion and distress are those written by professing ‘Bible-believers’.1,2,3,4

A curriculum writer with a Christian home school association wrote to us that he was ‘pretty well wiped out’ after reading these books.5 He wondered if we ‘might have answers to what these gentlemen say.’ We certainly have! Another person who had read some of them said, ‘I may have been … overlooking information that cast doubts upon the recent creation model.’

Because the ‘recent creation model’ he refers to is simply what the Bible plainly says, he has really been caused to doubt the Bible.

*Even if we can’t answer some of the apparent problems now, we can be confident that there is an answer.*

The unsuspecting readers of such books, thinking they are getting something from ‘Bible-believing Christians’, expect encouragement and faith-building material. They are generally unprepared for the explosive mixture of heretical theology, poor science and vehement attacks on Bible-believers.

For example, the author Alan Hayward claims to be a ‘Bible-believing Christian’. However, he is a unitarian, which means he denies the tri-unity of God. The deity of Christ is clearly taught in the New Testament (e.g. [John 1:1–14](https://biblia.com/bible/esv/John%201.1%E2%80%9314), [5:18](https://biblia.com/bible/esv/John%205.18); [Titus 2:13](https://biblia.com/bible/esv/Titus%202.13); for more information, see our detailed Q&A pages [Is Jesus Christ really God?](https://creation.com/jesus-christ-questions-and-answers) and [Is one God really three persons?](https://creation.com/god-questions-and-answers)), yet Hayward denies this.6 Clearly, ‘Bible-believing’ Hayward chooses to reinterpret those parts of the New Testament with which he disagrees.

He works the same way with the Old Testament. Instead of accepting the clear teaching of Genesis, he reinterprets the passages to fit his billion-year preference for the age of the earth.7

In so doing, of course, he introduces confusion and problems that destabilise readers. We are warned to beware of teachers who vandalise the clear teaching of Scripture to fit with their philosophy ([Colossians 2:8](https://biblia.com/bible/esv/Col%202.8)).

Photo: Y. Robertson

Superficially, Hayward amasses an impressive battery of arguments as to why the Bible can’t mean what it says. Perhaps the single most important lesson from his book is his strategy itself. Each of his attacks on the Word of God elevates some other ‘authority’, whether derived from geology, astronomy, secular history or theology, above the Bible. This approach is as old as the Garden of Eden.

True knowledge begins with the Bible ([Proverbs 1:7](https://biblia.com/bible/esv/Prov%201.7), [Psalms 119:160](https://biblia.com/bible/esv/Ps%20119.160); [138:2](https://biblia.com/bible/esv/Psalms%20138.2)), and that is where we need to start. God was there when He created the world. He knows everything, does not tell lies, and does not make mistakes. It is from the Bible that we learn that the world is ‘young’ (see also [The earth: how old does it look?](https://creation.com/the-earth-how-old-does-it-look-creation-magazine)).

If the Bible taught that the world was millions of years old,8 we would believe that. However, the concept of millions of years of death and suffering contradicts the Word of God, and destroys the foundation of the Gospel of Christ.

Many people find it difficult to accept that scientific investigation should start with the Bible. They think we can answer the question about the age of the earth by coming to the evidence with an ‘open mind’. In fact, no one has an open mind. Evidence does not interpret itself; rather, everyone views the world through a belief framework. Unfortunately, as humans we never have all the information. So, when we start from the evidence, we can never be sure our conclusions are right—like in a classic ‘whodunnit’, just one piece of information can change the whole picture. By contrast, when we start from the Word of God, we can be sure that what it says is true.

Even if we can’t answer some of the apparent problems now, we can be confident that there *is* an answer. We may not find out about the answer on this side of eternity, but that would simply be because we did not have all the information necessary to come to the right conclusion. On the other hand, ongoing research *may* reveal the answer—and it often has, as we will see.

On first appearance, the evidence that Hayward assembles seems so overwhelming. But the problems he describes are easily answered—indeed many answers were known before he wrote his book. Either he was unaware of the answers, or he deliberately ignored them. Let’s look at some of the ‘science’ he presents so persuasively.

**Varves**

Courtesy of Steve AustinA picture containing outdoor, water, mountain, sky

Description automatically generatedDivers examine a broken tree stump embedded upright on the bottom of Spirit Lake below Mt St Helens volcano. This stump was initially part of an immense floating log ‘mat’ and illustrates how the logs sank root end first.

A common argument against the Bible involves varves—rock formations with alternating layers of fine dark, and coarse light sediment. Annual changes are assumed to deposit bands with light layers in summer and dark layers in winter. It is reported that some rock formations contain hundreds of thousands of varves, thereby ‘proving’ the earth is much older than the Bible says.9 But the assumption that each couplet always takes a year to form is wrong. Recent catastrophes show that violent events like the Flood described in Genesis can deposit banded rock formations very quickly. The Mount St Helens eruption in Washington State produced eight metres (25 feet) of finely layered sediment in a single afternoon!10 And a rapidly pumped sand slurry was observed to deposit about a metre (3–4 feet) of fine layers on a beach over an area the size of a football field (cross-section shown on the right: normal silica sand grains are separated by darker layers of denser mineral grains like rutile).11

Photo Don Batten

Layered sediment formed quickly on beach.

When sedimentation was studied in the laboratory, it was discovered that fine bands form automatically as the moving water transports the different sized particles sideways into position.12 Surprisingly, the thickness of each band was found to depend on the relative particle sizes rather than on the flow conditions.13 A layered rock (diatomite) was separated into its particles, and when redeposited in flowing fluid, identical layers formed.14

Much is often made of the Green River varves,9 in Wyoming, USA. But these bands cannot possibly be annual deposits because well-preserved fish and birds are found all through the sediments.

*When sedimentation was studied in the laboratory, it was discovered that fine bands form automatically as the moving water transports the different sized particles sideways into position.*

It is unthinkable that these dead animals could have rested on the bottom of the lake for decades, being slowly covered by sediment. Their presence indicates catastrophic burial. It is often claimed that the fish and birds remained in prime condition at the bottom of the lake because the water was highly alkaline and this preserved their carcasses.15 Yet highly alkaline water causes organic material to disintegrate, and that is why alkaline powder is used in dishwashers! [**Ed. note:** some sceptics have claimed that alkali merely ‘cuts grease’, evidently ignorant of the elementary chemistry involved, i.e. base-catalyzed hydrolysis of polymers, which would do the opposite of preserving the fish.] Another problem for the varve explanation is that the number of bands is not consistent across the formation as it should be if they were annual deposits.16

**Evaporites**

Similar bands in some huge deposits containing calcium carbonate and calcium sulphate in Texas are also used to argue the case for long ages.17 One explanation says the deposits were formed when the sun evaporated seawater—hence the term ‘evaporite deposits’. Naturally, to make such large deposits in this way would take a long time. However, the high chemical purity of the deposits shows they were not exposed to a dry, dusty climate for thousands of years. Rather, it is more likely that they formed rapidly from the interaction between hot and cold seawater during undersea volcanic activity—a hydrothermal deposit.18

**Too many fossils?**

[](https://dl0.creation.com/articles/p038/c03864/floating-forest-lge.jpg)Diagram of floating forest

Another claim of bibliosceptics is that there are ‘too many fossils’.19 If all those animals could be resurrected, it is said, they would cover the entire planet to a depth of at least 0.5 metres (1.5 feet). So they could not have come from a single generation of living creatures buried by the Flood.20

Not surprisingly, the substance disappears when the detail is examined. The number of fossils is calculated from an abnormal situation—the Karroo formation in South Africa. In this formation the fossils comprise a ‘fossil graveyard’—the accumulation of animal remains in a local ‘sedimentary basin’.21 It is certainly improper to apply this abnormally high population density to the whole earth. The calculation also uses incorrect information on today’ animal population densities and takes no account of the different conditions that likely applied before the Flood.22

**Too much coal?**

Another argument used against the Bible time-line is that the pre-Flood world could not have produced enough vegetation to make all the coal.23 But again, this argument is based on wrong assumptions. The pre-Flood land area was almost certainly greater before all the Floodwaters were released onto the surface of the earth. Also, the climate was probably much more productive before the Flood.24 Furthermore, it has been discovered that much coal was derived from forests which floated on water (see image of floating forest on the right and [Forests that grew on water](https://creation.com/forests-that-grew-on-water)).25 So, calculations based only on the area of land would be wrong. And finally, the estimates of how much vegetation is needed are based on the wrong idea that coal forms slowly in swamps and that most of the vegetation rots. The Flood would have buried the vegetation quickly, producing a hundred times more coal than from a swamp.22

**Fossil forests**

Photo Lowell BakerUpright fossilised trees in Yellowstone. Evidence shows they could not have grown in place.

The petrified forests of Yellowstone National Park have often been used to argue against Bible chronology.26 These were once interpreted as buried and petrified in place - as many as 50 successive times, with a brand new forest growing upon the debris of the previous one. Naturally, such an interpretation would require hundreds of thousands of years to deposit the whole sequence and is inconsistent with the Bible time-scale. But this interpretation is also inconsistent with the fact that the tree trunks and stumps have been broken off at their base and do not have proper root systems. Furthermore, trees from different layers have the same ‘signature’ ring pattern, demonstrating that they all grew at the same time.27

Rather than 50 successive forests, the geological evidence is more consistent with the trees having been uprooted from another place, and carried into position by catastrophic volcanic mudflows—similar to what happened during the Mount St Helens eruption in 1980, where waterlogged trees were also seen to float and sink with the root end pointing downwards.28

**Pitch**

*Science ultimately can’t prove or disprove the Bible.*

The origin of pitch is also used to ridicule the account of Noah in the Bible.29 Pitch is a petroleum residue, we are told, and creationists say that petroleum was formed by the Flood. So, where did Noah get the pitch to seal the Ark ([Genesis 6:14](https://biblia.com/bible/esv/Gen%206.14))? This old argument stems from ignorance of how pitch can be made. The widespread use of petroleum is a 20th century phenomenon. How did they seal wooden ships hundreds of years ago before petroleum was available? In those days, pitch was made from pine tree resin.30 A huge pitch-making industry flourished to service the demand.

**Noah’s mud-bath?**

Some attempts to discredit the Bible are wildly absurd—like the idea that there is too much sedimentary rock in the world to have been deposited by the one-year Flood. It is claimed that the Ark would have floated on an ocean of ‘earthy soup’ and no fish could have survived.31 This argument takes no account of how water actually carries sediment. The claim naïvely assumes that all the sediment was evenly mixed in all the water throughout the Flood year, as if thoroughly stirred in a ‘garden fishpond’. Sedimentation does not occur like this. Instead, moving water transports sediment into a ‘basin’ and, once deposited, it is isolated from the system.12 The same volume of water can pick up more sediment as it is driven across the continents, for example, by earth movements during the Flood.

**More (former) problems, more answers**

Some similar geological problems which were once claimed to be ‘unanswerable’ for Bible-believers but for which there are now clear answers include:



* Coral reefs need millions of years to grow.32 [Actually, what was thought to be ‘coral reef’ turns out to be thick carbonate platforms, most probably deposited during the Flood.33 The reef is only a very thin layer on top. In other cases, the ‘reef’ did not grow in place from coral but was transported there by water.34]
* Chalk deposits need millions of years to accumulate.35 [Chalk accumulation is not steady state but highly episodic. Under cataclysmic Flood conditions, explosive blooms of tiny organisms like coccolithophores could produce the chalk beds in a short space of time.36]
* Granites need millions of years to cool.37 [Not when the cooling effects of circulating water are allowed for.38]
* Metamorphic rocks need million of years to form.39 [Metamorphic reactions happen quickly when there is plenty of water, just as the Flood would provide.40]
* Sediment kilometres thick covering metamorphic rocks took millions of years to erode.41 [Only at the erosion rates observed today. There is no problem eroding kilometres of sediment quickly with large volumes of fast-moving water during the Flood.]

**Conclusion**

The section above shows some of the other arguments along this line that were once claimed to be ‘unanswerable’. If this article had been written some years earlier, we would not have had all those answers. We still don’t have all the answers to some others, but this does not mean that the answers don’t exist, just that no-one has come up with them yet. There may be new arguments in the future alleging to ‘prove’ that the Bible, or one of the previous answers, is wrong. And when these are answered, there might be new ones again. That is the nature of science. All its conclusions are tentative, and new discoveries mean that old ideas must be changed—that is why creationist research is important. But science ultimately can’t prove or disprove the Bible. Faith—but not a blind faith—is needed. It is not the facts that contradict the Bible, but the *interpretations* applied to them. Since we never will know everything, we must start with the sure Word of God in order to make sense of the world around us.

**Radiohalos**

startling evidence of catastrophic geologic processes on a young earth

***by***[***Andrew A. Snelling***](https://creation.com/andrew-a-snelling)

Photo by Andrew A. SnellingClick [here](https://dl0.creation.com/articles/p050/c05041/5041granite2_large.jpg) for larger view

Most people would be familiar with granites (figure 1) because they are a popular rock used for bench tops in many home kitchens. Their colourful interlocking crystals give them an aura of intrigue and elegance. As well as glassy, pink and cream crystals, granites are often sprinkled with flakes of a black, shiny mineral called biotite.

Photo by Andrew A. Snelling**Figure 1a** : Typical granite. The black crystals are biotite flakes.  
Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig1a.jpg) for larger viewPhoto by Andrew A. Snelling**Figure 1b**: Another typical granite.  
Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig1blarge.jpg) for larger view

To the unaided eye, the flat surfaces of biotite flakes look polished and smooth, but under the microscope they often can be seen to contain tiny crystals of other minerals, particularly zircon. Even more fascinating, such zircon crystals are typically surrounded by halos of dark, coloured rings. Resembling minuscule archery targets, these halos represent a fascinating story about the age of the earth.

**Uranium radiohalos**

It is known that the halos are formed by radioactive uranium inside the zircons.1,2 The radioactivity damages the biotite and changes its colour (figure 2). That’s why the spherical halos are called ‘radiohalos’ (short for radioactive halos), and their centres are called ‘radiocentres’.

Furthermore, there is a simple reason why uranium halos have many rings. It’s that uranium decays in a series of steps, eight of which produce rings (figures 3 and 4).

At today’s measured rates of radioactive decay, it has been estimated that uranium would have to decay for 100 million years to produce the uranium halos.3 That is at today’s decay rates. Alongside the uranium halos within granites, there is powerful evidence that uranium once decayed much faster during a global geological catastrophe! Let’s see that evidence.

**Polonium radiohalos**

The last three rings of a uranium halo are produced by an element called polonium. Marie Curie (with her husband, Pierre) discovered it in 1898 and named it after her homeland, Poland.

One of the important features of radioactive polonium is that it decays rapidly and thus is rarely found in nature. However, it is continually gener­ated when uranium decays, and so radio­active polonium is always associated with uranium.

|  |  |  |
| --- | --- | --- |
| Diagram by Andrew A. SnellingThe radioactivity of the uranium**Figure 2:** The radioactivity of the uranium inside the zircon crystal shoots out in all directions into the surrounding biotite flake, damaging it and producing a spherically coloured shell or halo Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig2large.png) for larger view | Photo by Mark ArmitageA fully developed uranium radiohalo**Figure 3: (a)** A fully developed uranium radiohalo with all eight rings present. Its diameter is approximately 68 microns (a micron is a thousandth of a millimeter).  Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig3alarge.jpg) for larger view | Photo by Andrew A. SnellingAn over-developed dark uranium radiohalo**Figure 3: (b)** An over-developed dark uranium radiohalo in which there has been so much radiation damage that the distinct inner rings have been blurred.  Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig3blarge.jpg) for larger view |

|  |  |  |
| --- | --- | --- |
| Diagram by Andrew A. SnellingComposite schematic drawing of the radiation rings**Figure 4:** Composite schematic drawing of the radiation rings in (a) a polonium-218 radiohalo (three rings), (b) a uranium radiohalo (eight rings), (c)a polonium-214 radiohalo (two rings), and (d) a polonium-210 radiohalo (one ring). The different radiation energies (E) are listed. Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig4large.png) for larger view | Photo by Mark ArmitageA fully developed polonium-218 radiohalo three rings clearly visible.**Figure 5: (a)** A fully developed polonium-218 radiohalo with three rings clearly visible.  Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig5alarge.jpg) for larger view | Photo by Andrew A. SnellingFully developed polonium-218 radiohalos with three rings clearly visible.**Figure 5: (b)** Fully developed polonium-218 radiohalos with three rings clearly visible.  Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig5blarge.jpg) for larger view |

It came as a great surprise, therefore, when researchers discovered radiohalos that were produced by polonium alone (figures 5–7). How did polonium come to exist on its own in the radiocentres of these halos? This question has puzzled scientists for many years, and has even been debated in the courtrooms of the USA.4

But how do we know that they really are polonium halos? Answer: the polonium halos are readily identified by the numbers of rings, and the sizes of those rings (figures 4–7). This has been confirmed by experiments.5,6

Furthermore, what does the existence of these polonium halos mean? Because polonium has such a fleeting existence, the polonium halos must have formed very rapidly, in only hours or days!7 So there had to be a source of abundant polonium close by to create the radiocentres. Otherwise the polonium halos would not have formed.

|  |  |  |
| --- | --- | --- |
| Photo by Andrew A. SnellingA fully developed polonium-214 radiohalo with two rings**Figure 6:**A fully developed polonium-214 radiohalo with two rings, the outer ring not being so visible. Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig6large.jpg) for larger view | Photo by Mark ArmitageA group of very clear single-ring polonium-210 radiohalos**Figure 7:** A group of very clear single-ring polonium-210 radiohalos. Their diameters are approximately 39 microns.  Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig7large.jpg) for larger view | Photo by Andrew A. SnellingSeveral dark polonium-210 radiohalos close to two dark uranium radiohalos.**Figure 8:** Several dark polonium-210 radiohalos close to two dark uranium radiohalos. Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig8large.jpg) for larger view |

|  |  |  |
| --- | --- | --- |
| Photo by Andrew A. SnellingOverlapping dark polonium-210 and uranium radiohalos.**Figure 9:**Overlapping dark polonium-210 and uranium radiohalos.  Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig9large.jpg) for larger view | Photo by Andrew A. SnellingA polonium-214 radiohalo**Figure 10:** A polonium-214 radiohalo (with a faint outer ring) centered on a crack and a dark uranium radiohalo nearby. Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig10large.jpg) for larger view | Diagram by Andrew A. SnellingDiagrammatic cross-section through a biotite flake**Figure 11 :**Diagrammatic cross-section through a biotite flake showing a uranium radiohalo (left) and a nearby polonium-210 (single ring) radiohalo (right). Hot waters flowing between the flake’s sheets carry polonium from the decaying uranium in the zircon radiocentre of the uranium radiohalo across to form the polonium-210 radiocentre and radiohalo. Click [here](https://dl0.creation.com/articles/p050/c05041/5041fig11large.png) for larger view |

Many of the polonium halos have uranium halos right next to them, often less than one millimetre away (figures 8–10). As the uranium in the centres of the uranium halos decayed and produced the halo rings, it also generated polonium. Hot water flowing inside the cooling granite was able to carry the polonium short distances and concentrate it into new radiocentres. These formed the polonium halos (figure 11).

