

## **Is the Earth Young or Old?**

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There is an ongoing debate on the age of the earth. How old is it and how can we know this with certainty? Some scientists believe that the Earth has been here for billions of years, strongly appealing to geophysical, astronomical and radiometric clocks to date rocks, geological processes, archeological, and paleontological excavations. They mainly support their position by using the evolution theory.

On the other hand, there are scientists who believe that the Earth is only a few thousands of years old. These base their position on available scientific evidence, theistic explanations such as those in the book of Genesis and logical deductions. Proponents of this view question the veracity of dating methods such as the possibility of a constant rate of change in the processes being dated over time and whether external forces can alter such processes over the projected periods. They wonder how certain anyone can be about the original conditions of objects being dated. They also question how biological materials would have been preserved over millions of years, and how “old earth” proponents can hold onto their assumptions which seem to stand against well founded scientific principles. “Young earth” proponents state that theories cannot be outrightly considered as scientifically proven facts. They argue that one should examine the evidence for the Earth’s age from reliable sources rather than theories and assumptions which can often be mistaken.

In this chapter we wish to analyze the two positions and suggest that existing scientific and logical explanations seem to lean more towards a young rather than an old earth. It is our considered position that the biblical account fits the scientific facts better than evolution and that there is need to rethink prevailing data and conclusions on this critical discussion. With our combined reflections that pull together our engagement with the discussion from the fields of science, theology and philosophy, it is hoped that both the scientific and theistic communities will consider our arguments as a meeting point for faith and science.

### **Evolution and Creation Science**

Scientists conduct research using what is known as the “scientific method” to collect data, conduct experiments, infer and conclude from their findings in a bid to discover new knowledge or find answers to existing questions. They describe or regulate phenomena under study, predict future outcomes based on current regularities observed in nature, and develop theories by formulating concepts and principles to explain given phenomena. In doing this, they hope to ascertain facts that would correctly interpret and practically apply to natural occurrences.

Theologians, on the other hand, reflect on the natural world as “general revelation” from God (Geisler and Nix 1986) and use logic to understand and discuss occurrences in the world (Kigame 2018) in order to come up with a body of knowledge that informs their belief and practice. From nature, through logical reflection, one can make deductions (Zacharias 1994) and get illumination as St Augustine’s epistemology suggests, or attain reasonable faith (Craig 1994). Most theists do not find any reasonable conflict between faith and science and would say with David in the book of Psalms that “the heavens declare the glory of God.” (Psalm 19:1). However, creation and evolution scientists come to two apparently irreconcilable conclusions about the age of the Earth, thus creating tension in the scientific community and insurmountable logical problems when attempting to understand both conclusions as valid scientific outcomes. Both science and theology affirm that their inferences and conclusions are logically sound and can be justified by Science and good reason. Whether the Earth is billions of years old or a few thousand years old, and whether both affirmations can be a true interpretation of the data and practically apply to the age of the Earth is something that cannot be wished away by either community.

The latter third position that claims to reconcile the two disciplines albeit without any scientific validity or justification tends to lean towards evolution and its appeal to an old earth by introducing the Gap theory to mediate between faith and science. We observe that this mediation does not solve the problem but contradicts existing evidence for a young Earth, leaving us with the question, does the available data correctly interpret and practically apply to the inference of an old Earth?