Photo by Andrew A. SnellingGranite outcrop  
Click [here](https://dl0.creation.com/articles/p050/c05041/5041granite_large.jpg) for larger view

**Astounding implications**

The implications are astounding. First, the polonium halos required an abundant supply of polonium, in fact, an amount equivalent to 100 million years of radioactive decay of uranium, at today’s rates. However, all this polonium had to be available quickly, before it could decay away. That is, it all had to concentrate within hours, or a few days at the most. Therefore, the polonium halos mean that 100 million years of radioactive decay of uranium (at today’s rates) occurred in just a few days! In other words, the radioactive decay of uranium was formerly up to a billion times faster than it is today!

the polonium halos are solid evidence that rocks ‘dated’ at billions of years old by the radioactive methods are in fact only a few thousand years old

Second, if uranium decayed at such a super-fast rate, the other radioactive elements decayed much faster too. However, the radioactive methods used to ‘date’ rocks as billions of years old assume that radioactive decay rates have always been the same as what we measure today. Thus, the polonium halos are solid evidence that rocks ‘dated’ at billions of years old by the radioactive methods are in fact only a few thousand years old!

Third, the radiohalos can only form after the granites hosting them have solidified and cooled.8 So the radioactive decay of uranium, which generated the polonium, had to commence as soon as the granites started to solidify, and continue until the polonium halos had formed. It is usually claimed that granites take millions of years to solid­ify and cool. However, if that were true, there would be no polonium halos in the granites today. In such a long time, all the uranium and polonium would have decayed away. Therefore, polonium halos mean that the granites solidified and cooled in just 6 to 10 days!

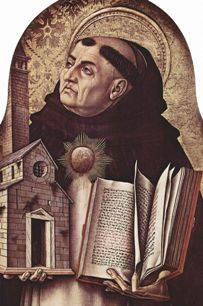
**Startling evidence**

Photo by Andrew A. SnellingGranite seascape  
Click [here](https://dl0.creation.com/articles/p050/c05041/5041granite3_large.jpg) for larger view

Uranium and polonium radio­halos thus provide startling evidence of catas­trophic geological processes on a young earth. During the year-long Flood (about 4,500 years ago) sediments were eroded and deposited catastrophically on a global scale. The catastrophe buried vast graveyards of plants and animals, producing fossil-bearing rock layers all over the earth. Rapid earth movements pushed up mountains,9 and formed granite bodies quickly. Inside these granites, super-fast radioactive decay generated uranium and polonium radiohalos. These are so microscopic they could be easily overlooked.4 But their presence in abundance in granites all around the world cannot be ignored.10 They are exciting confirmation that the earth and its rocks are not millions and billions of years old as usually claimed, but only about 6,000 years, as God’s Word plainly declares in the historical narratives in Genesis.

**Abandon YEC and reconcile the Bible to evolution?**

**Thomas Aquinas taught a young earth and 24–hour creation days**

Public domainThomas Aquinas, leading medieval theologian/philosopher

Josh W of the USA criticizes the article [‘Just preach the Gospel!’ Or: how not to impress atheists](https://creation.com/just-preach-gospel). He argues in that we should not be defending [biblical (‘young earth’) creation](https://creation.com/biblical-creationists) and should instead try to show how the Bible can be made to fit with evolution and billions of years. I.e. he implicitly argues that CMI should disband.

The words “one day” are used when day is first instituted, to denote that one day is made up of 24 hours.—Thomas Aquinas.

Josh proposes instead to substitute the ideas of Thomist philosophers, i.e. those who follow the method of Thomas Aquinas (1225–1274). However, Thomas himself supported the Bible–first YEC (Young Earth Creation) view on creation, as will be shown. He is just another example showing how the YEC is hardly a novelty, as many compromisers assert, but the traditional view of the church until the time of [Hutton](https://creation.com/huttons-a-priori-commitment-to-materialism), [Lyell, and Darwin](https://creation.com/darwin-and-lyell). Josh’s letter is first posted in full, then followed by the interspersed replies by [Dr](https://creation.com/dr-jonathan-d-sarfati)[Jonathan Sarfati](https://creation.com/dr-jonathan-sarfati), the author of the original article.

I agree that “Just Preach the Gospel!” isn’t a guaranteed winning strategy for evangelism. Much of the force of Christianity is its ability to provide a coherent account of metaphysics, ethics, etc. all in one.

That said, I do think the CMI strategy of fighting two battles—one against the science of evolution and the other against allowing any other understanding of scripture different from YEC—is a really bad one and will certainly hurt evangelism.

This idea that quoting atheists (and the dumbest ones like Richard Dawkins to boot) about the contradictions between fundamentalism and modern biology to help make your case is absurd. Agreeing with Dawkins’ caricatures of religious thought and leaving the scientific details of biology the only space for disagreement is about the worst way that I can see to win the arguments. Much better, I think, to argue along the lines:

“We don’t think evolution is true. But even if it were, don’t despair. Nihilism isn’t all that is left, the message of the Gospel remains intact—there are theologically sound ways of understanding Genesis that don’t clash so seriously with modern science, while also not reducing Jesus’ life and death to meaninglessness.”

Your article quotes Paul as clearly understanding original sin as the result of actions taken by a historically real human being. Fair enough, but does that preclude any other understanding of what Adam was other than the YEC account of it? I don’t think so.

Here’s a couple of articles (with all kinds of links to places where the arguments can be seen in more depth) that make a case for this different way of understanding Adam [both from edwardfeser.blogspot.com; links deleted as per feedback rules]

Caleb Salisbury[](https://dl0.creation.com/articles/p097/c09735/Thorns-fossil-lge.jpg)Christians who believe God’s infallible Word (no thorns before sin) cannot also believe in man’s fallible ‘word’ (millions of years of thorns before people).

I agree that “Just Preach the Gospel!” isn’t a guaranteed winning strategy for evangelism. Much of the force of Christianity is it’s ability to provide a coherent account of metaphysics, ethics, etc. all in one.

Indeed so. Hence articles like [Why use apologetics for evangelism?](https://creation.com/why-use-apologetics-for-evangelism)

That said, I do think the CMI strategy of fighting two battles—one against the science of evolution and the other against allowing any other understanding of scripture different from YEC—is a really bad one

But then, this is what we do, and we explain why, and we are not going to change. First, who says evolution has anything to do with [real observational science](https://creation.com/Whos-really-pushing-bad-science-rebuttal-to-Lawrence-S-Lerner), as opposed to a [materialistic philosophy masquerading as science](https://creation.com/amazing-admission-lewontin-quote)?

and will certainly hurt evangelism.

This is hardly our experience. Rather, it has been a very important *help* to evangelism, as we have documented repeatedly, e.g.

* [‘No excuse to disbelieve’](https://creation.com/response-to-gay-marriage-article-objections-cmi-shows-questioner-that-christian-faith-is-logical)
* [Faith shipwrecked by compromising ‘Christian’ colleges; restored by creation ministry](https://creation.com/a-testimony-joel-galvin)
* [*Creation*](https://creation.com/sonias-testimony)
* [Was my salvation unimportant to you?](https://creation.com/was-my-salvation-unimportant-to-you)

This idea that quoting atheists (and the dumbest ones like Richard Dawkins to boot)

They are still the most prominent ones. So we have to deal with them. For example, see the articles under [Richard Dawkins, the ‘Apostle of Atheism’: how can he be answered?](https://creation.com/atheism-agnosticism-and-humanism-godless-religions-questions-and-answers) and [*The Greatest Hoax on Earth? Refuting Dawkins on evolution*](https://creation.com/store_redirect.php?sku=10-2-555).

A common blind spot among long–age apologists such as William Lane Craig and John Lennox is human death before sin, as implied by ‘dating’ methods they implicitly accept. That is, undoubted Homo sapiens fossils have been ‘dated’ to 200,000 years old, and some more recently have been ‘dated’ as even older: 330,000 years. This is long before any plausible date of Adam’s Fall.

about the contradictions between fundamentalism and modern biology to help make your case is absurd.

Who says there are contradictions between real biology and the [grammatical–historical approach to the Bible](https://creation.com/the-bible-and-hermeneutics) (as for example taught by [Basil the Great who took Genesis straightforwardly](https://creation.com/genesis-means-what-it-says-basil-ad-329379))? Ph.D. biologist [Dr David Catchpoole](https://creation.com/david-catchpoole-cv) documents the huge scientific problems of biological evolution in the overview article [Created or evolved?](https://creation.com/created-or-evolved)

Agreeing with Dawkins’ caricatures of religious thought and leaving the scientific details of biology

But people like Dr Catchpoole didn’t need Dawkins to explain the problems; as he realized, the problems between the Gospel and evolution/long ages were there as a matter of fact regardless of what Dawkins said (see [A thorny issue](https://creation.com/a-thorny-issue)).

the only space for disagreement is about the worst way that I can see to win the arguments.

Yet it has been the best way in our experience. Contrary, [appeasing evolution the way Neville Chamberlain appeased Hitler has been a disaster](https://creation.com/chamberlain-and-the-church), for much the same reasons.

Much better, I think, to argue along the lines, “We don’t think evolution is true. But even if it were, don’t despair. Nihilism isn’t all that is left, the message of the Gospel remains intact—there are theologically sound ways of understanding Genesis that don’t clash so seriously with modern science, while also not reducing Jesus’ life and death to meaninglessness.”

But as shown, the theological appeasement of evolution has sacrificed a lot, including what was mentioned in my brief article. For more, see [Response to the evolution appeasers](https://creation.com/response-to-the-evolution-appeasers-in-treasury-new-zealand).

Your article quotes Paul as clearly understanding original sin as the result of actions taken by a historically real human being.

Yes, and the citations from his epistles explain why. He clearly affirmed that Adam was a real man, made from dust (not from an ape–like creature), and that his sin brought physical death into the world (so [death had not existed for millions of years](https://creation.com/the-fall-a-cosmic-catastrophe)).

Fair enough, but does that preclude any other understanding of what Adam was other than the YEC account of it? I don’t think so.

Wiki commonsNeville Chamberlain, whose disastrous appeasement emboldened Adolf Hitler

Yes it does, as we have [repeatedly documented](https://creation.com/william-lane-craig-vs-creation). For example, a common blind spot among long–age apologists such as [William Lane Craig](https://creation.com/william-lane-craig-vs-creation) and [John Lennox](https://creation.com/review-lennox-seven-days) is *human* death before sin, as implied by ‘dating’ methods they implicitly accept. That is, [undoubted *Homo sapiens* fossils have been to ‘dated’ to 200,000 years old](https://creation.com/redating-leakeys-ethiopian-human-finds-more-problems-for-compromise), and some more recently have been ‘dated’ as even older: [330,000 years](https://creation.com/hugh-ross-bluffs). This is long before any plausible date of Adam’s Fall. Further, many of these [anatomically and culturally modern humans were killed by sinful means](https://creation.com/pre-adamites-and-human-fossils) such as cannibalism. You really should have searched our site before writing.

Here’s a couple of articles (with all kinds of links to places where the arguments can be seen in more depth) that make a case for this different way of understanding Adam [both from edwardfeser.blogspot.com; links deleted as per feedback rules]

I know about Dr Feser, and I have cited him before with approval, in [In the beginning God created—or was it a quantum fluctuation? [refutation of Lawrence Krauss]](https://creation.com/god-created-not-quantum-fluctuation). However, he is a philosopher, not a biblical scholar. Also, it’s ironic that as a Thomistic philosopher, he contradicts Thomas Aquinas himself.

For example, Thomas taught along with Basil that God created the plants before the sun, and that this was a refutation of sun–worship.1 It’s notable how he approached this—he listed objections, *then he would often cite Scripture as authoritative*, then reply to the objections:

**On the contrary,** The authority of Scripture suffices. …

**On the contrary,** It is said ([Genesis 1:12](https://biblia.com/bible/esv/Gen%201.12)): “The earth brought forth the green herb,” after which there follows, “The evening and the morning were the third day.”2

Of course, the creation of plants before the sun throws out long–age and evolutionary ideas. Thomas also clearly [accepted that Genesis 1 taught normal–length creation days](http://www.newadvent.org/summa/1069.htm):

Thus we find it said at first that “He called the light Day”: for the reason that later on a period of 24 hours is also called day, where it is said that “there was evening and morning, one day.3

**On the contrary**, It is written ([Genesis 2:22](https://biblia.com/bible/esv/Gen%202.22)): “God built the rib, which He took from Adam, into a woman.” I answer that, It was right for the woman to be made from a rib of man.—Thomas Aquinas.

The words “one day” are used when day is first instituted, to denote that one day is made up of 24 hours. Hence, by mentioning “one”, the measure of a natural day is fixed. Another reason may be to signify that a day is completed by the return of the sun to the point from which it commenced its course. And yet another, because at the completion of a week of seven days, the first day returns which is one with the eighth day. The three reasons assigned above are those given by [Basil (Hom. 2[8] *Hexaem*.).](http://www.newadvent.org/fathers/32012.htm)4

Thomas also denied that mankind was made from already–living creatures, because he affirmed that the first man was made from inanimate matter:

**On the contrary,** It is written ([Genesis 2:7](https://biblia.com/bible/esv/Gen%202.7)): “God made man of the slime of the earth.”5

The word “slime” instead of dust was following the Vulgate, “*formavit igitur Dominus Deus hominem de limo [slime, mud] terrae*”).

Thomas also taught that the [first woman was made from the first man’s rib](http://www.newadvent.org/summa/1092.htm), again contrary to evolution:

**On the contrary,** It is written ([Genesis 2:22](https://biblia.com/bible/esv/Gen%202.22)): “God built the rib, which He took from Adam, into a woman.”  
I answer that, It was right for the woman to be made from a rib of man.6

First, to signify the social union of man and woman, for the woman should neither “use authority over man,” and so she was not made from his head; nor was it right for her to be subject to man’s contempt as his slave, and so she was not made from his feet.

Thus it seems that some Thomists are more Thomistic than Thomas, by over–emphasizing the Aristotelianism in his philosophy and under–playing his frequent appeal to biblical authority.

Even much later in Feser's own Roman Catholic Church, the need for a historical Adam was realized, e.g. in [Pope Pius XII’s](https://creation.com/refutation-of-new-scientists-evolution-24-myths-and-misconceptions-nazi-darwin-link#pius) encyclical *Humani Generis* (*The Human Race*), 12 August 1950:

When, however, there is question of another conjectural opinion, namely polygenism, the children of the Church by no means enjoy such liberty. For the faithful cannot embrace that opinion which maintains that either after Adam there existed on this earth true men who did not take their origin through natural generation from him as from the first parent of all, or that Adam represents a certain number of first parents. Now it is in no way apparent how such an opinion can be reconciled with that which the sources of revealed truth and the documents of the Teaching Authority of the Church propose with regard to original sin, which proceeds from a sin actually committed by an individual Adam and which, through generation, is passed on to all and is in everyone as his own. [citing [Romans 5:12](https://biblia.com/bible/esv/Rom%205.12)]

Earlier last century, the 1909 Pontifical Biblical Commission (PBC) rulings on the interpretation of the book of Genesis affirmed both “The special creation of man” and “The formation of the first woman from the first man”.7

Likewise, the special creation of Adam and Eve was taught much earlier than Thomas’ time. E.g. Pelagius I (Pope 566–561) made a solemn profession of faith in relation to the Last Judgment:

I confess … that all men from Adam onward who have been born and have died up to the end of the world will then rise again and stand “before the judgment-seat of Christ,” together with Adam himself and his wife, who were not born of other parents, but were created: one from the earth and the other from the side of the man ….8

A more detailed critique of misuses of Thomas’ teachings to support evolution comes from the Catholic priest and chaplain Fr. Michael Chaberek.9,10 It’s also notable that Feser has come under fire from other Aristotelian–Thomist philosophers for his attacks on intelligent design, e.g. Marie George argued that William Paley’s watchmaker analogy is rather close to Thomas’ ‘Fifth Way’.11,12 And ID supporter ‘vjtorley’ wrote a detailed critique of Thomist anti-ID people, backing it extensively with quotations from Thomas himself.13

**Explanatory note**

Some may wonder why we should be interested in interpreters throughout the ages in church history (and [Jewish](https://creation.com/creation-days-and-orthodox-jewish-tradition) interpreters for that matter). Some may argue, “Isn’t the Bible all we need? Don’t you realize that interpreters can err?” Indeed, the correct view must be obtained from the Bible alone. But then, modern exegetes are not the first who have known about the original languages and cultures of the Bible.

The onus is on those proposing a novel interpretation to prove their case. As we have shown, many of the currently popular explanations of Genesis are novelties. If long–age interpretations had always been popular, then a case could be made for assuming that the Bible hints at this. But if they were absent until they became popular in ‘science’, it’s more likely that such interpretations were motivated by trying to reconcile the Bible with ‘science’.

It’s also notable that Thomas himself strongly affirmed the inerrancy of Scripture and how crucial this belief is:

“It is unlawful to hold that any false assertion is contained either in the Gospel or in any canonical Scripture, or that the writers thereof have told untruths, because faith would be deprived of its certitude which is based on the authority of Holy Writ.”14

**Evidence *for* young-earth creationism**

How to build a case for biblical creation

***by***[***Shaun Doyle***](https://creation.com/shaun-doyle)

wikipedia.org

Why believe in a young earth? In many ways it can be easier to argue against evolution and deep time than it can be to present evidence *for* biblical creation. And there are so many misconceptions of what biblical creation is, and there are so many spurious arguments floating around both [for](https://creation.com/arguments-we-think-creationists-should-not-use) and [against](https://creation.com/arguments-evolutionists-should-not-use) it, that it can be hard to know where to begin.

We are providing an answer to the same question about the real world that evolution/deep time claims to answer

And like all forms of apologetics, building a case for biblical creation is not a ‘one size fits all’ task. We need to understand our audience and the specific concerns they have, and tailor our presentation towards that audience. For instance, addressing a room full of atheistic biologists requires a very different approach from dealing with a church audience. Nonetheless, there are several major points that will feature, in some form or another, in most presentations of a case for biblical creation.

**1. Cut through the buzzwords to the heart of the debate**

What I mean by this is that there are a lot of popular [buzzwords](https://creation.com/creation-evolution-buzzwords) used in the origins debate that tend to confuse and quash dialogue rather than clarify and cultivate it—words like ‘science’, ‘creationism’, ‘evolution’, ‘religion’, and others. For instance, when many people hear that someone is a ‘creationist’, they are automatically perceived as a crazy religious fundamentalist completely out of touch with reality; and when someone says ‘evolution is science’, what they actually mean is that ‘microbes-to-man evolution is true’, but using the word ‘science’ instead of ‘true’ implies not just that evolution is true, but that anyone who disagrees has no right to avail themselves of the benefits of the scientific enterprise, such as computers and medicine. Christians do it too: ‘evolution’ is a dirty word among many Christians, and it implies worldliness, immorality, and everything bad about the modern world. At this point I’m not saying whether any of these connotations is true or not; even if they are, they tend to distract from what the basic disagreements in the origins debate actually are.

So, why is there even a debate at all? For a debate, there must be a disagreement, which occurs when people offer *contradictory* answers to the *same* questions. Does that happen in the origins debate? Yes. For instance, evolutionists claim that the universe is 13.7 billion years old, and biblical creationists claim that the universe is only 6,000 years old. Clearly there is far more to both ideas, but we can already see that they both address at least one question in common—‘how old is the universe?’ Moreover, the answers each perspective gives to the question clearly contradict each other—they give *different* answers to the *same* question. As such, either one is true and the other is false, or both are false (though that’s not really a live consideration). It’s important to go through this to establish that the so-called ‘religious’ claims of biblical creation are claims about the real world, and not something that skeptics can write off as irrelevant to the real world. Even if our answer to the question is wrong (though I certainly don’t think we are!), we are providing an answer to the same question about the real world that evolution/deep time claims to answer. For more information see [‘It’s not *science’*](https://creation.com/its-not-science), [‘Evolution is science, but creationism is religion’](https://creation.com/creation-evolution-buzzwords), [Creationists are ‘liars’(?)](https://creation.com/creationists-are-liars), and [Skeptical tactic for shutting down debates](https://creation.com/skeptical-tactic).

**2. Establish why we are biblical creationists independent of the origins debate**

This one probably sounds a bit weird because biblical creation is an important logical foundation for the gospel. However, one does not need to know anything about the origins debate to know Christ (which is also why, despite [the grave dangers of not believing in a historical Genesis](https://creation.com/Did-god-create-over-billions-of-years), people [don’t have to believe in a historical Genesis to be saved](https://creation.com/genesis-gospel)). What matters for establishing the truth of the Gospel is that there is [one true God](https://creation.com/arguments-for-god), that Jesus’ really did claim to be the [embodiment of the one true God](https://creation.com/incarnation-why-god-became-man) sent to [save sinners by dying for them](https://creation.com/why-did-jesus-have-to-die), and that his claims were vindicated by God the Father when [He raised Jesus from the dead](https://creation.com/resurrection) (on which please also see [*Christianity for Skeptics*](https://creation.com/store_redirect.php?sku=10-2-585), especially chapter 4: “Is Jesus truly God?”).

Once we’ve established these basics of the gospel, we can move from there to the truth of biblical creation, since biblical creation is a logical deduction from the gospel. Since we’ve already shown that Jesus is God the Word incarnate, it follows that His teaching is completely trustworthy. Therefore, whatever He teaches (especially during His messianic ministry) relevant to the creation/evolution debate is authoritative. So, does Christ address the origins debate? He does. The article [Jesus on the age of the earth](https://creation.com/jesus-age-earth) shows that Jesus clearly taught that Adam and Eve were made from the beginning *of creation*—i.e. humans have been around since essentially the start of history. Jesus also taught that the Bible as a whole is perfectly trustworthy: [Jesus Christ on the Infallibility of Scripture](https://creation.com/jesus-christ-on-the-infallibility-of-scripture). Jesus’ teaching establishes the validity of using the Bible as a constraint in our reconstructions of the past, i.e. [*biblical* creationism](https://creation.com/biblical-creationists), and He also affirms crucial points that show the Bible teaches that the universe is currently about 6,000 years old. Our resources [*Jesus Christ: Our Intelligent Designer*](https://creation.com/store_redirect.php?sku=10-2-583) and [Genesis & the Gospel Connection DVD](https://creation.com/store_redirect.php?sku=30-9-556) address this as well.

Nevertheless, we should also establish that the universe is approximately 6,000 years old exegetically, i.e. from what the Bible itself says, which strengthens our biblical case. After all, there are many people who say it doesn’t, and they say that the Bible (and Jesus) when properly interpreted does not contradict evolution and deep time. So what does Scripture convey about the age of the world, if anything? When we look into this we see that the Scriptures are clear; the Bible does *not* accommodate evolution and deep time, and clearly and consistently asserts that the world is about 6,000 years old. See e.g. [*15 Reasons to Take Genesis as History*](https://creation.com/store_redirect.php?sku=00-1-536), [*Refuting Compromise*](https://creation.com/store_redirect.php?sku=10-2-575), [*Creation Without Compromise*](https://creation.com/store_redirect.php?sku=10-2-651), [*Creation, Fall*, *Restoration*](https://creation.com/store_redirect.php?sku=10-2-561), and these articles: [How does the Bible teach 6,000 years?](https://creation.com/6000-years), [Genesis: Bible authors believed it to be history](https://creation.com/genesis-bible-authors-believed-it-to-be-history), [Jesus on the age of the earth](https://creation.com/jesus-age-earth), [Did God create over billions of years?](https://creation.com/Did-god-create-over-billions-of-years), [Should Genesis be taken literally?](https://creation.com/should-genesis-be-taken-literally) and [The use of Genesis in the New Testament](https://creation.com/genesis-new-testament) (and for article hubs addressing these questions, please see [Genesis Questions and Answers](https://creation.com/genesis-questions-and-answers) and [Genesis Verse-by-Verse](https://creation.com/genesis-verse-by-verse)).

**3. Outline how to properly interpret the physical evidence to reconstruct the past**

You’ll notice that I haven’t really addressed the specific claims of the evolution/deep time view yet, except the (typically Christian) claim that the Bible is compatible with it. The argument thus far has *implicitly* argued against non-Christian views by establishing Christianity first, and then biblical creationism on that basis. Why? It’s a flanking exercise—it avoids us getting bogged down in technical scientific details before we have to. But now I would begin to address myself more directly to the evolutionary view, though not yet to its specific empirical claims. Rather, I would address the *axioms* of the evolutionary framework first. Essentially, the aim is to establish both the reasonableness of using the Bible as the primary constraint on how we interpret the physical evidence to reconstruct the past, and why the evolutionary framework fails to provide a coherent framework for historical investigation. On this, please see [*Rocks Aren’t Clocks*](https://creation.com/store_redirect.php?sku=10-3-511), [*Evolution’s Achilles’s Heels*](https://creation.com/s/10-2-640) (and the [corresponding DVD](https://creation.com/s/30-9-640)), as well as these articles [Deep time doesn’t make sense!](https://creation.com/deep-time-irrational), [CSI and evolution](https://creation.com/csi-evolution), [CSI … and CMI](https://creation.com/csi-and-cmi), [Cuvier’s analogy and its consequences](https://creation.com/cuviers-analogy), [The Parable of the Candle](https://creation.com/the-parable-of-the-candle), [Biblical history and the role of science](https://creation.com/biblical-history-and-role-of-science), [‘The dingo’s got my baby!’](https://creation.com/lindy-chamberlain-creighton-interview), [What distinguishes origins and operational science?](https://creation.com/origins-vs-operational-science) and [Same data, different interpretations?](https://creation.com/same-data-different-interpretations)

**4. Answer empirical objections to biblical creation**

Of course, it may now seem like biblical creation looks good on paper, but then we still remember that there are all these empirical arguments against biblical creation that people find so convincing. And given how prevalent objections to biblical creation are, that’s not surprising. Our culture thinks automatically in ‘deep time’ terms; it’s a part of our [mental furniture](https://creation.com/mental-furniture-deep-time) (see also [The earth: how old does it look?](https://creation.com/the-earth-how-old-does-it-look) and [The wrong glasses](https://creation.com/the-wrong-glasses)). Since there are so many criticisms, it might help to group them.

Our culture thinks automatically in ‘deep time’ terms; it’s a part of our [mental furniture](https://creation.com/mental-furniture-deep-time)

First, there are the ‘scientific process’ objections; i.e. the evidence supposedly suggests that certain physical processes have been occurring for much longer than the biblical timeframe allows for. Issues such as [radiometric dating](https://creation.com/radiometric-dating-questions-and-answers), [rock formation](https://creation.com/geology-questions-and-answers), [fossil formation](https://creation.com/fossils-questions-and-answers), and [distant starlight](https://creation.com/astronomy-and-astrophysics-questions-and-answers) are probably the most common objections along this line of reasoning.

The second are what we might call ‘situational’ objections, where the physical data supposedly exhibits patterns that cannot reasonably be explained in the biblical creationist framework. The most common issues along this line of thinking are evolutionary [homology](https://creation.com/embryonic-recapitulation-questions-and-answers) (both in [genetics](https://creation.com/genetics-questions-and-answers) and the [fossils](https://creation.com/cladistics)), [fossil succession](https://creation.com/fossils-questions-and-answers), and interpretations of how certain rock formations formed (i.e. they supposedly formed in situations foreign to any biblical scenario, especially Noah’s Flood—[*Rock Solid Answers*](https://creation.com/store_redirect.php?sku=10-2-559) is a good resource for addressing these issues).

A third type of argument seeks to undermine the coherence of the Genesis narrative. The most common ones include ‘[Where did Cain get his wife?](https://dl0.creation.com/articles/p032/c03267/chapter8.pdf)’, questioning the feasibility of [Noah’s Ark](https://creation.com/noahs-ark-questions-and-answers), and the origin of [structures in biology that look designed to harm](https://dl0.creation.com/articles/p032/c03267/chapter6.pdf) (e.g. [pathogens](https://creation.com/death-and-suffering-questions-and-answers), [parasites](https://creation.com/what-about-parasites), and [predators](https://creation.com/the-carnivorous-nature-and-suffering-of-animals)). The links I’ve provided offer answers to these issues, and many of these issues are addressed in our [*Creation Answers Book*](https://creation.com/store_redirect.php?sku=10-2-505).

**5. Provide some empirical arguments for biblical creation**

Some would think it would seem more logical to finish with objections to biblical creation (which I dealt with in the previous section) rather than the empirical case for biblical creation. Personally, I think not, for several reasons. First, objections to biblical creation are so widely-spread that leaving them till last seems to be a copout. It’s better to get them out of the way because they’re so well known, and it ‘clears the ground’ for the positive case. Second, people don’t expect there to be empirical arguments *for* biblical creation, so it provides an unexpected and thus *potent* punchline to the argument. Third, this is meant to be an argument *for* biblical creation, not an argument *against* evolution/deep time.

So, what evidence for biblical creation is there that isn’t easily explained in the evolutionary framework? As far as the age question is concerned, the article [Age of the earth](https://creation.com/age-of-the-earth) is a one-stop shop for empirical arguments for the biblical timeframe; it outlines 101 evidences for a young age of the earth and the universe, and provides links to articles on all of them. Some of the ones I find most powerful are numbers 3 (genetic entropy), 7 (soft tissue in dino bones), 49 (the decay of the earth’s magnetic field), 51–54 (carbon-14 in coal/oil/diamonds (also [dino bones](https://creation.com/c14-dinos), but not mentioned)), 59–60 (helium diffusion in zircons), 83 (the existence of short-period comets), and 89 (the faint young sun paradox). The other type of evidence concerns the size and geographical extent of many rock formations: they are far too big to be explained by processes we see occurring today, and speak of a global watery cataclysm (e.g. [Sedimentary blankets](https://creation.com/continent-wide-sedimentary-strata) and [Massive erosion of continents demonstrates Flood runoff](https://creation.com/continental-erosion)).

**Conclusion**

So there you have it; an outline of how to present an argument for biblical creation. Always remember: we have far more resources at our disposal to expose the error of deep time and proclaim the truth of biblical creation than just ‘science’. Therefore, draw heavily on the Bible, theology, and philosophy to establish your case—they are friends of the biblical creationist when they are properly used. But of course, science is our friend too … *when properly interpreted*.

# The earth’s magnetic field: evidence that the earth is young

***by***[***Jonathan Sarfati***](https://creation.com/dr-jonathan-d-sarfati)

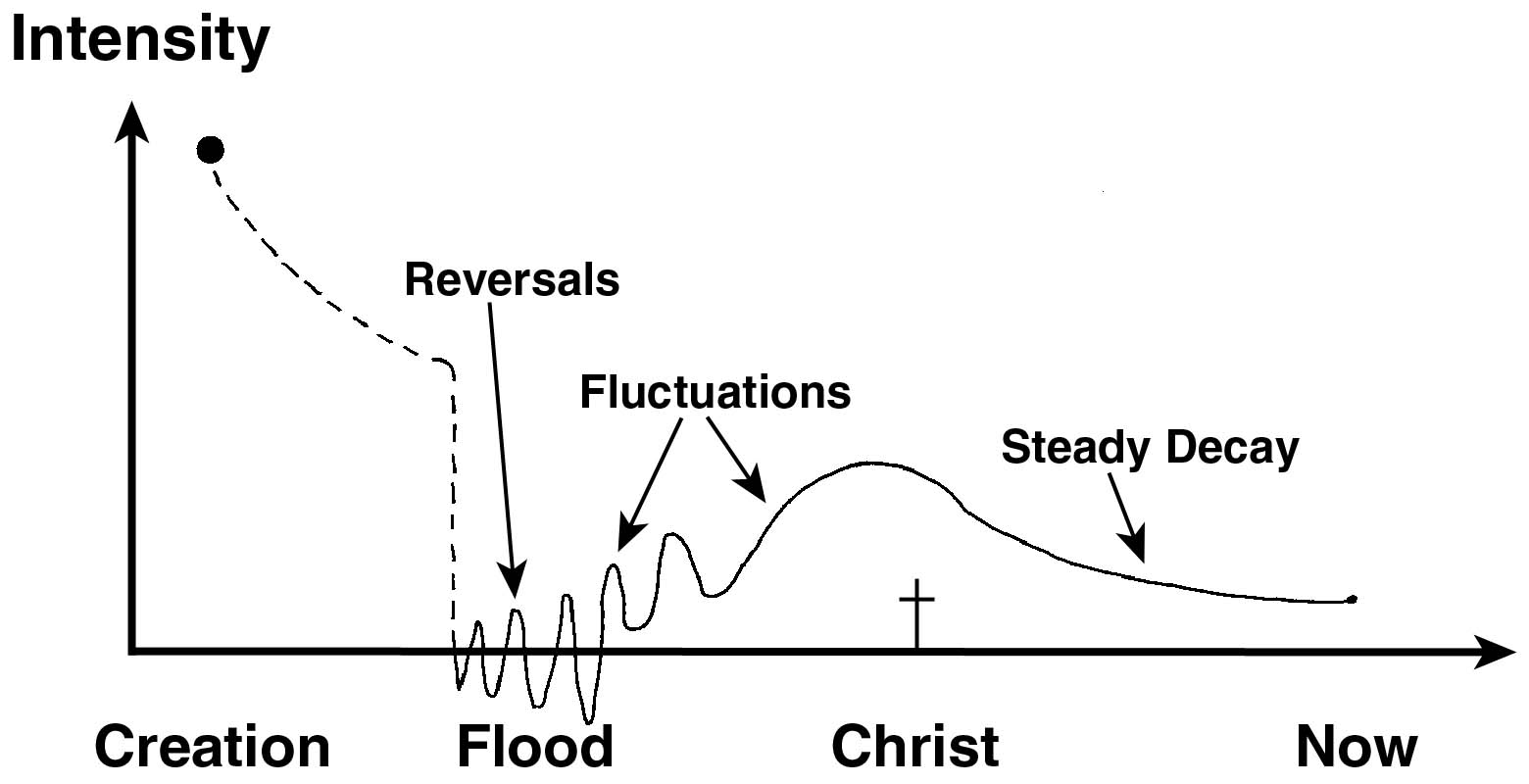
The Aurora Borealis (Northern Lights). This is caused by charged particles from space striking the earth’s atmosphere. These particles have been deflected towards the poles by the presence of the earth’s magnetic field (which also diverts many such particles harmlessly into space).  
Credit: photo Wikipedia.org

The earth has a magnetic field pointing almost north-south—only 11.5° off. This is an excellent design feature of our planet: it enables navigation by compasses, and it also shields us from dangerous charged particles from the sun. It is also powerful evidence that the earth must be as young as the Bible teaches.

In the 1970s, the creationist physics professor Dr Thomas Barnes noted that measurements since 1835 have shown that the field is decaying at 5% per century1 (also, archaeological measurements show that the field was 40% stronger in AD 1000 than today2). Barnes, the author of a well-regarded electromagnetism textbook,3 proposed that the earth’s magnetic field was caused by a decaying electric current in the earth’s metallic core (see [side note](https://creation.com/the-earths-magnetic-field-evidence-that-the-earth-is-young#origin)). Barnes calculated that the current could not have been decaying for more than 10,000 years, or else its original strength would have been large enough to melt the earth. So the earth must be younger than that.

## Evolutionist responses

The decaying current model is obviously incompatible with the billions of years needed by evolutionists. So their preferred model is a self-sustaining dynamo (electric generator). The earth’s rotation and convection is supposed to circulate the molten nickel/iron of the outer core. Positive and negative charges in this liquid metal are supposed to circulate unevenly, producing an electric current, thus generating the magnetic field. But scientists have not produced a workable model despite half a century of research, and there are many problems.4

[](https://dl0.creation.com/articles/p007/c00760/760-earth-magnetic-field-decay.jpg)How the earth’s magnetic field has changed. The intensity could not have been much higher than the starting point shown, indicating a young age.

But the major criticism of Barnes’ young-earth argument concerns evidence that the magnetic field has reversed many times—i.e. compasses would have pointed south instead of north. When grains of the common magnetic mineral magnetite in volcanic lava or ash flows cool below its Curie point (see [side note](https://creation.com/the-earths-magnetic-field-evidence-that-the-earth-is-young#cause)) of 570°C (1060°F), the magnetic domains partly align themselves in the direction of the earth’s magnetic field at that time. Once the rock has fully cooled, the magnetite’s alignment is fixed. Thus we have a permanent record of the earth’s field through time.