### **Methods used to infer the age of the Earth**

With the age of the earth as an interest of both science and theology, any attempt to resolve the discussion must engage both induction as a tool of scientific observation and deduction as an instrument of theological reflection. Such an interdisciplinary approach is necessary because both science and theology heavily rely on logic to dispense any assumption or conclusion. This is the case whether you approached logic from a formal perspective as did Frege and Russell or as a syllogistic instrument as did Aristotle in “The Organon.” The point here is that it would be unwise for the young earth proponent to outrightly dismiss the old earth proponent’s views and conversely for the “old earther” to downplay the views of the “young earther” sheerly on the basis of held attitudes to each other’s worldview. With theology and science both resting heavily on studying a phenomenon that cannot be tested in a laboratory or court of law, logic and the adducing of reasonable evidence remains the most useful instrument for dispensing the debate. Although the statement could be applied in different ways, Albert Einstein’s conclusion can be usefully applied here, “science without religion is lame, and religion without science is blind.” (Einstein, 1956, p. 26). Einstein further observed that although the realms of religion and science in themselves are clearly marked off from each other, there are strong points of reciprocation and dependency on each other, but added that aspirations of truth are “derived from the religious sphere.” (Einstein, 1930, pp. 3-4).

From deductive logic, the truth of any set of propositions follows to a conclusion on the basis of necessity. In other words, if all the propositions preceding a conclusion are true, then the conclusion that is made must thus be made as a binding outcome of the connectivity of such propositions. As Aristotle stated in his *Prior Analytics*, a deduction is something like speech or thought, which, “certain things having been supposed, something different from those supposed results of necessity because of their being so.” In other words, in our case, if existing scientific data was adduced and analyzed as premises in

support of a worldview, and that data be viewed as true evidence of a position, then a conclusion must be drawn from such data with necessity, thus grounding such a conclusion in what must be accepted as prevailing truth. In that case, until new evidence is adduced to change the status quo, that would be the true position.

The age of the earth is a historical event and cannot be dated precisely. However, estimations are possible due to historical records and reliable processes when correctly evaluated in relation to the established scientific methods. In the evaluation, scientific methods are used to regulate the process of developing theories by formulating concepts and laws to generalize about the given phenomenon through research. The research process must be a systematic, controlled, empirical, and critical investigation of hypothetical propositions about the presumed relations among natural phenomena. This involves carrying out a diligent inquiry or a critical examination of a given phenomenon through analysis of existing conclusions or theories with regard to newly discovered facts, and arriving at dependable solutions through a systematic collection, analysis and interpretation of data.

The old earth theory appeals to geophysical, astronomical and radiometric clocks to date rocks, geological processes, archeological, and paleontological excavations. The dating process is predicated upon the decay of radioactive elements into fragments of different weights, subjected to some fundamental assumptions to interpret reality (the age of the earth). These assumptions include starting with only a parent element with neither contamination nor influx and outflow of material throughout the period, and that the daughter particles have remained in situ for the entirety of the time frame being considered. If these assumptions apply in reality, then radiometric dating is reliable and the old earth theory is valid. Radiometric dating is the only method used to infer and conclude the age of the earth (Dalrymple, 1994, DeYoung 2005, Snelling, 2015), and is explained and dispensed through the evolution theory (Burchfield, 1990). While it is not in our scope to comment on the overall scientific problems posed by macro-evolution, it is helpful to observe that basing dating conclusions on a theoretical framework that operates on random chance and probability is not respectable from a scientific standpoint because science as a discipline is interested in measurable and testable assumptions.

### **Assumptions in radiometric dating**

In principle, scientists must develop assumptions that best relate with the observations when conducting research, and these assumptions must then be objectively validated by data. However, a common problem in the process of developing assumptions is the worldview of a scientist. No matter how honestly a scientist conducts research, the assumptions, in most cases, are informed by and heavily biased towards what the scientist believes (Geisler and Bocchino, 2000). When it comes to cause-effect connections, unless a scientist rightly interprets the factors that act as the cause (explanatory variables), the intermediate processes (mechanism), and the results (effects), with a careful elimination of extraneous variables, s/he can have misleading interpretations based on wrong assumptions (cause-effect connection) when categorizing, describing, evaluating, comparing, and correlating the results or predicting an outcome.