Although evolutionists have no good explanations for the reversals, they maintain that, because of them, the straightforward decay assumed by Dr Barnes is invalid. Also, their model requires at least thousands of years for a reversal. And with their dating assumptions, they believe that the reversals occur at intervals of millions of years, and point to an old earth.

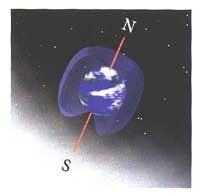
## Creationist counter-response

The physicist [Dr Russell Humphreys](https://creation.com/d-russell-humphreys) believed that Dr Barnes had the right idea, and he also accepted that the reversals were real. He modified Barnes’ model to account for special effects of a liquid conductor, like the molten metal of the earth’s outer core. If the liquid flowed upwards (due to convection—hot fluids rise, cold fluids sink) this could sometimes make the field reverse quickly.5,6 Now, as discussed in Creation **19**(3), 1997, [Dr John Baumgardner](https://creation.com/john-baumgardner) proposes that the plunging of tectonic plates was a cause of the Genesis Flood (see [online version](https://creation.com/probing-the-earths-deep-places-creation-magazine)). Dr Humphreys says these plates would have sharply cooled the outer parts of the core, driving the convection.7 This means that most of the reversals occurred in the Flood year, every week or two. And after the Flood, there would be large fluctuations due to residual motion. But the reversals and fluctuations could not halt the overall decay pattern—rather, the total field energy would decay even faster (see graph above).8

This model also explains why the sun reverses its magnetic field every 11 years. The sun is a gigantic ball of hot, energetically moving, electrically conducting gas. Contrary to the dynamo model, the overall field energy of the sun is decreasing.

Dr Humphreys also proposed a test for his model: magnetic reversals should be found in rocks known to have cooled in days or weeks. For example, in a thin lava flow, the outside would cool first, and record earth’s magnetic field in one direction; the inside would cool later, and record the field in another direction.

Three years after this prediction, leading researchers Robert Coe and Michel Prévot found a thin lava layer that must have cooled within 15 days, and had 90° of reversal recorded continuously in it.9 And it was no fluke—eight years later, they reported an even faster reversal.10 This was staggering news to them and the rest of the evolutionary community, but strong support for Humphreys’ model. (See also Dr Humphreys’ online article [The Earth’s magnetic field is young](http://www.icr.org/article/371/).)



## A ‘force-field’ around the earth.

The earth’s magnetism is running down. This world-wide phenomenon could not have been going on for more than a few thousand years, despite swapping direction many times. Evolutionary theories are not able to explain properly how the magnetism could sustain itself for billions of years.

## Conclusion

The earth’s magnetic field is not only a good navigational aid and a shield from space particles, it is powerful evidence against evolution and billions of years. The clear decay pattern shows the earth could not be older than about 10,000 years.

**Update, 29 August 2014:** recently, geophysicist David Stevenson at the California Institute of Technology admitted the problems that the earth’s magnetic field poses for long-age dogma:

Right at this moment, there is a problem with our understanding of Earth’s core and it’s something that’s emerged only over the last year or two. The problem is a serious one. We do not now understand how the Earth’s magnetic field has lasted for billions of years. We know that the Earth has had a magnetic field for most of its history. We don’t know how the Earth did that. We have less of an understanding now than we previously thought we had a decade ago of how the Earth’s core has operated throughout history.11

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| --- |
| Origin of the Earth’s magnetic field 760-swirling-cloud The Humphreys Proposal Dr Humphreys proposed that God first created the earth out of water.12 He based this on several Scriptures, e.g. [2 Peter 3:5](https://biblia.com/bible/esv/2%20Pet%203.5) which concludes that the earth was formed out of water and by water. After this, God would have transformed much of the water into other substances like rock minerals. Now water contains hydrogen atoms, and the nucleus of a hydrogen atom is a tiny magnet. Normally these magnets cancel out so water as a whole is almost non-magnetic. But Humphreys proposed that God created the water with the nuclear magnets aligned. Immediately after creation, they would form a more random arrangement, which would cause the earth’s magnetic field to decay. This would generate current in the core, which would then decay according to Barnes’ model, apart from many reversals in the Flood year as Humphreys’ model states. Observational support from the fields of other planets 760-neptuneThe planet Neptune as photographed by the Voyager probe  Dr Humphreys also calculated the fields of other planets (and the sun) based on this model. The important factors are the mass of the object, the size of the core and how well it conducts electricity, plus the assumption that their original material was water. His model explains features which are deep puzzles to dynamo theorists. For example, evolutionists refer to ‘the enigma of lunar magnetism’13—the moon once had a strong magnetic field, although it rotates only once a month. Also, according to evolutionary models of its origin, it never had a molten core, necessary for a dynamo to work. Also, Mercury has a far stronger magnetic field than dynamo theory expects from a planet rotating 59 times slower than Earth.  Even more importantly, in 1984, Dr Humphreys predicted that the field strength of Uranus was about 100,000 times the evolutionary predictions from their ‘dynamo’ theory. The two rival models were tested when the Voyager 2 spacecraft flew past these planets in 1986 and 1989. The field for Uranus was just as Humphreys had predicted. Dr Humphreys’ prediction for the field strength of Neptune aligned with the evolutionary prediction, because this planet has a high heat outflow.14 But Neptune’s field was still different in other important ways from the evolutionary dynamo prediction: the tilt and offset.15 Yet many anti-creationists call creation ‘unscientific’ because it supposedly makes no predictions!  Humphreys’ model also explains why the moons of Jupiter that have cores have magnetic fields, while Callisto, which lacks a core, also lacks a field.16 (See Dr Humphreys’ online article [Beyond Neptune: Voyager II Supports Creation](http://www.icr.org/article/329/)) Cause of the earth’s magnetic field Materials like iron are composed of tiny magnetic domains, which each behave like tiny magnets. The domains themselves are composed of even tinier atoms, which are themselves microscopic magnets, lined up within the domain. Normally the domains cancel each other out. But in magnets, like a compass needle, more of the domains are lined up in the same direction, and so the material has an overall magnetic field.  Earth’s core is mainly iron and nickel, so could its magnetic field be caused the same way as a compass needle’s? **No**—above a temperature called the Curie point, the magnetic domains are disrupted. The earth’s core at its coolest region is about 3400–4700°C (6100–8500°F), much hotter than the Curie points of all known substances.  But in 1820, the Danish physicist H.C. Ørsted discovered that an electric current produces a magnetic field. Without this, there could be no electric motors. So could an electric current be responsible for the earth’s magnetic field? Electric motors have a power source, but electric currents normally decay almost instantly once the power source is switched off (except in superconductors). So how could there be an electric current inside the earth, without a source?  The great creationist physicist Michael Faraday answered this question in 1831 with his discovery that a changing magnetic field induces an electric voltage, the basis of electrical generators.  Imagine the earth soon after creation with a large electrical current in its core. This would produce a strong magnetic field. Without a power source, this current would decay. Thus the magnetic field would decay too. As decay is change, it would induce a current, lower but in the same direction as the original one.  So we have a decaying current producing a decaying field which generates a decaying current … If the circuit dimensions are large enough, the current would take a while to die out. The decay rate can be accurately calculated, and is always exponential. The electrical energy doesn’t disappear—it is turned into heat, a process discovered by the creationist physicist James Joule in 1840.  This is the basis of Dr Barnes’ model. Addendum: Answering sceptical objectionsExponential Decay? Some sceptics have claimed that an exponential decay curve is wrong, and a linear decay should have been plotted. Now, both exponential and linear decay curves have two fitted parameters:   * Exponential decay (**i = Ie-t/τ**) requires the parameters I and τ. * Linear decay of the general form y = mx + c requires the gradient m and y-intercept c.   If the fit were similar, there is no statistical reason to choose one over the other. The fit is very similar for the limited range of data available, with no significant difference between the two.  However, it is a well-accepted procedure in modelling of regression analysis to use meaningful equations to describe physical phenomena, where there is a sound theoretical basis for doing so. This is the case here. Currents in resistance/inductance circuits always decay exponentially, not linearly, after the power source is switched off. For example, in a simple electric circuit at time t with initial current I, resistance R and inductance L, the current is given by **i = Ie-t/τ**, where τ is the time constant L/R—the time for the current to decay to 1/e (~37%) of its initial value. For a sphere of radius a, conductivity σ and permeability μ, τ is given by μσa²/π².  A linear decay might look good on paper, but it’s physically absurd when dealing with the real world of electric circuits. In fact, linear decays are rare in nature in general. Conversely, exponential decay is firmly rooted in electromagnetic theory.  Thomas Barnes, who first pointed out magnetic field decay as a problem for evolutionists, was a specialist in electromagnetism and wrote some well-regarded textbooks on the subject. But most of his critics are crassly ignorant of the subject.  Another important point is that these calculations point to a maximum age of the earth. Even if the sceptics were right about a linear decay, it would still point to an upper limit of 90 million years, and this is far too young for evolution.  A final point is that if the decay really were linear, we haven’t got much time left before the earth’s magnetic field disappears! Multipole components of the field Some sceptics have claimed:  ‘… only the dipole-field strength has been “decaying” for a century and a half … the strength of the nondipole field (about 15% of the total field) has increased over the same time span, so that the total field has remained almost constant. Barnes’ assumption of a steady decrease in the field’s strength throughout history is also irreconcilable, of course, with the paleomagnetic evidence of fluctuations and reversals [in the geomagnetic field] (Ecker, 1990, 105)’  The ‘authority’ turns out to be an anti-creationist dictionary compiled by an anti-Christian librarian with, as far as we are aware, no scientific training! Dr Humphreys answered in July 2001:  ‘Litany in the Church of Darwin: “The non-dipole part of the earth’s magnetic field shall save us!” That is indeed an old and dismissive evolutionist argument. Tom Barnes discussed it in his papers during the 1970s. I discussed it near the end of my paper “A Physical Mechanism for Reversals of the Earth’s Magnetic Field During the Flood”.17  ‘Over 90% of the field is dipolar (two poles, one north and one south), but the rest of it is non-dipolar, or multipolar, such as the quadrupole part (two north and two south poles), the octopole part (four north and four south poles), etc. Just imagine the fields from bar magnets tied together at various angles to one another.  ‘In the 1970s, the evolutionists claimed that the very large energy (units are Joules or ergs) disappearing from the dipole part of the field is not really converted into heat, but is somehow being stored in the non-dipole part, later to be resurrected as a new dipole in the reverse direction. Some papers showed that the average field intensity (units are Teslas or Gauss) of some of the non-dipole parts is increasing slightly.18  ‘But field intensity is not energy. To get the total energy in a component, one must square the intensity in a small volume around each point, multiply by the volume and a certain constant, and add up all the resulting energies throughout all space. The non-dipole intensities fall off (with increasing distance from the earth’s center) much faster than the dipole intensity, so the non-dipole parts are not able to contribute nearly as much energy to the total as the dipole part. That means the small increase in some non-dipole field intensities does not appear to represent nearly enough energy to compensate for the enormous energy lost year by year from the dipole part.  ‘I have my doubts that the paper referred to actually proves the point the evolutionists want to make, that “non-dipole energy gain compensates for dipole energy loss”. Not only does my eyeball estimate above disagree, but the theory of reversals in my 1990 ICC paper disagrees [As shown below, Dr Humphreys no longer has his doubts—he (and anyone who checks the numbers) now knows that the evolutionist claim is fallacious]. It says that some energy will go into non-dipole components, but not nearly enough to compensate for the energy loss from the dipole part. The reversal process I propose is not efficient; it dissipates a large amount of energy as heat. I discussed this, including non-dipole parts by implication, in the second-to-last section (“The Field’s Energy Has Always Decreased”) of my [Impact article](http://www.icr.org/article/371/) on the ICR website.  ‘As further evidence, I used the authoritative International Geomagnetic Reference Field data—more than 2500 numbers representing the earth’s magnetic field over the whole twentieth century. The bottom line is this:  ‘In the most accurately recorded period, from 1970 to 2000, the total (dipole plus non-dipole) energy in the earth’s magnetic field has steadily decreased by 1.41±0.16%. At that rate, the field would lose at least half its energy every 1500 years, give or take a century or so. This supports the creationist model that the field has always been losing energy—even during magnetic polarity reversals during the Genesis flood—ever since God created it about 6000 years ago.  ‘The evolutionists, on the other hand, have no workable, mathematically-analyzable theory of reversals. They are claiming that whatever process actually caused the reversals was 100% efficient—that the total energy in their hoped-for future dipole field will be equal to the total energy which was in the dipole field at its last peak (about the time of Christ). That is, their faith in a billion-year age for the field requires them to believe that each cycle is resurrected phoenix-like from the ashes of the previous cycle—with no losses.  ‘Put another way, the Church of Darwin requires them to believe that the [Second Law of Thermodynamics](https://creation.com/thermodynamics-and-order-questions-and-answers)—that all forms of energy devolve down to heat—does not apply to planetary magnetic fields. Sound familiar?’  Later, Dr Humphreys published ‘The Earth’s magnetic field is still losing energy’, CRSQ **39**(1)1–11, March 2002, which explains the above and more in detail (see [full article](https://www.creationresearch.org/crsq-2002-volume-39-number-1_earth-s-magnetic-field), and his Creation Matters layman’s summary—[The Earth’s Magnetic Field: Closing a Loophole in the Case for its Youth](https://www.3bible.com/articles/Institute%20for%20Creation%20Research%20-%20Creation%20Matters/Creation%20Matters%202002,%20Volume%207,%20Number%202.pdf), March/April 2002—both off site). The abstract of the CRSQ paper reads:  ‘This paper closes a loophole in the case for a young earth based on the loss of energy from various parts of the earth’s magnetic field. Using ambiguous 1967 data, evolutionists had claimed that energy gains in minor (“non-dipole”) parts compensate for the energy loss from the main (“dipole”) part. However, nobody seems to have checked that claim with newer, more accurate data. Using data from the International Geomagnetic Reference Field (IGRF) I show that from 1970 to 2000, the dipole part of the field steadily lost 235 ± 5 billion megajoules of energy, while the non-dipole part gained only 129 ± 8 billion megajoules. Over that 30-year period, the net loss of energy from all observable parts of the field was 1.41 ± 0.16 %. At that rate, the field would lose half its energy every 1465 ± 166 years. Combined with my 1990 theory explaining reversals of polarity during the Genesis Flood and intensity fluctuations after that, these new data support the creationist model: the field has rapidly and continuously lost energy ever since God created it about 6,000 years ago.’ |

# Too much coal for a young earth?

***by***[***Gerhard Schönknecht***](https://creation.com/gerhard-schonknecht)***[\*](https://creation.com/too-much-coal-for-a-young-earth" \l "ra)***

## Coal Deposits Within the Geological Time-scale

Coal can be found in almost all levels of the geological record from the Devonian to the Tertiary Period (see Table 1).1

The biggest coal deposits, however, occur in the Carboniferous Period, especially the upper portion thereof; hence the name (Latin carbo, coal). Depending on the degree of carbon concentration and coalification, one differentiates between lignite, bituminous coal and anthracite. The degree of coalification generally increases the further down in the rock record the coal layers are. In the Carboniferous Period one thus finds bituminous coal, and in exceptions where the layers were not so deeply buried, also sub-bituminous coal. Lignite is found predominantly in the Tertiary Period.

These different rank coals were formed within a period of 350 million years according to historical geology. A duration of 30–40 million years is presupposed, for example, for the formation of the bituminous coal of the upper Carboniferous Period.

**Does this coal contain the stored solar energy of millions of years?**

|  |  |
| --- | --- |
| **PERIOD** | **ALLEGED AGE /Mya** |
| Quaternary | 0–1.8 |
| Tertiary | 1.8–65.0 |
| Cretaceous | 65.0–142.0 |
| Jurassic | 142.0–205.7 |
| Triassic | 205.7–248.2 |
| Permian | 248.2–290.0 |
| Carboniferous | 290.0–354.0 |
| Devonian | 354.0–417.0 |
| Silurian | 417.0–443.0 |
| Ordovician | 443.0–495.0 |
| Cambrian | 495.0–545.0 |
| Precambrian | >545.0 |

***Table 1.*** Uniformitarian geological time-table with the time-scale of historical geology.

## Global Resources of Crude Fossil Fuels

For raw materials, a difference is made between the guaranteed mineable reserves and the total of all estimated deposits (the resources)—see Table 2.2 The estimated global resources of fossil fuels (which only 10% thereof are guaranteed mineable reserves!) are:

Efossil = 3.3 x 1023 J

**How much energy is that?**

### ****Comparison of Fossil Energy with Daily Solar Radiation****

The Earth receives solar energy from the Sun of

Esolar =SorR2 p x 1 day

=1.37 x 103W/m2 (6.37 x 106m)2 p

x 24 x 3600 sec

=1.5 x 1022 J per day

where

So =solar constant,

and

rR =average Earth’s radius

Thus

Efossil/Esolar = 3.3 x 1023 J/1.51 x 1022J

= approx. 22

That is, during every 22 days the Earth receives solar radiation energy which corresponds to the energy in all the fossil fuel resources.

**This fossil fuel corresponds to what area of forest?**

|  |  |  |
| --- | --- | --- |
| **ENERGY CARRIER** | **RESOURCES** | **ENERGY PRODUCED/1023J** |
| bituminous and sub bituminous coal | 9.8 x 1012 tonnes | 2.2 |
| lignite | 2.3 x 1012 tonnes | 0.25 |
| oil shale |  | 0.4 |
| pitchstone |  | 0.15 |
| natural oil | 3.4 x 1014 m3 | 0.13 |
| crude oil | 2.7 x 1011 tonnes | 0.12 |
| heavy oil |  | 0.1 |
| peat | 2.0 x 1011 tonnes | 0.015 |
| TOTAL |  | 3.3 |

***Table 2.***Global resources of fossil fuel raw materials (from Ref. 2).

## Comparison Between Fossil Fuels and the Energy Content of a Global Forest

Today, a useful forest in Germany has a maximum of 300 solid cubic metres of wood per hectare.3 A forest area 100 years old already has up to 1,000 solid cubic metres of wood per hectare (see Table 3). Primeval forests may have yielded even more.

The General Sherman Tree in the Sequoia National Park north of Los Angeles is the biggest tree in the world. It is 83.8 m tall, has a circumference of 31.3 m, and is said to be 2,500 years old. A single such tree would easily yield 2,000 solid cubic metres of wood.

Now the majority of scientists claim that crude oil and natural gas originated primarily from sea plankton. Thus only the coal portion of the total energy in the fossil fuels, or 2.4 x 1023 J, stems from forests.

If one assumes that the primeval forests yielded 600 solid cubic metres of wood per hectare, with an average heating value of 1010 J/m3, this energy mass of coal would correspond to a forest area of

2.4 x 1023J/(1010J/m3 x 600m3/ha)

= 3.6 x 1010 ha

which is approximately 2.5 times the surface area of the present continents (which together equal 29% of the Earth’s 511 million km2 total surface area).

Primeval forests of modern species would have needed to cover 2.5 times the present continental surfaces prior to the Flood in order to provide the energy amounts in all the coal resources.

**How long would it take to produce the fossil fuels from present forests?**

|  |  |
| --- | --- |
| **TYPE OF WOOD** | **CUBIC METRE PER HECTARE** |
| Pine | **300–400** |
| Beech | **600** |
| Spruce | **600–800** |
| Sequoia | **1000** |

***Table 3.*** Solid cubic metre wood of different woods at 100 years of age.

## Comparison of Fossil Fuels with the Global Growth Rates of Forests

The annual growth rate of a forest lies between 0.9 (needle wood) and 3.5 (rain forest) tonnes per hectare. For present forests of 2.5 x 109 hectares (in the last five years 85 million hectares were deforested!), which corresponds to 17% of the surface area of the continents, the annual growth amounts to 4.4 x 109 tonnes of dry substance per year. If one takes deciduous and needle forests into consideration, one would arrive at 7.1 x 109 cubic metres of wood per year. For an average heating value of 1010 J/m3, this corresponds to a global annual energy growth of 8 x 1019 J.

At the present global growth rates, the fuel energy in all coal could thus have been stored within 2.4 x 1023J/7.8 x 1019J or approximately 3,000 years. This fossil fuel could thus have been stored easily in 3,000 years at the present global growth rates.

## Bituminous and Sub-Bituminous Coal in the Creation Model

### The Evolutionary/Uniformitarian Scenario

Approximately 65% of the fossil fuels are bituminous coal (including approximately 7% sub-bituminous coal). Bituminous coal is found in all geological systems, but predominantly in the Carboniferous and Permian Periods (see Table 1). It has been deposited primarily in the form of seams, which may extend over hundreds of square kilometres. Imprints of the original vegetation often remain in the bituminous coal. 200–300 seams lie in the north-western coal reserves of Germany, assigned to the Carboniferous Period and distributed through up to 4,000 m of thick sedimentary beds stacked on top of one another. The seams are separated from one another by layers of sediments (for example, sandstone, limestone, shale). According to the evolutionary/uniformitarian model these seams were supposedly formed as a result of repeated transgressions and regressions of the seas of those days (periodic flooding) over coastal swamp forests in the course of a total of approximately 30–40 million years.4,5

### floating forestCatastrophic Formation of Carboniferous Coals?

This evolutionary/uniformitarian hypothesis has been questioned. The structure of the intermediate sedimentary layers clearly indicates their formation due to a catastrophe; the so-called root horizons are not fossil soils with roots in them suitable for the growth of the Carboniferous plants;6 and the anatomy of the vegetation of the Carboniferous Period (Lepidodendron and Sigillaria) indicates floating plants.7,8,9 Based on this data, Scheven postulated that the Carboniferous vegetation had the characteristics of a floating forest, an alternative to swamp forests10 (see the article [Forests that grew on water](https://creation.com/forests-that-grew-on-water) and drawing (right) of Dr Scheven’s proposal11.

Scheven’s Flood model within the creationist framework for Earth history presupposes that the floating forests of the so-called Carboniferous Period, as a habitat of pre-Flood ecosystems, were buried either during or shortly after the year of the Flood. According to this model, they grew prior to the catastrophe of the Flood and were then broken up and deposited on top of one another during the Flood. Subsequent to burial the layers of forest debris subsided to great depths, where they were subjected to pressure conditions which led to a rapid formation of coal.12

## Too Much Coal in Too Short a Period?

This depiction of coal formation within the creationist framework for Earth history suggests that at least the biomass of the plants which are present today as bituminous coal, but probably more than this, was present on the Earth prior to the Flood. Since floating forests could not grow in the way they are found buried today as coal seams (namely, stacked on top of one another), they had to live on the water surface next to each other prior to the Flood. Is this at all possible given the size of the Earth? Earlier, it was shown that even if forests of present-day structure were to cover the entire surfaces of today’s continents, they would yield only approximately 40% of the estimated coal portion of the fossil fuels.

A short, very rough estimate can give us an answer. In order to do so, we presuppose the following:

1. We assume that the coals stemming from the Carboniferous and Permian Periods originated entirely from floating forests.
2. Bituminous coal is found in seams of varying thicknesses. We assume an average thickness of 50 cm (this is probably a conservative estimate).
3. Bituminous and sub-bituminous coals vary in composition and density. We assume an average density of 1.8 g/cm3.
4. We assume a total amount of bituminous and sub-bituminous coals of 1013 tonnes (see Table 2).

The assumed density of the coal yields a surface mass of approximately l.0 tonnes per square metre of coal seam if the seam thickness is 0.5 m. A total mass of 1.0 x 1013 tonnes thus yields a surface of approximately 1013 m2 or 10 x 106 km2. For a total Earth’s surface of 511x106 km2, this yields a fraction of approximately 2% of the Earth’s surface. This figure is probably too low, since one cannot assume that all the floating forests were fossilised; and also, some of the vegetation destroyed by the Flood would probably have been destroyed by the natural processes of decay.

## Lignite in the Creation Model

Lignites, like bituminous coals, can be found at various levels in the geological record, but occurs predominantly in the Tertiary Period. However, lignites were formed from very different plants to those in the bituminous coals, the vegetation responsible more or less corresponding to today’ angiosperms and gymnosperms.

Just as the formation of bituminous coal seams is viewed as the result of swamp growth over millennia, so also is the origin of lignite. A study of the actual structure of the Tertiary lignites, however, indicates that here, too, their formation is due to a catastrophe.13 Scheven’s premise is that the Tertiary lignite deposits consist partially of pre-Flood plants, but that they were only deposited a century or more after the year of the Flood (in particular old-Tertiary lignites with sub-tropical flora). Prior to their final deposition and burial, they are presumed to have drifted on the post-Flood oceans as ‘inhabited depots’. On the other hand, new forests may have grown in the centuries following the Flood within the framework of mega-successions (successive recolonisation of the land surfaces and ocean bottoms), which were then uprooted, crushed and buried by later catastrophes.14

According to the calculations above, there would have been enough space on the Earth’s surface during the pre-Flood period for some of the vegetation in today’s lignite deposits to have grown. But would there have been sufficient surface area available on the pre-Flood Earth for all the necessary vegetation?

Given the following parameters, we can estimate the answer:

1. The total amount of lignite amounts to approximately 2.5 x 1012 tonnes (see Table 2).
2. The lignite originated from pre-Flood forests with a biomass of approximately 40,000 tonnes of dry wood per km2 (for example, 600 solid cubic metres per hectare, see Table 3).

The pre-Flood forests thus covered a surface area of at least 60 x 106 km2 (2.5 x 1012 tonnes divided by 40,000 tonnes per km2), that is, approximately 40% of today’s continents. This estimate seems low, however, since one can hardly assume that this entire mass of plants was fossilised during the Flood. On the other hand, it is also possible that an unknown portion of Tertiary lignites was formed during post-Flood mega-successions,15 the vegetation thus being buried by catastrophes subsequent to the Flood.

## Conclusions

1. If the productivity of today’s forests is used as the basis for calculations, then the stored energy of some thousands of years of plant growth is found in fossil fuels. The mineable reserves, which amount to only 10% of the resources, contain the solar energy that could be stored by today’s forests in some hundreds of years. This shows the significance of solar energy and its contribution to the forests of the Earth. These estimates show that the Flood model may not be sufficient to account for the fossil fuels if they all originated in forests similar to those of modern times.
2. If, however, Scheven’s model of Carboniferous floating forests is applied, the following estimates of pre-Flood biomass result:
   1. Bituminous and sub-bituminous coals could have originated from the floating forests which might have covered 2% of the pre-Flood surface of the Earth.
   2. Lignites from predominantly pre-Flood(?) vegetation represent a biomass which could have existed on approximately 40% of current continental surfaces.
3. In spite of many unsettled details, the existence of approximately 1.3 x 1013 tonnes of carbon in the form of coal may be reconciled with a Flood as documented in the Bible and an age of the Earth of more or less 6,000 to 10,000 years.
4. The formation of crude oil still needs to be modelled quantitatively in a creation/Flood framework.
5. It should be mentioned that the bulk of reduced carbon on Earth is sediment-bound kerogen, which, due to its 13C/12C ratio, most probably is of biological origin. It is estimated that 1022 g kerogen exist in sediments, only 2% of which is coal plus oil plus gas. The origin of this kerogen also needs to be discussed in a creation/Flood model.

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**Is Young-Earth Creationism a heresy?**

**Is the absence of short-lived radionuclides a problem for the Biblical timescale?**

From JM, Nashville, TN, USA. He comes across with the all-too-common ‘theowaffle’ against creationist theories, although we know he’s actually a vociferous antibiblicist. It might be surprising to some that someone with a known antipathy to the Bible would even bother to appeal to theology, but enemies of the Gospel have a long history of pious-sounding nonsense in an attempt to get [compromising churchians](https://creation.com/the-skeptics-and-their-churchian-allies) to undermine their own book.

There are also two disconnected points: one is a problem in the distribution of radioisotopes. The second concerns old court cases well before CMI’s time and proposed definitions of the Creator.

His letter is posted indented below with point-by-point responses by [Dr Jonathan Sarfati](https://creation.com/dr-jonathan-d-sarfati), interspersed as per normal email fashion. Ellipses (…) at the end of one of the paragraphs signal that a mid-sentence comment follows, **not** an omission.

As a first reaction, young-earth creationists will recoil at the suggestion that their tightly-held literal interpretation of the first book of Genesis is a heresy.

We won’t recoil at all, but will be bemused that a known antibiblicist would profess to care. In any case, if anyone wants to dispute the accuracy of a literal, or rather plain, interpretation, then they need to produce grammatical reasons. See [Q&A: Genesis](https://creation.com/genesis-questions-and-answers).

After all, who more strongly supports the Bible and all that is therein?

No argument there!

But let us examine several lines of logic and see where they lead. First, we need to set a ground rule as to whether or not God is responsible for the earth as we know it. The question is, ‘Did God make this world or didn’t He?’ If He didn’t then He didn’t and there’s nothing to be done about it.

But since that statement is false, there’s even less to be done about it.

Christians will undoubtedly answer that, yes, God did create the world.

Well and good, but that leads us to a new understanding. As we learn more and more about the earth, are we not learning about how God created the earth?

Not that JM believes this, but it’s right to some extent. However, it’s deficient, because the data must always be*interpreted*.

The processes we find to have operated to cause the world around us are in actuality a reflection of God’s hand.

Yes, but the mistake of churchians who subscribe to methodological naturalism is assuming that God’s present sustaining processes are the same by which He created the world. But the laws that govern a computer’s operation did not form the computer in the first place. See [Naturalism, Origin and Operation Science](https://creation.com/article/2891/#Naturalism).

Young earth creationists believe that the earth is no more than about 10,000 years old. There is, however, a very valid reason for not believing that.

Actually, there is no excuse **not**to believe it, since that’s the testimony of the only eye-witness to its formation. A reliable eye-witness beats circumstantial evidence every time. See [Jesus and the age of the world](https://creation.com/article/373/#jesus_age).

As we know, radioactive isotopes of elements decay at a constant rate.

We know no such thing. We’ve known about radioactivity for only about 100 years, so how can we be sure that the decay has been constant for the alleged billions of years? Even in the laboratory, beta decay rates have been speeded up by many orders of magnitude when atoms are stripped of electrons—see [Billion-fold Acceleration of Radioactivity Demonstrated in Laboratory](https://creation.com/billion-fold-acceleration-of-radioactivity-demonstrated-in-laboratory-journal-of-creation-tj). Also, the Ph.D. physicists and geologists who contributed to the [RATE book](https://creation.com/store_redirect.php?products_id=252) have adduced several lines of evidence that decay has been faster in the past. They propose a pulse of accelerated decay rate during Creation Week, and possibly a smaller pulse during the Flood year, and among the support is:

* The presence of the alpha particles still within zircons where they were apparently formed by nuclear decay. Alpha particles are helium nuclei, and they have attracted two electrons to form helium atoms. The diffusion rate of helium through minerals would suggest that it would have escaped if the rocks were really billions of years old. See [Helium diffusion rates support accelerated nuclear decay](http://www.icr.org/research/icc03/pdf/Helium_ICC_7-22-03.pdf).
* High correlation of heat flow at Earth’s surface with concentration of radioactive isotopes, consistent with a pulse of accelerated decay during the Flood year to produce heat that hasn’t had time to dissipate.

There are theoretical means of producing accelerated decay, e.g. a small change in fundamental constants or the shape of the nuclear potential well can have a large effect on the decay rate (but little effect on radiohalo diameter). This would be expected to affect slower decaying isotopes more than fast decayers, and alpha decay more than beta, and the evidence supports this.

So JM’s first premise is debatable, and this is enough to demonstrate the unsoundness of his argument.

Every time a half-life passes, one-half of it decays into a new isotope. After the passage of a certain number of half-lives, the isotope in question will have decayed to a point where it is no longer detectable. Let us set 20 half-lives as a limit beyond which the isotope in question is not detectable. The amount remaining then would be ½20 or 1 part in 1,048,576, or only 0.000095% of the original.

Would God create lots of isotopes with higher energy radiation and more of it, when this would be hazardous to life?

OK, then detectable 14C (half life = 5700 years) activity in the sample is irrefutable proof that the strata in which they are found can’t be millions of years old as claimed. Contamination was ruled out by the δ13CPDB results (see [Could the radiocarbon be due to contamination?](https://creation.com/article/260/#contamination)). No wonder that critics have been desperate enough to attack the messenger—see [Dating Dilemma Deepens: Moore on ancient radiocarbon](https://creation.com/dating-dilemma-deepens-moore-on-ancient-radiocarbon), referring to an earlier article but where the same comment applies.

More recent research has shown that coal samples ‘dated’ to millions of years old and even a diamond had radiocarbon levels well above the detector threshold. See [Measurable 14C in fossilized organic materials: confirming the young earth creation-flood model](http://www.globalflood.org/papers/2003ICCc14.html) and [Diamonds, a creationists best friend](https://creation.com/diamonds-a-creationists-best-friend).

This rate of decay may be very fast, as in the case of Magnesium 23. Half of it decays every 11.9 seconds, so in only 238 seconds or 3 minutes and 58 seconds, 20 half-lives have passed.

Let us examine Thorium 229, which has a half-life of 7,340 years. Creationists who believe that the earth was created just 10,000 years ago would expect that there would be plenty of Thorium 229 on earth since only a little over one half-life has passed.

Just a moment! This presupposes that God had created it in the first place! As shown below, there are good reasons for denying this. This should demonstrate the fallacy of *arguing from silence*, which is the whole basis of JM’s argument. Conversely, our argument was based on the **presence**of 14C, although if JM’s old-Earth dogma were right, it should be absent. But even if God did create 229Th, a creationist would expect it to have decayed completely if the decay rates had all been accelerated as the evidence shows.

However, upon checking what isotopes are naturally present on earth, we find Thorium 229 to be absent.

Examination of another isotope, Potassium 40, shows that it requires about 1.4 × 109 (One billion, 400 million) years for one-half of it to decay. If we again check to see what isotopes are naturally present on earth, we do find Potassium 40 present.

We can learn much by examining which isotopes are naturally occurring. Geochemistry, and common sense, tells us that the very short-lived isotopes will not be found on earth. There are very many isotopes, but most have half-lives on the order of seconds or minutes. Let us examine the isotopes with a half-life of one million years or longer and see where this leads us.

NUCLIDES PRESENT LISTED BY HALF-LIFE [from Dalrymple, G. B., (1991) *The Age of the Earth* (Stanford, CA: Stanford University Press, p. 377. ]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Nuclide** | **Half-Life (years)** | **Found in Nature?** | **Nuclide** | **Half-Life (years)** | **Found in Nature?** |
| 50V | 6.0 × 1015 | yes | 244Pu | 8.2 × 107 | yes |
| 144Nd | 2.4 × 1015 | yes | 146Sm | 7.0 × 107 | no |
| 174Hf | 2.0 × 1015 | yes | 205Pb | 3.0 × 107 | no |
| 192Pt | ~1.0 × 1015 | yes | 236U | 2.39 ×107 | yes-P |
| 115In | 6.0 × 1014 | yes | 129I | 1.7 × 107 | yes-P |
| 152Gd | 1.1 × 1015 | yes | 247Cm | 1.6 × 107 | no |
| 123Te | 1.2 × 1013 | yes | 182Hf | 9 × 106 | no |
| 190Pt | 6.9 × 1011 | yes | 107Pt | ~7 × 106 | no |
| 138La | 1.12 × 1011 | yes | 53Mn | 3.7 × 106 | yes-P |
| 147Sm | 1.06 × 1011 | yes | 135Cs | 3.0 × 106 | no |
| 87Rb | 4.88 × 1011 | yes | 97Tc | 2.6 × 106 | no |
| 187Re | 4.3 × 1010 | yes | 237Np | 2.14 × 106 | yes-P |
| 176Lu | 3.5 × 1010 | yes | 150Gd | 2.1 × 106 | no |
| 232Th | 1.40 × 1011 | yes | 10Be | 1.6 × 106 | yes-P |
| 238U | 4.47 × 109 | yes | 93Zr | 1.5 × 106 | no |
| 40K | 1.25 × 109 | yes | 97Tc | 1.5 × 106 | no |
| 235U | 7.04 × 108 | yes | 153Dy | ~1.0 × 106 | no |

‘Yes’ indicates that an isotope is found in some quantity in nature. ‘Yes-P’ indicates that the isotope is present, but it is produced by the decay of another, longer-lived isotope.

This is itself sometimes an assumption to preserve old-Earth dogma, e.g. in the Anarkardo basin formation, the presence of 129I (iodine-129, t½ = 15.7 million years) is *assumed*to be produced by fission because the rock is said to be over 300 million years old (‘Paleozoic age’—see [*The Mythology of Modern Dating Methods*](https://creation.com/store_redirect.php?sku=10-3-090), p. 26.

Ignoring the isotopes that are naturally produced, and examining those that are left, we find something interesting between Plutonium 244, with a half-life of 82 million years and Samarium 146, with a half-life of 70 million years. All the isotopes with a half-life as long or longer than Plutonium 244 are present and all those with a half-life shorter than that are absent—every one of them.