Such misleading interpretations occur when using radiometric clocks to date rocks, geological processes, archeological and paleontological excavations and in astronomy. These clocks estimate how long a process has been taking place assuming that the rate of change in the processes has remained constant over the decades, centuries or millennia, no loss or gain of parent or daughter element has occurred over

this period, and that the amount of daughter element present at start is known (Morris 1998). So, when a radioactive substance has decayed from one element to another element, and the age of the object is set at several millions or billions of years, the assumptions introduced here are that:

- a) the original condition of the object is known for sure, in this case, the parent element which decayed to form the daughter element, and also that the amount of daughter element present when the parent started to decay is either zero or a known value, so that it is possible to predict how much of the daughter element has been formed through the decay of parent element,
- b) And that no external forces have added into or eroded the parent and/or daughter element in the past decades, centuries or millennia.

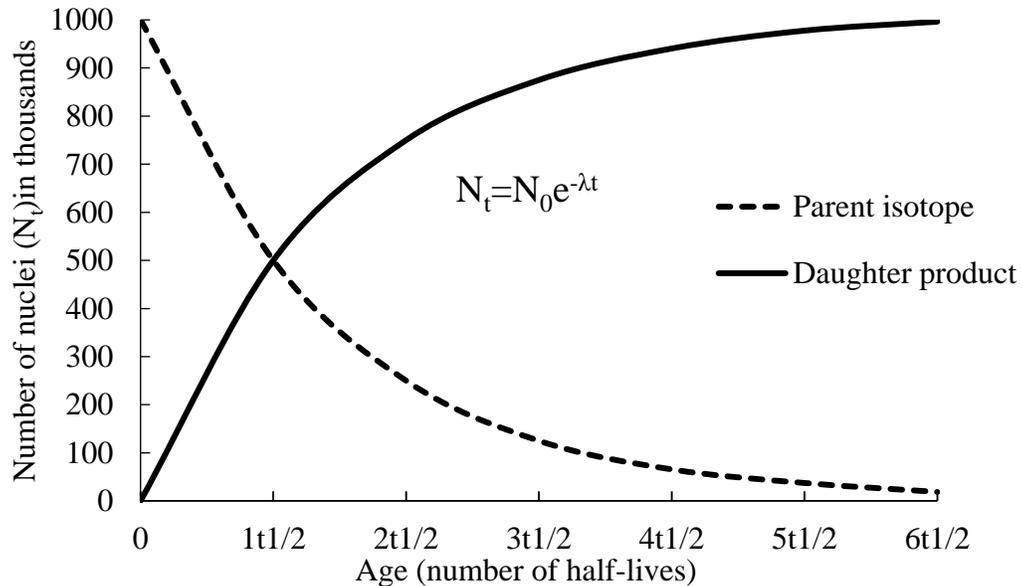


Figure 1: Decay curve for a radioactive element

This leads us to some troubling questions. For instance, are these assumptions plausible? Are the dating processes reliable? Do the assumptions fit the basic principles of science?

The assumption that “the original condition of the object being dated is known” cannot be sustained. In fact, it raises several questions: how much of the parent element was present? Was the daughter element completely absent at the start? If not, then how much was present or absent? Is it possible to know exactly the proportion of the daughter element at the start (several thousands of years ago), which may contaminate our proportion of parent-daughter elements hence inflating the count on the radiometric clock? How much then, of the parent element decayed to form the current amount of daughter element, excluding the amount of the daughter element that was present at the start, since it was not formed as a result of the decay process? This assumption applies to all the radiometric dating processes like Uranium decaying to form Lead, Potassium decaying to form Argon, Uranium to form Thorium, and Radiocarbon dating.

The second assumption is also implausible. In the last century or even decade, natural processes like wind action, changes in weather, hydrologic processes and natural disasters like earthquakes, floods, landslides, tornadoes, and volcanic activities, have eroded and formed, washed and deposited, metamorphosed rocks and sediments within and on the Earth’s surface, and nearly all of them have been catastrophic, not uniform. Assuming a constant rate of change of these processes over several centuries or millennia, to date an object or an organism using this procedure is misleading. Furthermore, assuming that no external

forces have altered the process of decay over centuries or millennia discredits knowledge and undermines the whole process of dating. These unjustifiable assumptions are the sources of large errors in the dating methods, some of which have errors of hundreds of thousands or even millions of years. How then can we trust the dating methods that give results in the hundreds of thousands or even millions of years based on assumptions which are unjustifiable? This is what the old earth theory considers as scientifically verified facts, when dating methods operate by estimating the age of rocks and fossils.