There is a very good reason for this and it is the same reason that we do not expect to find either Magnesium 23 or Thorium 229 on earth. A long enough period of time in the earth’s history has passed for them to have decayed away to nothing.

At this point, young-earth creationists will say ‘That’s just how God made it,’ …

There is another very good reason: short lived isotopes by definition emit radiation more often. Also, the shorter the half life, the higher the energy of decay in general, and definitely so with alpha decay. So would God create lots of isotopes with higher energy radiation and more of it, when this would be hazardous to life? This is an even greater problem when most of these isotopes form very soluble compounds, so they could be leached into dangerous hot spots.

… but therein lies a problem—a very big problem. If the earth was, indeed, made in a single, supernatural act 10,000 years ago, then God, for some reason, left behind these isotopic abundances as part of His record.

He didn’t leave any ‘abundance’, but a **lack**of something—that’s the whole fallacy!

Ask yourself, ‘Why would God leave evidence that speaks against the actual record?’

Rather, ask yourself, why would such an opponent of the Bible like JM ask such a leading question?

We may say that God can do things in anyway that He desires. The fact is that God is self-limited. He has limited Himself to do no wrong. We find this in [Numbers 23:19](https://biblia.com/bible/esv/Num%2023.19) and [Titus 1:2](https://biblia.com/bible/esv/Titus%201.2):

[Numbers 23](https://biblia.com/bible/esv/Num%2023)  
19: God is not a man, that he should lie; neither the son of man, that he should repent: hath he said, and shall he not do it? or hath he spoken, and shall he not make it good?

[Titus 1](https://biblia.com/bible/esv/Titus%201)  
1: Paul, a servant of God, and an apostle of Jesus Christ, according to the faith of God’s elect, and the acknowledging of the truth which is after godliness;  
2: In hope of eternal life, which God, that cannot lie, promised before the world began;

The final determination that must be made is that the record of nature, being God’s record, is trustworthy as God has chosen not to lie to us. To say that He would lie, would impart a most profound deviousness to God, which would be the heresy referred to at the beginning.

All this is very true—that’s the whole point. God has told us that he created in six ordinary days about 6000 years ago, and he is incapable of lying. The record of nature is not propositional, and I’ve demonstrated how a different set of axioms can result in different propositions drawn from the same data. But God’s revelation in Scripture is propositional, we should interpret God’s actions in history in accordance with what He has revealed He has done.

Photo stock.xchng

Even readers not interested in the minutiae of radiometric dating can understand the errors of JM’s ways by studying the [Parable of the Candle](https://creation.com/the-parable-of-the-candle). Notice that Lucy refused even to consider a clear propositional note from Manuel about the time he left, and instead insisted on making dubious deductions from the rate that a candle melted. But like all dating methods, this requires assumptions about the past, and Lucy’s were false, and refuted when an eye witness demonstrated that the past was very different.

Therefore the only possible conclusion we can reach from this record written in isotopic abundances is that the earth is old—very old.

All the ‘appearance of age’ arguments made by creationists to try to explain away evidences of an old earth are likewise heretical. God did not put false clues under our feet to trick us. He put them there to show us his true creation and the way He did it. If God took 4.5 billion years to create the earth, then so be it. It is far more in line with a true theology to believe in a God-created old earth than to believe that a devious god is trying to trick us.

As shown, it would be more devious for God to have done as long agers and evolutionists claim, but to tell in plain Hebrew that he did something diametrically opposed—see [Evolution vs the Bible](https://creation.com/article/803#chart). God, like Manuel in the Candle parable, is not at all guilty of deception, since He has explained exactly what He has done. Rather, JM and Lucy deceive**themselves** when they ignore the clear propositional revelation about the past.

Not only are those using the ‘appearance of age’ apologetic relying on the heretical, the creationists themselves, in a pre-trial deposition before the McLean vs Arkansas trial questioning the legality of Arkansas Act 590, exposed their own heretical views of the Creator with the following statement from pages 186–87 of the trial transcript:

It is wrong for JM to generalise about ‘creationists’ from a trial transcript 20 years ago. CMI is not a lobby group, and [we oppose legislation for *compulsion* of creation teaching](https://creation.com/the-teaching-of-creation-in-schools). For one thing, why would we want an atheist forced to teach creation and give a distorted view? But we would like legal protection for teachers who present scientific arguments against the sacred cow of evolution.

“As used in the context of creation-science as defined by Section 4 of Act 590, the terms or concepts of ‘creation’ and ‘creator’ are not inherently religious terms or concepts. In this sense, the term ‘creator’ means only some entity with power, intelligence and a sense of design.”

‘Creation science does not require a creator who has a personality, who has the attributes of love, compassion, justice and so on which are ordinarily attributed to a deity. Indeed, the creation-science model does not require that the creator still be in existence.”

One can scarcely imagine a more egregious statement by people who purportedly claim to be Christians. The creationists, by their own words, admit that their vision of the Creator is a capricious, disposable, uncaring, and unloving god.

Evidently JM needs remedial reading comprehension courses, since the above said nothing of the sort. It was pointing out that one can believe in a Designer without any religious connotations. The above statement is actually more in line with the Intelligent Design Movement than with CMI, since we make no apologies for our Biblical basis. We make it clear that design is not enough—see [Q&A: Design](https://creation.com/design-features-questions-and-answers).

It’s important to note that JM was involved with an email debate/discussion group where my colleague [Dr Tas Walker](https://creation.com/dr-tasman-bruce-walker) participated for a little while. Dr Walker has always made it clear that his geological investigations are always within a framework that presupposes that the Bible is an accurate account of world history, which is a very fruitful procedure (see his [Biblical Geology Page](http://www.biblicalgeology.net/)). But JM decreed that Tas wasn’t allowed to bring the Bible into it (in this he was much like Hutton, who also decreed before considering the evidence that only processes happening today were admissible as explanations —see [quote](https://creation.com/huttons-a-priori-commitment-to-materialism)). So it’s hypocritical of JM to chide those creationists above for doing just what he demanded of Dr Walker. There’s no pleasing some ‘bibliosceptics’!

It may be that this revealed heresy had some effect on those willing to testify for the creationist defendants in the McLean trial. Although Langdon Gilkey, a noted theologian, testified for the plaintiffs, not one degreed theologian was called to testify for the position of the creationists.

Gilkey is a well-known liberal (i.e. who doesn’t believe in the fundamental doctrines of Christianity). In any case, what JM says is ironic in view of the usual caricature that creation *vs* evolution is just religion *vs* science—as in Darwin’s day, many scientists defended creation and many churchians defended evolution (see [Holy War? Who really opposed Darwin? Popular belief has it back to front](https://creation.com/holy-war)).

But CMI points out that it’s really the interpretations of scientific data by the framework of one religion vs the interpretations of scientific data by the framework of another religion ([secular humanism](https://creation.com/atheism-agnosticism-and-humanism-godless-religions-questions-and-answers)).

To conclude, we have examined the creationist views of ‘appearance of age’ and read their own view of the Creator. In both cases they have been found to be based on a most outrageous heretical theology which must be rejected.

To conclude, we have examined:

* JM’s double standards in appealing to a theology he despises and attacking some creationists for doing what he demands of others.
* JM’s logical fallacy—argument from silence—and pointed out alternative explanations including accelerated nuclear decay and analysing isotopic abundances in terms of a design feature—preventing excessive radiation.
* the role of eye-witness historical accounts, which must govern our interpretation of circumstantial evidence.

In all cases, JM’s views are based on a most outrageous lack of logic which must be rejected.

JM

[**Ed. note:** in a subsequent email, JM responded, but we can’t print it directly because he made demands unacceptable to CMI as a condition for publication, and he violated some feedback rules. But here are the main points to note:

* It’s common for a critic to hurl the most egregious falsehoods and attacks on our integrity (e.g. calling us heretics—the title was JM’s), then after our firm rebuttal, complain about our alleged ‘harshness’ or ‘impoliteness’. The double standards of our critics are breathtaking (see [One rule for evolutionists, and another for creationists!](https://creation.com/article/2082/47)).
* JM claimed to be a Christian in the Methodist denomination, but he explicitly denied Biblical inerrancy. He complained about how judgmental we were—but of course he didn’t have any problems about calling us heretics. But since a Christian is a follower of Christ, we ask, ‘Which Christ?’, since the only sufficient record of Him is in the Bible, which also speaks of ‘false Christs’. The true Christ proclaimed, ‘Scripture cannot be broken’, and frequently appealed to Scripture as a final settlement of an argument (‘It is written …’—see [The Authority of Scripture](https://creation.com/the-authority-of-scripture) for more detail). Allying himself with known God-haters against Bible-believers is also hardly a good way for JM to convince Christians that he’s one of them. It’s especially hard to see how JM can object to my characterization of him as an ‘antibiblicist’ when he explicitly attacks the Bible.
* His alleged ‘proofs’ of errors in the Bible (meaning that he thinks Scripture can be broken) have been answered on our website (and by scholars long ago), so JM violated the feedback rule about checking this first. Often these alleged problems are solved by a minimal effort to study the original language. E.g.
  + JM’s claim that the Bible is wrong to call the bat a ‘bird’ in Leviticus, when it’s a mammal—the original Hebrew contains no such error because the word translated ‘bird’ is *oph*, a generic term for a flying or winged creature. It’s merely chronological snobbery to claim that it’s wrong to classify animals in terms of locomotion (most practical for the Israelites for working out dietary restrictions) instead of by the presence or absence of mammary glands or feathers—see [Does the Bible Wrongly Call the Bat a Bird?](https://www.tektonics.org/af/batbird.php). Even modern ecologists classify water-dwelling life in a very similar way according to their mode of living: *plankton* (floaters/drifters), *nekton* (swimmers) and *benthos* (bottom-dwellers).
  + The old canard about contradictory genealogies of Christ is also answered by consulting the original language and understanding the culture—Luke’s genealogy was Mary’s line but listed Joseph because of the Jewish rule that mothers were generally not mentioned, and the Greek has a definite article before every name except Joseph, showing that it was not meant to be Joseph’s line. See [The Virginal Conception of Christ: Genealogies](https://creation.com/article/2875/#genealogies). Before critics claim the Bible has errors, they should check out [Q&A: Countering the Critics: Bible ‘contradictions’ and ‘errors’](https://creation.com/article/3057#contradictions) (I’ve now put answers to JM’s two alleged Biblical errors on this page (which were evidently the best he could come up with!) although they were already on our site).

**Update:** The argument can be turned around: there *are* short-lived radioisotopes that should have been extinct if the earth were as old as uniformitarians claim:

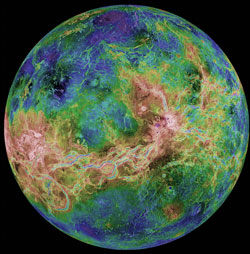
The existence of measurable amounts of 60Fe, 53Mn, 26Al, 36Cl, or 41Ca in Cambrian and Precambrian rock layers makes the argument of continuous production problematic for secular science and supports a recent creation by imposing an upper limit of ~1.5 × 107 years on the age of the earth.1

[(Dr) Jonathan Sarfati](https://creation.com/dr-jonathan-d-sarfati)

**Age of the earth**

101 evidences for a young age of the earth and the universe

***by***[***Don Batten***](https://creation.com/dr-don-batten)

There are many categories of evidence for the age of the earth and the cosmos that indicate they are much younger than is generally asserted today.

**Can science prove the age of the earth?**

The widely accepted age of the universe is currently 13.77 billion years and for the solar system (including Earth) it is 4.543 billion years. However, no scientific method can *prove* the age of the earth and the universe, and that includes the ones we have listed here that strongly suggest that these accepted ages are in serious error. Although age indicators are called ‘clocks’ they aren’t, because all ages result from calculations that necessarily involve making assumptions about the past. The starting time of the ‘clock’ has always to be assumed as well as the way in which the speed of the clock has varied over time. Further, it has to be assumed that the clock was never disturbed.

There is no independent natural clock against which those assumptions can be tested. For example, the amount of cratering on the moon, based on currently observed cratering rates, would suggest that the moon is quite old. However, to draw this conclusion we have to assume that the rate of cratering has been the same in the past as it is now. And there are now good reasons for thinking that it might have been quite intense in the past, in which case the craters do not indicate an old age at all (see below).

**No scientific method can prove the age of the earth or the universe, and that includes the ones we have listed here.**

Ages of millions of years are all calculated by assuming the rates of change of processes in the past were the same as we observe today—called the principle of uniformitarianism. If the age calculated from such assumptions disagrees with what they think the age should be, they conclude that their assumptions did not apply in this case, and adjust them accordingly. If the calculated result gives an acceptable age, the investigators publish it.

Examples of *young* ages listed here are also obtained by applying the same principle of uniformitarianism. Long-age proponents will dismiss this sort of evidence for a young age of the earth by arguing that the assumptions about the past do not apply in these cases. In other words, age is not really a matter of scientific observation but an argument about our assumptions about the unobserved past.

The assumptions behind the evidences presented here cannot be proved, but the fact that such a wide range of different phenomena all *suggest* much younger ages than are currently generally accepted, provides a strong case for questioning the accepted ages.

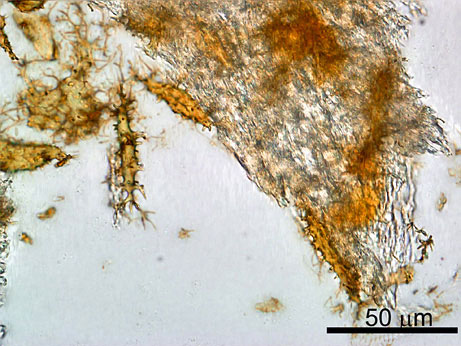
Also, a number of the evidences, rather than giving any estimate of age, challenge the assumption of slow-and-gradual uniformitarianism, upon which all deep-time dating methods depend.

When the evolutionists throw up some new challenge to the Bible’s timeline, don’t fret over it. Sooner or later that supposed evidence will be turned on its head and will even be added to this list of evidences for a young age of the earth.

Many of these indicators for younger ages were discovered when creationist scientists started researching things that were supposed to ‘prove’ long ages. The lesson here is clear: when the evolutionists throw up some new challenge to the Bible’s timeline, don’t fret over it. Sooner or later that supposed evidence will be turned on its head and will even be added to this list of evidences for a younger age of the earth. On the other hand, some of the evidences listed here might turn out to be ill-founded with further research and will need to be modified. Such is the nature of science, especially historical science, because we cannot do experiments on past events (see [“It’s not science”](https://creation.com/its-not-science)).

Science is based on observation, and the only reliable means of telling the age of anything is by the testimony of a reliable witness who observed the events. The Bible claims to be the communication of the only One who witnessed the events of Creation: the Creator himself. As such, the Bible is the only reliable means of knowing the age of the earth and the cosmos. See [The Universe’s Birth Certificate](https://creation.com/the-universes-birth-certificate) and [Biblical chronogenealogies](https://creation.com/biblical-chronogenealogies) (technical). In the end we believe that the Bible will stand vindicated and those who deny its testimony will be confounded.

**Biological evidence for a young age of the earth**

Image: Dr Mary Schweitzer[](https://dl0.creation.com/articles/p066/c06685/6685-dino-protein.jpg)The finding of pliable blood vessels, blood cells, animal proteins, and even DNA in dinosaur bone is consistent with an age of thousands of years for the fossils, not the 65+ million years claimed by the paleontologists.

1. [DNA in ‘ancient’ fossils](https://creation.com/bugs-in-brine). 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.
2. [Lazarus bacteria](https://creation.com/arent-250-million-year-old-live-bacteria-a-bit-much)—bacteria revived from salt inclusions supposedly 250 million years old, suggest the salt is not millions of years old. See also [Salty saga.](https://creation.com/salty-saga)
3. The decay in the human genome due to multiple slightly harmful mutations each generation is consistent with an origin several thousand years ago. Sanford, J., *Genetic entropy and the mystery of the genome*, Ivan Press, 2005; see [review of the book](https://creation.com/from-ape-to-man-via-genetic-meltdown-a-theory-in-crisis) and the interview with the author in [*Creation* **30**(4):45–47](https://creation.com/geneticist-evolution-impossible), September 2008. This has been confirmed by realistic modelling of population genetics, which shows that genomes are young, in the order of thousands of years. See Sanford, J., Baumgardner, J., Brewer, W., Gibson, P. and Remine, W., [Mendel’s Accountant: A biologically realistic forward-time population genetics program,](http://scpe.org/index.php/scpe/article/view/407) *SCPE* **8**(2):147–165, 2007.
4. The data for ‘[mitochondrial Eve](https://creation.com/mitochondrial-eve-and-biblical-eve-are-looking-good-criticism-of-young-age-is-premature)’ are consistent with a common origin of all humans several thousand years ago.
5. Very limited variation in the DNA sequence on the human [Y-chromosome around the world](https://creation.com/y-chromosome-adam) is consistent with a recent origin of mankind, thousands not millions of years.
6. Many fossil bones ‘dated’ at many millions of years old are hardly mineralized, if at all. This contradicts the widely believed old age of the earth. See, for example, [Dinosaur bones just how old are they really](https://creation.com/dinosaur-bones-just-how-old-are-they-really)? Tubes of marine worms, ‘dated’ at 550 million years old, that are soft and flexible and apparently composed of the original organic compounds hold the record ([original paper](http://www.bioone.org/doi/abs/10.1666/13-003)).
7. [Dinosaur blood cells, blood vessels](https://creation.com/sensational-dinosaur-blood-report-creation-magazine), [proteins](https://creation.com/dinosaur-soft-tissue-and-protein-even-more-confirmation) ([hemoglobin](https://creation.com/sensational-dinosaur-blood-report), [osteocalcin](https://creation.com/bone-building-perfect-protein-osteocalcin), [collagen](https://creation.com/dinosaur-soft-tissue-and-protein-even-more-confirmation), [histones](https://creation.com/dino-dna-bone-cells)) and [DNA](https://creation.com/dino-dna-bone-cells) 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).
8. Lack of 50:50 [racemization of amino acids in fossils](https://creation.com/shaking-hands-on-a-recent-creation) ‘dated’ at millions of years old, whereas complete racemization would occur in thousands of years.
9. [Living fossils](https://creation.com/fossils-questions-and-answers#living)—jellyfish, graptolites, coelacanth, stromatolites, Wollemi pine and hundreds more. That many hundreds of species could remain so unchanged, for even up to billions of years in the case of stromatolites, speaks against the millions and billions of years being real.
10. Discontinuous fossil sequences. E.g. [Coelacanth](https://creation.com/correcting-the-headline-coelacanth-yes-ancient-no), [Wollemi pine](https://creation.com/sensational-australian-tree-like-finding-a-live-dinosaur) and various ‘index’ fossils, which are present in supposedly ancient strata, missing in strata representing many millions of years since, but still living today. Such discontinuities speak against the interpretation of the rock formations as vast geological ages—how could Coelacanths have avoided being fossilized for 65 million years, for example? See [The ‘Lazarus effect’: rodent ‘resurrection’!](https://creation.com/the-lazarus-effect-rodent-resurrection)
11. The [ages of the world’s oldest living organisms, trees](https://creation.com/patriarchs-of-the-forest), are consistent with an age of the earth of thousands of years.

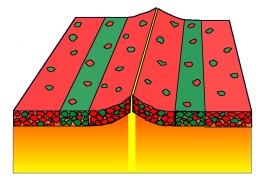
**Geological evidence for a young age of the earth**

Photo by Don Batten[](https://dl0.creation.com/articles/p066/c06685/6685-syncline.jpg)Radical folding at Eastern Beach, near Auckland in New Zealand, indicates that the sediments were soft and pliable when folded, inconsistent with a long time for their formation. Such folding can be seen world-wide and is consistent with a young age of the earth.

1. [Scarcity of plant fossils in many formations containing abundant animal / herbivore fossils](https://creation.com/ariel-a-roth-biology-in-six-days#plants_missing). E.g., the Morrison Formation (Jurassic) in Montana. See *Origins* **21**(1):51–56, 1994. Also the Coconino sandstone in the Grand Canyon has many track-ways (animals), but is almost devoid of plants. Implication: these rocks are *not* ecosystems of an ‘era’ buried *in situ* over eons of time as evolutionists claim. The evidence is more consistent with catastrophic transport then burial during the massive global Flood of Noah’s day. This eliminates supposed evidence for millions of years.
2. Thick, tightly bent strata without sign of melting or fracturing. E.g. the [Kaibab Upwarp](https://creation.com/grand-canyon-strata-show-geologic-time-is-imaginary) in Grand Canyon indicates rapid folding before the sediments had time to solidify (the sand grains were not elongated under stress as would be expected if the rock had hardened). This wipes out hundreds of millions of years of time and is consistent with extremely rapid formation during the biblical Flood. See [Warped earth](https://creation.com/warped-earth) (written by a geophysicist).
3. Polystrate fossils—tree trunks in coal (*Araucaria* spp. king billy pines, celery top pines, in [southern hemisphere coal](https://creation.com/coal-memorial-to-the-flood)). There are also polystrate tree trunks in the [Yellowstone fossilized forests](https://creation.com/the-yellowstone-petrified-forests) and [Joggins, Nova Scotia](http://www.icr.org/article/polystrate-trees-coal-seams-joggins-fossil-cliffs/) and in many other places. Polystrate fossilized lycopod trunks occur in [northern hemisphere coal](https://creation.com/forests-that-grew-on-water), again indicating rapid burial / formation of the organic material that became coal.
4. Experiments show that with conditions mimicking natural forces, [coal forms quickly](https://creation.com/coal-volcanism-and-noahs-flood); 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.
5. Experiments show that with conditions mimicking natural forces, [oil forms quickly](https://creation.com/how-fast-can-oil-form); it does not need millions of years, consistent with an age of thousands of years.
6. Experiments show that with conditions mimicking natural forces, [opals form quickly](https://creation.com/creating-opals), in a matter of weeks, not millions of years, as had been claimed.
7. [Evidence for rapid, catastrophic formation of coal beds](https://creation.com/article/3007#coal) speaks against the hundreds of millions of years normally claimed for this, including Z-shaped seams that point to a single depositional event producing these layers.
8. Evidence for [rapid petrifaction of wood](https://creation.com/instant-petrified-wood) speaks against the need for long periods of time and is consistent with an age of thousands of years.
9. Clastic dykes and pipes (intrusion of sediment through overlying sedimentary rock) show that the overlying rock strata were still soft when they formed. This drastically compresses the time scale for the deposition of the penetrated rock strata. See, Walker, T., [Fluidisation pipes: Evidence of large-scale watery catastrophe](https://creation.com/fluidisation-pipes-evidence-of-large-scale-watery-catastrophe), *J. Creation (TJ)* **14**(3):8–9, 2000.
10. Para(pseudo)conformities—where one rock stratum sits on top of another rock stratum but with supposedly millions of years of geological time missing, yet the contact plane lacks any significant erosion; that is, it is a ‘flat gap’. E.g. Coconino sandstone / Hermit shale in the Grand Canyon (supposedly a 10 million year gap in time). The thick Schnebly Hill Formation (sandstone) lies *between* the Coconino and Hermit in central Arizona. See Austin, S.A., *Grand Canyon, monument to catastrophe,* ICR, Santee, CA, USA, 1994 and Snelling, A., [The case of the ‘missing’ geologic time](https://creation.com/the-case-of-the-missing-geologic-time), *Creation***14**(3):31–35, 1992.
11. The presence of ephemeral markings (raindrop marks, ripple marks, animal tracks) at the boundaries of paraconformities show that the upper rock layer has been deposited immediately after the lower one, eliminating many millions of years of ‘gap’ time. See references in [Para(pseudo)conformities](https://creation.com/age-of-the-earth#paraconformities).
12. Inter-tonguing of adjacent strata that are supposedly separated by millions of years also eliminates many millions of years of supposed geologic time. [The case of the ‘missing’ geologic time](https://creation.com/the-case-of-the-missing-geologic-time); Mississippian and Cambrian strata interbedding: 200 million years hiatus in question, *CRSQ* **23**(4):160–167.
13. The [lack of bioturbation](https://creation.com/the-three-sisters-strong-evidence-for-noahs-flood-in-australia) (worm holes, root growth) at paraconformities (flat gaps) reinforces the lack of time involved where evolutionary geologists insert many millions of years to force the rocks to conform with the ‘given’ timescale of billions of years.
14. The almost complete lack of clearly recognizable soil layers anywhere in the geologic column. Geologists do claim to have found lots of ‘fossil’ soils (paleosols), but these are quite different to soils today, lacking the features that characterize soil horizons; features that are used in classifying different soils. Every one that has been investigated thoroughly proves to lack the characteristics of proper soil. If ‘deep time’ were correct, with hundreds of millions of years of abundant life on the earth, there should have been ample opportunities many times over for soil formation. See Klevberg, P. and Bandy, R., *CRSQ* **39**:252–68; *CRSQ* **40**:99–116, 2003; Walker, T., [Paleosols: digging deeper buries ‘challenge’ to Flood geology](https://creation.com/paleosols-digging-deeper-buries-challenge-to-flood-geology), *J. Creation* **17**(3):28–34, 2003.
15. Limited extent of unconformities (unconformity: a surface of erosion that separates younger strata from older rocks). Surfaces erode quickly (e.g. Badlands, South Dakota), but there are very limited unconformities. There is the ‘great unconformity’ at the base of the Grand Canyon, but otherwise there are supposedly ~300 million years of strata deposited on top without any significant unconformity. This is again consistent with a much shorter time of deposition of these strata. See [Para(pseudo)conformities](https://creation.com/age-of-the-earth#paraconformities).
16. The Arches National Park (USA) has over 2,000 rock arches. If 43 have collapsed since 1970 and the linked article was written in 2015, that’s 45 years, giving a rate of collapse of ~1 per year, which means that all would be gone in ~2,000 years. This is thoroughly consistent with the biblical timeframe but not the evolutionary one of millions of years (5 million?). Historical records of the ‘12 Apostles’ in southern Australia should allow a similar ‘clock’ to be calculated, albeit coarser than this USA park one. See [A dangerous view](https://creation.com/a-dangerous-view).
17. The discovery that underwater landslides (‘turbidity currents’) travelling at some 50 km/h can create huge areas of sediment in a matter of hours (Press, F., and Siever, R., *Earth*, 4th ed., Freeman & Co., NY, USA, 1986). Sediments thought to have formed slowly over eons of time are now becoming recognized as having formed extremely rapidly. See for example, [A classic tillite reclassified as a submarine debris flow](https://creation.com/a-classic-tillite-reclassified-as-a-submarine-debris-flow) (Technical).
18. Flume tank research with sediment of different particle sizes show that layered rock strata that were thought to have formed over huge periods of time in lake beds actually formed very quickly. Even the precise layer thicknesses of rocks were duplicated after they were ground into their sedimentary particles and run through the flume. See [Experiments in stratification of heterogeneous sand mixtures](https://creation.com/experiments-on-stratification-of-heterogeneous-sand-mixtures), [Sedimentation Experiments: Nature finally catches up!](https://creation.com/sedimentation-experiments-nature-finally-catches-up) and [Sandy Stripes Do many layers mean many years?](https://creation.com/sandy-stripes) Also, very fine particles have been shown to settle far more quickly than previously thought, enabling the [rapid formation of mudstone deposits](https://creation.com/mud-experiments-overturn-long-held-geological-beliefs).
19. Observed examples of rapid canyon formation; for example, [Providence Canyon](https://creation.com/canyon-creation) in southwest Georgia, [Burlingame Canyon](https://creation.com/a-canyon-in-six-days) near Walla Walla, Washington, and [Lower Loowit Canyon](https://dl0.creation.com/articles/p066/c06685/j18_1_45-46.pdf) near Mount St Helens. The rapidity of the formation of these canyons, which look similar to other canyons that supposedly took many millions of years to form, brings into question the supposed age of the canyons that no one saw form.
20. Observed examples of rapid island formation and maturation, such as [Surtsey](https://creation.com/surtsey-the-young-island-that-looks-old), which confound the notion that such islands take long periods of time to form. See also, [Tuluman—A Test of Time](https://creation.com/tuluman-a-test-of-time).
21. Rate of [erosion of coastlines](https://creation.com/vanishing-coastlines), horizontally. E.g. Beachy Head, UK, loses a metre of coast to the sea every six years.
22. Rate of [erosion of continents vertically](https://creation.com/eroding-ages) is not consistent with the assumed old age of the earth. See *Creation* **22**(2):18–21.
23. Existence of significant [flat plateaux that are ‘dated’ at many millions of years old](https://creation.com/antiquity-of-landforms) (‘elevated paleoplains’). An example is [Kangaroo Island](https://creation.com/eroding-ages) (Australia). C.R. Twidale, a famous Australian physical geographer wrote: “the survival of these paleoforms is in some degree an embarrassment to all the commonly accepted models of landscape development.” Twidale, C.R. On the survival of paleoforms, *American J. Science* **5**(276):77–95, 1976 (quote on p. 81). See Austin, S.A., [Did landscapes evolve?](https://www.icr.org/article/did-landscapes-evolve) *Impact* **118**, April 1983.
24. The recent and almost simultaneous origin of all the high mountain ranges around the world—including the Himalayas, the Alps, the Andes, and the Rockies—which have undergone most of the uplift to their present elevations beginning ‘five million’ years ago, whereas mountain building processes have supposedly been around for up to billions of years. See Baumgardner, J., [Recent uplift of today’s mountains](http://www.icr.org/article/98). *Impact* **381**, March 2005.
25. Water gaps. These are gorges cut through mountain ranges where rivers run. They occur worldwide and are part of what evolutionary geologists call ‘discordant drainage systems’. They are ‘discordant’ because they don’t fit the deep time belief system. The evidence fits them forming rapidly in a much younger age framework where the gorges were cut in the recessive stage / dispersive phase of the global Flood of Noah’s day. See Oard, M., [Do rivers erode through mountains? Water gaps are strong evidence for the Genesis Flood](https://creation.com/do-rivers-erode-through-mountains), *Creation***29**(3):18–23, 2007.

Erosion rates at places like Niagara Falls are consistent with a time frame of several thousand years since Noah’s Flood.

1. [Erosion at Niagara Falls](https://creation.com/niagara-falls-and-the-bible) and other such places is consistent with just a few thousand years since the biblical Flood. However, much of the Niagara Gorge likely formed very rapidly with the catastrophic drainage of glacial Lake Agassiz; see: [Climate change, Niagara and catastrophe](https://creation.com/climate-change-niagara-and-catastrophe).
2. River delta growth rate is consistent with thousands of years since the biblical Flood, not vast periods of time. E.g. 1. Mississippi—*Creation Research Quarterly (CRSQ)* **9**(2):[96–114](https://www.creationresearch.org/crsq-1972-volume-9-number-2_a-geologic-age-of-the-mississippi-river), 1972; *CRSQ* **14**(2):[87](https://www.creationresearch.org/crsq-1977-volume-14-number-2_delta-formation), 1977; *CRSQ* **25**(3):[121–123](https://www.creationresearch.org/crsq-1988-volume-25-number-3_another-look-at-the-age-and-history-of-the-mississippi-river), 1988. E.g. 2 Tigris–Euphrates: *CRSQ* **14**(2):[87](https://www.creationresearch.org/crsq-1977-volume-14-number-2_delta-formation), 1977.
3. Underfit streams. River valleys are too large for the streams they contain. Dury speaks of the “continent-wide distribution of underfit streams”. Using channel meander characteristics, Dury concluded that past streams frequently had 20–60 times their current discharge. This means that the river valleys would have been carved very quickly, not slowly over eons of time. See Austin, S.A., [Did landscapes evolve?](http://icr.org/article/did-landscapes-evolve) *Impact* 118, 1983.
4. Amount of [salt in the sea](https://creation.com/salty-seas-evidence-for-a-young-earth). Even ignoring the effect of the biblical Flood and assuming zero starting salinity and all rates of input and removal so as to maximize the time taken to accumulate all the salt, the *maximum* age of the oceans, 62 million years, is less than 1/50 of the age evolutionists claim for the oceans. This suggests that the age of the earth is radically less also.
5. The [amount of sediment on the sea floors](https://creation.com/evidence-for-a-young-world#seafloormud) at current rates of land erosion would accumulate in just 12 million years; a blink of the eye compared to the supposed age of much of the ocean floor of up to 3 billion years. Furthermore, long-age geologists reckon that *higher* erosion rates applied in the past, which shortens the time frame. From a biblical point of view, at the end of Noah’s Flood lots of sediment would have been added to the sea with the water coming off the unconsolidated land, making the amount of sediment perfectly consistent with a history of thousands of years.
6. Iron-manganese nodules (IMN) on the sea floors. The measured rates of growth of these nodules indicates an age of only thousands of years. Lalomov, A.V., 2006. Mineral deposits as an example of geological rates. *CRSQ* **44**(1):64–66. Related to this is the [concentration of nickel in the oceans](https://creation.com/nickel-concentration-indicates-youthful-oceans).
7. The age of placer deposits (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. See Lalomov, A.V., and Tabolitch, S.E., 2000. [Age determination of coastal submarine placer, Val’cumey, northern Siberia](https://creation.com/age-determination-of-coastal-submarine-placer-valcumey-northern-siberia). *J. Creation (TJ)* **14**(3):83–90.
8. Pressure in oil / gas wells indicate the recent origin of the oil and gas. If they were many millions of years old we would expect the pressures to equilibrate, even in low permeability rocks. “Experts in petroleum prospecting note the impossibility of creating an effective model given long and slow oil generation over millions of years (Petukhov, 2004). In their opinion, if models demand the standard multimillion-years geochronological scale, the best exploration strategy is to drill wells on a random grid.” —Lalomov, A.V., 2007. Mineral deposits as an example of geological rates. *CRSQ* **44**(1):64–66.
9. Direct evidence that [oil is forming today](https://creation.com/how-fast-can-oil-form) in the Guaymas Basin and in [Bass Strait](https://creation.com/the-recent-origin-of-bass-strait-oil-and-gas) is consistent with a young earth (although not *necessary* for a young earth).
10. [Rapid reversals in paleomagnetism](https://creation.com/the-principle-of-least-astonishment) undermine use of paleomagnetism in long ages dating of rocks and speak of rapid processes, compressing the long-age time scale enormously.
11. The pattern of magnetization in the magnetic stripes where magma is welling up at the mid-ocean trenches argues against the belief that reversals take many thousands of years and rather indicates rapid sea-floor spreading as well as rapid magnetic reversals, consistent with a young earth (Humphreys, D.R., Has the Earth’s magnetic field ever flipped? *Creation Research Quarterly* **25**(3):130–137, 1988).

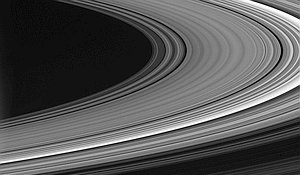
Along the mid-ocean ridges, the detailed pattern of magnetic polarisation, with islands of differing polarity, speaks of rapid changes in direction of Earth’s magnetic field because of the rate of cooling of the lava. This is consistent with a young Earth.

1. [Measured rates of stalactite and stalagmite growth](https://creation.com/caving-in-to-reality) in limestone caves are consistent with a young age of several thousand years. See also [articles on limestone cave formation](https://creation.com/geology-questions-and-answers#caves).
2. The [decay of the earth’s magnetic field](https://creation.com/the-earths-magnetic-field-evidence-that-the-earth-is-young). Exponential decay, with fluctuations especially during and after the Flood, is evident from historical measurements and is consistent with the hypothesis of free decay since creation, suggesting an age of the earth of only thousands of years. For further evidence that it follows exponential decay with a time constant of 1611 years (±10) see: Humphreys, R., [Earth’s magnetic field is decaying steadily—with a little rhythm](https://www.creationresearch.org/crsq-2011-volume-47-number-3_earth-s-magnetic-field), *CRSQ* **47**(3):193–201; 2011.
3. Excess heat flow from the earth is consistent with a young age rather than billions of years, even taking into account heat from radioactive decay. See Woodmorappe, J., 1999. [Lord Kelvin revisited on the young age of the earth](https://creation.com/lord-kelvin-revisited-on-the-young-age-of-the-earth), *J. Creation (TJ)* **13**(1):14, 1999.