There is equally a troubling fallacious reasoning that seems to escape the defendants of an old earth when it comes to geological dating. Most of them succumb to *petitio principia* (the fallacy of begging the question). If you asked them how one should date the rocks, they would say it is by examining the age of the fossils in them. If you then turned and asked them how one could determine the age of these fossils, they would say it is by determining the age of the rocks in which they are found. Either way, there is no scientific enlightenment from such reasoning. If geology and paleontology at this point leave us with more questions than answers, perhaps one could call on radiometric dating to fill in the gaps by looking at it closely.

### **Radiometric dating put to the test**

According to Morris (1998), the reliability of dating methods has been tested and has yielded substantially varied and deeply troubling results. Sunset Crater in Arizona is known to be a recent volcano. However, when its lava flow was dated by potassium-argon method it was given the date of between 210,000 and 230,000 years. It was found that there was already an initial amount of argon which inflated the age. A similar observation was cited in the eruption of Mount Rangitoto in New Zealand which was about 300 years old but dated as 485,000 years. Morris (1998) in the book titled "The Young Earth" also observes that rocks from Kaupulehu flow, Hualalai volcano known to have erupted between 1800 and 1801 A.D were dated with a variety of methods and the report had 12 dates ranging from 140 million to 2.96 billion years with an average of 1.41 billion years, and many other examples given between page 55 and 62 of the inconsistencies. Noting that except for radiometric methods used to date rocks, there is no evidence to sustain the argument that the earth is old, it is evident that the unreliability and inconsistencies in these methods make the process untrustworthy and unscientific, even though it claims to be scientific.

There seems to be a conviction to rescue theories and assumptions by pointing to other theories, as the case with the old earth and evolution theory. It should be noted that theories cannot be considered as scientific facts unless tested and verified and besides, theories have been abandoned when it was realized that they were unscientific and misleading, such as spontaneous generation of complex life from inanimate matter, black slate theory, Einstein's theory of static universe, Phlogiston theory, Caloric theory, Geocentric universe, Copernican system and many more. It is clear that the question about the age of the earth is entirely unrelated to the question of its origin. The former is concerned with when it was formed and the latter with how it was formed. So, for either an evolution or creation scientist, the question of the age of the earth must be considered separate from the question of whether evolution is true or not. However, Macro-evolution suggests an old earth, it cannot submit to any other because all evolutionary systems require immense amount of time to form and to shift from one form to another (Morris and Parker 1987).

It must be noted that not all dating methods indicate the inflated age of the earth except for those with large size half-life (Snelling, 2015. Morris and Parker (1998) have a list of 68 individual processes that estimate this age which vary from millions of years to a few hundred years with some being too small to measure. A biased selection of the processes has been the case, especially those that generate large

counts, and these have been used to infer that the earth is old. We modified the table from Morris and Parker and picked some of the indicators of a young earth as presented below to suggest that the debate based on these indicators can be unending if these processes are not linked to some reference point of verification. If the processes based on assumptions become reference points in themselves, then they will be misleading because, as we observe, some of the processes like the continuous rapid deposition of the geologic column, formation of radiogenic lead by neutron capture, formation of radiogenic strontium by neutron capture, parentless polonium halos, decay of uranium with initial "radiogenic" lead and decay of potassium with entrapped argon are considered too small to measure while accumulation of dust on the moon gives an uncertain prediction.

Table 1: Uniformitarian estimate of the age of the Earth based on the assumptions of zero initial “daughter” component, closed system and uniform rate (Modified from Morris and Parker, (1998))

Process	Indicated age of the earth	civilization
Decay of earth's magnetic field	10,000	Humphreys (1993), Sarfati (1998), Richter and Coppedge, (2018)
Influx of radiocarbon to the earth system	10,000	Cook (1968)
Continuous rapid deposition of geologic column	too small to calculate	Morris (1985)
Growth of oldest living part of biosphere	5,000	Morris (1985)
Origin of human civilizations	5,000	Morris (1985)
Development of total human population	4,000	Morris H.(1974), Morris J. (1998)
Formation of radiogenic lead by neutron capture	too small to measure	Crook (1966)
Formation of radiogenic strontium by neutron capture	too small to measure	Crook (1966)
Parentless polonium halos	too small to measure	Gentry (1988)
Decay of uranium with initial "radiogenic" lead	too small to measure	Slusher (1980)
Decay of potassium with entrapped argon	too small to measure	Slusher (1980)
Formation of river deltas	5,000	Allen (1972)
Decay of short-period comets	10,000	Slusher (1971)
Accumulation of dust on the moon	uncertain	Slusher (1971)
Influx of nickel into the ocean via rivers	9,000	Riley (1965)
Influx of silicon into the ocean via rivers	8,000	Riley (1965)
Influx of lead into the ocean via rivers	2,000	Riley (1965)
Influx of manganese into the ocean via rivers	1,400	Riley (1965)
Influx of tungsten into the ocean via rivers	1,000	Riley (1965)

### Some point of verification

Though radiocarbon dating is also based on the assumptions already mentioned, when used, it has some regulation as a corrective mechanism in that;

- a) It can only date dead organisms (meaning they were once alive and it is possible to estimate when this happened)
- b) The dating depends on the principle of equilibrium of carbon isotopes ( $^{12}\text{C}$  and  $^{14}\text{C}$ ) which is maintained when the organism is alive but disrupted to unidirectional equation when the organism dies. This is different from dating methods based on decay processes in rocks which have no life in them and nothing that can regulate the proportions of parent-daughter elements contribution.

The half-life of  $^{14}\text{C}$  is 5,730 years and scientists acknowledge that the oldest date that can be reliably measured by this process is about 50,000 years (Guilderson et al., 2005; Mellars, 2006).

However, a concern arises from this reality. According to evolution theory, by this time, even Homo sapiens (wise man) had already completely formed through the process of evolution. If the “wise man” had by this time lived several thousands of years, some indicators of this fact must be observable and these would include rise in population, civilization and governance but also, numerous fossil records dating up to 10,000 years and beyond. We may ask why we do not have numerous archaeological

excavations of *Homo sapiens* fossils dated 10,000 years using radiocarbon dating. According to Morris (1998) archaeological excavations in a variety of places around the world have revealed a very advanced modern culture that sprung up suddenly and almost simultaneously, inferring complete civilization, possessing complex language, sophisticated culture, agricultural knowledge, impressive technology, and the ability to device elaborate calendars, build pyramids, impressive buildings and sea-going vessels. All these can date only up to 5, 000 or so years and not more!

Although it is not in our scope in this discussion to evaluate the huge strands of dating of man’s history on earth that have taken place, we wish to differ with the “romantic” approach to such dating by evolutionary defendants. To place the lower Paleolithic and middle Paleolithic periods in the range of 300,000 or 200,000 years ago defies any measurable dating method and must thus be confined to nothing but conjecture. To place the epi-palaeolithic or meso-palaeolithic periods of man’s survival of the glacial catastrophe between 60,000 and 40,000 years ago is still a romanticization of prehistory. Even reputable bodies such as UNESCO, in their *General History of Africa* (Ki-Zerbo, 1981 p. 332) has gone even further by placing Africa’s human prehistory at 3 million years ago. In any case, the acephalous nature of dating human civilization removes confidence in any kind of tangible evidence for an old earth, given that anyone can adopt any date or pattern for anything once real scientific dating has been suspended.