**Radiometric dating and the age of the earth**

1. Carbon-14 in [coal](https://dl0.creation.com/articles/p066/c06685/chapter4.pdf) suggests ages of thousands of years and clearly contradict ages of millions of years.
2. Carbon-14 in [oil](https://digitalcommons.cedarville.edu/icc_proceedings/vol5/iss1/12) again suggests ages of thousands, not millions, of years.
3. Carbon-14 in [fossil wood](https://creation.com/radioactive-dating-in-conflict) also indicates ages of thousands, not millions, of years.
4. Carbon-14 in [diamonds](https://creation.com/diamonds-a-creationists-best-friend) suggests ages of thousands, not billions, of years. Note that 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: [Objections](https://creation.com/diamonds-a-creationists-best-friend#objections).
5. Incongruent radioisotope dates [using the same technique](https://dl0.creation.com/articles/p066/c06685/chapter4.pdf) argue against trusting the dating methods that give millions of years.
6. Incongruent radioisotope dates [using different techniques](https://dl0.creation.com/articles/p066/c06685/chapter4.pdf) argue against trusting the dating methods that give millions of years (or billions of years for the age of the earth).
7. Demonstrably [non-radiogenic ‘isochrons’ of radioactive](https://creation.com/contra-rb-sr-dating) and non-radioactive elements undermine the assumptions behind isochron ‘dating’ that gives billions of years. [‘False’ isochrons](https://creation.com/the-failure-of-u-th-pb-dating-at-koongarra-australia) are common.
8. Different faces of the same zircon crystal and [different zircons from the same rock](https://creation.com/flaws-in-dating-the-earth-as-ancient) giving different ‘ages’ undermine all ‘dates’ obtained from zircons.
9. Evidence of a period of [rapid radioactive decay in the recent past](https://creation.com/radiometric-dating-breakthroughs) (lead and helium concentrations and diffusion rates in zircons) point to a young earth explanation.
10. 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: Humphreys, D.R., Young helium diffusion age of zircons supports accelerated nuclear decay, Chapter 2 (pages 25–100) in: Vardiman, Snelling, and Chaffin (eds.), *Radioisotopes and the Age of the Earth: Results of a Young Earth Creationist Research Initiative, Volume II*, Institute for Creation Research and Creation Research Society, 2005.
11. Lead in zircons from deep drill cores vs. shallow ones. They are similar, but there should be less in the deep ones due to the higher heat causing higher diffusion rates over the usual long ages supposed. If the ages are thousands of years, there would not be expected to be much difference, which is the case (Gentry, R., *et al*., Differential lead retention in zircons: Implications for nuclear waste containment, *Science***216**(4543):296–298, 1982; DOI: 10.1126/science.216.4543.296).
12. Pleochroic halos produced in granite by concentrated specks of short half-life elements such as polonium suggest a period of rapid nuclear decay of the long half-life parent isotopes during the formation of the rocks and rapid formation of the rocks, both of which speak against the usual ideas of geological deep time and a vast age of the earth. See, [Radiohalos: Startling evidence of catastrophic geologic processes](https://creation.com/radiohalos-startling-evidence-of-catastrophic-geologic-processes-on-a-young-earth), *Creation* **28**(2):46–50, 2006.
13. [Squashed pleochroic halos](https://creation.com/the-collapse-of-geologic-time) (radiohalos) formed from decay of polonium, a very short half-life element, in coalified wood from several geological eras suggest rapid formation of all the layers about the same time, in the same process, consistent with the biblical ‘young’ earth model rather than the millions of y*ears claimed* for these events.
14. [Australia’s ‘Burning Mountain’](https://creation.com/australias-burning-mountain) speaks against radiometric dating and the millions of years belief system (according to radiometric dating of the lava intrusion that set the coal alight, the coal in the burning mountain has been burning for ~40 million years, but clearly this is not feasible).

**Astronomical evidence for a young(er) age of the earth and the universe**

Photo by NASASaturn’s rings are increasingly recognized as being relatively short-lived rather than essentially changeless over millions of years.

1. Evidence of recent volcanic activity on Earth’s moon is inconsistent with its supposed vast age because it should have long since cooled if it were billions of years old. See: [Transient lunar phenomena: a permanent problem for evolutionary models of Moon formation](https://dl0.creation.com/articles/p066/c06685/j17_1_5-6.pdf) and Walker, T., and Catchpoole, D., [Lunar volcanoes rock long-age timeframe](https://creation.com/lunar-volcanoes-rock-long-age-timeframe), *Creation***31**(3):18, 2009. See further corroboration: “At Long Last, Moon’s Core ‘Seen’”; [www.sciencemag.org/news/2011/01/long-last-moons-core-seen](https://www.sciencemag.org/news/2011/01/long-last-moons-core-seen).
2. [Recession of the moon from the earth](https://creation.com/article/764#receding). Tidal friction causes the moon to recede from the earth at 4 cm per year. It would have been greater in the past when the moon and earth were closer together. The moon and earth would have been in catastrophic proximity (Roche limit) at less than a quarter of their supposed age.
3. The moon’s former magnetic field. 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 in the 6,000 years since then. Humphreys, D.R., [The moon’s former magnetic field—still a huge problem for evolutionists](https://creation.com/moons-magnetic-puzzle), *J. Creation* **26**(1):5–6, 2012.
4. Ghost craters on the moon’s *maria* (singular *mare*: dark ‘seas’ formed from massive lava flows) are a problem for the assumed long ages. Enormous impacts evidently caused the large craters and lava flows within those craters, and this lava partly buried other, smaller impact craters within the larger craters, leaving ‘ghosts’. But this means that the smaller impacts can’t have been too long after the huge ones, otherwise the lava would have flowed into the larger craters before the smaller impacts. This suggests a very narrow time frame for all this cratering, and by implication the other cratered bodies of our solar system. They suggest that the cratering occurred quite quickly. See Fryman, H., [Ghost craters in the sky](https://3bible.com/articles/Institute%20for%20Creation%20Research%20-%20Creation%20Matters/Creation%20Matters%201999,%20Volume%204,%20Number%201.pdf), *Creation Matters* **4**(1):6, 1999; [A biblically based cratering theory](https://creation.com/cratering) (Faulkner); [Lunar volcanoes rock long-age timeframe](https://creation.com/lunar-volcanoes-rock-long-age-timeframe).
5. The presence of a significant [magnetic field around Mercury](https://creation.com/mercury-the-tiny-planet-that-causes-big-problems-for-evolution) is not consistent with its supposed age of billions of years. A planet so small should have cooled down enough so any liquid core would solidify, preventing the evolutionists’ ‘dynamo’ mechanism. See also, Humphreys, D.R., [Mercury’s magnetic field is young!](https://creation.com/mercurys-magnetic-field-is-young) *J. Creation* **22**(3):8–9, 2008.
6. The outer planets Uranus and Neptune have magnetic fields, but they should be long ‘dead’ if they are as old as claimed according to evolutionary long-age beliefs. Assuming a solar system age of thousands of years, physicist Russell Humphreys successfully predicted the strengths of [the magnetic fields of Uranus and Neptune](https://creation.com/the-earths-magnetic-field-evidence-that-the-earth-is-young#planets).
7. Jupiter’s larger moons, [Ganymede, Io, and Europa, have magnetic fields](https://creation.com/focus-194#magmoons), which they should not have if they were billions of years old, because they have solid cores and so no dynamo could generate the magnetic fields. This is consistent with creationist Humphreys’ predictions. See also, Spencer, W., [Ganymede: the surprisingly magnetic moon](https://creation.com/ganymede-magnetic-moon), *J. Creation* **23**(1):8–9, 2009.
8. Volcanically active moons of Jupiter ([Io](https://creation.com/revelations-in-the-solar-system-creation-magazine)) are consistent with youthfulness (Galileo mission recorded 80 active volcanoes). If Io had been erupting over 4.5 billion years at even 10% of its current rate, it would have erupted its entire mass 40 times. Io looks like a young moon and does not fit with the supposed billions of year’s age for the solar system. Gravitational tugging from Jupiter and other moons accounts for only some of the excess heat produced.
9. The surface of Jupiter’s moon Europa. Studies of the few craters indicated that up to 95% of small craters, and many medium-sized ones, are formed from debris thrown up by larger impacts. This means that there have been far fewer impacts than had been thought in the solar system and the age of other objects in the solar system, derived from cratering levels, have to be reduced drastically (see Psarris, Spike, [*What you aren’t being told about astronomy, volume 1: Our created solar system* DVD](https://creation.com/store_redirect.php?sku=30-9-587), available from [CMI](https://creation.com/store)).
10. [Methane on Titan](https://creation.com/focus-273-creation-magazine) (Saturn’s largest moon)—the methane should all be gone because of UV-induced breakdown. The products of photolysis should also have produced a huge sea of heavier hydrocarbons such as ethane. An [*Astrobiology* item](https://web.archive.org/web/20111112090325/http:/www.astrobio.net/index.php?option=com_retrospection&task=detail&id=1478) titled “The missing methane” cited one of the Cassini researchers, Jonathan Lunine, as saying, “If the chemistry on Titan has gone on in steady-state over the age of the solar system, then we would predict that a layer of ethane 300 to 600 meters thick should be deposited on the surface.” No such sea is seen, which is consistent with Titan being a tiny fraction of the claimed age of the solar system (needless to say, Lunine does not accept the obvious young age implications of these observations, so he speculates, for example, that there must be some unknown source of methane).
11. The rate of change / disappearance of Saturn’s rings is [inconsistent with their supposed vast age](https://creation.com/the-age-and-fate-of-saturns-rings); they speak of youthfulness.
12. Enceladus, a moon of Saturn, looks young. Astronomers working in the ‘billions of years’ mindset thought that this moon would be cold and dead, but it is a very active moon, spewing massive jets of water vapour and icy particles into space at supersonic speeds, consistent with a much younger age. Calculations show that the interior would have frozen solid after 30 million years (less than 1% of its supposed age); tidal friction from Saturn does not explain its youthful activity (Psarris, Spike, [*What you aren’t being told about astronomy, volume 1: Our created solar system* DVD](https://creation.com/store_redirect.php?sku=30-9-587); Walker, T., [Enceladus: Saturn’s sprightly moon looks young](https://creation.com/enceladus-looks-young), *Creation* **31**(3):54–55, 2009).
13. Miranda, a small moon of Uranus, should have been long since dead, if billions of years old, but its extreme surface features suggest otherwise. See [Revelations in the solar system](https://creation.com/revelations-in-the-solar-system-creation-magazine).
14. Neptune should be long since ‘cold’, lacking strong wind movement if it were billions of years old, yet Voyager II in 1989 found it to be otherwise—it has the fastest winds in the entire solar system. This observation is consistent with a young age, not billions of years. See [Neptune: monument to creation](https://creation.com/neptune-monument-to-creation).
15. Neptune’s rings have thick regions and thin regions. This unevenness means they cannot be billions of years old, since collisions of the ring objects would eventually make the ring very uniform. [Revelations in the solar system](https://creation.com/revelations-in-the-solar-system).
16. Young surface age of Neptune’s moon, Triton—less than 10 million years, even with evolutionary assumptions on rates of impacts (see Schenk, P.M., and Zahnle, K. [On the negligible surface age of Triton](https://www.sciencedirect.com/science/article/abs/pii/S0019103507003004), *Icarus* **192**(1):135–149, 2007. <doi:10.1016/j.icarus.2007.07.004>.
17. Uranus and Neptune both have magnetic fields significantly off-axis, which is an unstable situation. When this was discovered with Uranus, it was assumed by evolutionary astronomers that Uranus must have just happened to be going through a magnetic field reversal. However, when a similar thing was found with Neptune, this *AD hoc* explanation was upset. [These observations are consistent with ages of thousands of years](https://creation.com/neptune-monument-to-creation) rather than billions.
18. The orbit of Pluto is chaotic on a 20 million year time scale and affects the rest of the solar system, which would also become unstable on that time scale, suggesting that it must be much younger. (See: Rothman, T., God takes a nap, *Scientific American* **259**(4):20, 1988).
19. 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. *ad hoc* hypotheses have to be invented to circumvent this evidence (see [Kuiper Belt](https://creation.com/kuiper-belt-objects-solution-to-short-period-comets)). See [Comets and the age of the solar system](https://creation.com/comets-and-the-age-of-the-solar-system).
20. “Near-infrared spectra of the Kuiper Belt Object, Quaoar and the suspected Kuiper Belt Object, Charon, indicate both contain crystalline water ice and ammonia hydrate. This watery material cannot be much older than 10 million years, which is consistent with a young solar system, not one that is 5 billion years old.” See: [The ‘waters above’](https://creation.com/the-waters-above).
21. Lifetime of long-period comets (orbital period greater than 200 years) that are sun-grazing comets or others like Hyakutake or Hale–Bopp means they could not have originated with the solar system 4.5 billion years ago. However, their existence is consistent with a young age for the solar system. Again an *ad hoc* [Oort Cloud](https://creation.com/more-problems-for-the-oort-comet-cloud) was invented to try to account for these comets still being present after billions of years. See, [Comets and the age of the solar system](https://creation.com/comets-and-the-age-of-the-solar-system).
22. The maximum expected lifetime of near-earth asteroids is of the order of one million years, after which they collide with the sun. And the Yarkovsky effect moves main belt asteroids into near-earth orbits faster than had been thought. This brings into question the origin of asteroids with the formation of the solar system (the usual scenario), or the solar system is much younger than the 4.5 billion years claimed. Henry, J., [The asteroid belt: indications of its youth](https://crs-alchemy-attachments.s3.amazonaws.com/uploads/pdf/creation-matters-2006-vol-11-num-2.pdf), *Creation Matters* **11**(2):2, 2006.
23. The lifetime of binary asteroids—where a tiny asteroid ‘moon’ orbits a larger asteroid— in the main belt (they represent about 15–17% of the total): tidal effects limit the life of such binary systems to about 100,000 years. The difficulties in conceiving of any scenario for getting binaries to form in such numbers to keep up the population, led some astronomers to doubt their existence, but space probes confirmed it (Henry, J., [The asteroid belt: indications of its youth](https://crs-alchemy-attachments.s3.amazonaws.com/uploads/pdf/creation-matters-2006-vol-11-num-2.pdf), *Creation Matters* **11**(2):2, 2006).
24. The observed [rapid rate of change in stars](https://creation.com/focus-194#speedy) contradicts the vast ages assigned to stellar evolution. For example, Sakurai’s Object in Sagittarius: in 1994, this star was most likely a white dwarf in the centre of a planetary nebula; by 1997 it had grown to a bright yellow giant, about 80 times wider than the sun (*Astronomy & Astrophysics* **321**:L17, 1997). In 1998, it had expanded even further, to a red supergiant 150 times wider than the sun. But then it shrank just as quickly; by 2002 the star itself was invisible even to the most powerful optical telescopes, although it is detectable in the infrared, which shines through the dust (Muir, H., 2003, Back from the dead, *New Scientist* **177**(2384):28–31).
25. The faint young sun paradox. According to stellar evolution theory, as the sun’s core transforms from hydrogen to helium by means of nuclear fusion, the mean molecular weight increases, which would compress the sun’s core increasing fusion rate. The upshot is that over several billion years, the sun ought to have brightened 40% since its formation and 25% since the appearance of life on earth. For the latter, this translates into a 16–18 ºC temperature increase on the earth. The current average temperature is 15 ºC, so the earth ought to have had a -2 ºC or so temperature when life appeared. See: Faulkner, D., [The young faint Sun paradox and the age of the solar system](https://creation.com/the-young-faint-sun-paradox-and-the-age-of-the-solar-system), *J. Creation (TJ)* **15**(2):3–4, 2001. As of 2010, the faint young sun remains a problem: Kasting, J.F., Early Earth: Faint young Sun redux, *Nature* **464**:687–689, 1 April 2010; doi:10.1038/464687a; www.nature.com/nature/journal/v464/n7289/full/464687a.html
26. Evidence of (very) recent geological activity (tectonic movements) on the moon is inconsistent with its supposed age of billions of years and its hot origin. Watters, T.R., *et al.,* Evidence of Recent Thrust Faulting on the Moon Revealed by the Lunar Reconnaissance Orbiter Camera, *Science* **329**(5994):936–940, 20 August 2010; DOI: 10.1126/science.1189590 (“This detection, coupled with the very young apparent age of the faults, suggests global late-stage contraction of the Moon.”) [NASA pictures support biblical origin for Moon](https://creation.com/nasa-shrinking-moon).
27. The giant gas planets Jupiter and Saturn radiate more energy than they receive from the sun, suggesting a recent origin. Jupiter radiates almost twice as much energy as it receives from the sun, indicating that it may be less than 1 % of the presumed 4.5 billion years old solar system. Saturn radiates nearly twice as much energy per unit mass as Jupiter. See [The age of the Jovian planets](https://creation.com/the-age-of-the-jovian-planets).
28. Speedy stars are consistent with a young age for the universe. For example, many stars in the dwarf galaxies in the Local Group are moving away from each other at speeds estimated at to 10–12 km/s. At these speeds, the stars should have dispersed in 100 Ma, which, compared with the supposed 14,000 Ma age of the universe, is a short time. See [Fast stars challenge big bang origin for dwarf galaxies](https://creation.com/fast-stars-challenge-big-bang-origin-for-dwarf-galaxies).
29. The ageing of spiral galaxies (much less than 200 million years) is not consistent with their supposed age of many billions of years. The [discovery of extremely ‘young’ spiral galaxies](https://creation.com/early-galaxies-don-t-fit) highlights the problem of this evidence for the evolutionary ages assumed.
30. The number of type I [supernova remnants](https://creation.com/exploding-stars-point-to-a-young-universe) (SNRs) observable in our galaxy is consistent with an age of thousands of years, not millions or billions. See Davies, K., *Proc. 3prd ICC*, pp. 175–184, 1994.
31. There is a great paucity of highly expanded SNRs compared to what is expected under evolutionary cosmogony. See [supernova remnants](https://creation.com/exploding-stars-point-to-a-young-universe).

**Human history is consistent with a young age of the earth**

1. Human population growth. Less than 0.5% p.a. growth from six people 4,500 years ago would produce today’s population. [Where are all the people?](https://creation.com/where-are-all-the-people) if we have been here much longer?
2. ‘Stone age’ human skeletons and artefacts. There are not enough for 100,000 years of a human population of just one million, let alone more people (10 million?). See [Where are all the people?](https://creation.com/where-are-all-the-people)
3. Length of recorded history. Origin of various civilizations, writing, etc., all about the same time several thousand years ago. See [Evidence for a young world](https://creation.com/evidence-for-a-young-world).
4. Languages. Similarities in languages claimed to be separated by many tens of thousands of years speaks against the supposed ages (e.g. compare some aboriginal languages in Australia with languages in south-eastern India and Sri Lanka). See [The Tower of Babel account affirmed by linguistics](https://creation.com/the-tower-of-babel-account-affirmed-by-linguistics).
5. Common cultural ‘myths’ speak of recent separation of peoples around the world. An example of this is the frequency of [stories of an earth-destroying flood](https://creation.com/noahs-flood-questions-and-answers#legends).
6. Origin of agriculture. Secular dating puts it at about 10,000 years and yet that same chronology says that modern man has supposedly been around for at least 200,000 years. Surely someone would have worked out much sooner how to sow seeds of plants to produce food. See: [Evidence for a young world](https://creation.com/evidence-for-a-young-world#agriculture).