Whether one is studying the emergence of man’s religions, the history of writing, or the construction of pyramids, man’s history on earth seems to point to about 5000 B.C. so that, even with a generational projection on the human civilization, free from any extravagant play with dates, man’s civilization seems to go back in time to about ten thousand years (Wilmschurst et al 2011). The age of the earth, in the same way, hardly fits the model of billions of years as proposed by evolution and the old earthers. Historical records of ancient civilizations in Mesopotamia, the Indus Valley, Egypt, as well as among the Mayans, Greeks, Chinese, Persians and even Romans (Table 2) are limited to a few thousands of years.

**Table 2: Ancient human civilization**

#	Ancient civilization	Period	References
1.	Mesopotamia	~3500 BC	Algaze 2009; Adhikari 2014
2.	Indus Valley	~3300 BC	Jarrige and Meadow 1980; Kenoyer, 1991
3.	Ancient Egyptian	~3100 BC	Wenke 1991; Moret 2013; Sansone 2016
4.	Mayan	~2600 BC	Dunning <i>et al.</i> , 2002; Demarest 2004; Inomata <i>et al.</i> , 2013
5.	Greek	~2700 BC	Mahaffy 2012; Sansone 2016
6.	Chinese	~1600 BC	Ebrey 2009; Granet 2013
7.	Persian	550 BC	Department of Near East Arts 2004; Essential Humanities 3013
8.	Roman	550 BC	Love 2005; Auguet 2012;

### The Earth’s Magnetic Field

It is without contention that the earth’s magnetic field is decaying (Humphreys 1993; Morris 1998; Sarfati 1998; Dickerson 2014; Borg, 2018; Richter and Coppedge, 2018). The disturbing concern to the old earth theory is the rate of this decay. As observed by Richter and Coppedge (2018),

*“If the earth were more than 12,000 to 15,000 years old, life could not exist. If we extrapolate backward in time the observed decay rate, huge magnetic fields would have existed at that time, and the earth would be physically unstable. Electric currents that powerful, flowing in the mantle to create these huge magnetic fields, would cause tremendous heating, to the point of melting the*

*earth's crust. There are theories of reversal of magnetic poles, but this has never been observed to happen besides, reversing the poles will not give back a strong magnetic field to the earth...*"

Theories are being formulated on the possibility of reversing the magnetic poles to rescue the old earth theory from the implications of the earth's decaying magnetic field. Reversals are estimated to have occurred several times some long periods in the past and are inferred from patterns in volcanic rocks. However, no one has ever observed these reversals taking place. In fact, the British Geological Survey website on geomagnetism explains that;

*"We have no complete record of the history of any reversal, so any claims we can make are mostly on the basis of mathematical models of the field behavior and partly on limited evidence from rocks that retain an imprint of the ancient magnetic field present when they were formed."*

But as Richter and Coppedge (2018) observe, reversing the poles will not give back a strong magnetic field to the earth. The decay is evident and cannot be rescued by introducing a theory of reversal.

### **The Earth's Population**

The Earth's population growth rate and the current population size does not permit humanity to have existed except for a few thousand years. Populations are known to follow an exponential growth curve which renders it impossible for the old earth theory to attempt any model for human population growth and reach the current population size. Rose and Ortiz-Ospina (2017) inferred that,

*"It wasn't until 1803 that the world reached its first billion; it then took another 124 years to reach two billion. By the third billion, this period had reduced to 33 years, reduced further to 15 years to reach four. The period of fastest growth occurred through 1975 to 2011, taking only 12 years to increase by one billion for the 5th, 6th and 7th."*

Famularo (2009) also observes that the world's population was approximately 600 million in the year 1650 and increased to about 2,400 million (or 2.4 billion) by 1950. This means that it would have doubled twice in 300 years, at an average rate of once every 150 years. He then continues;

*"Believe it or not, the world's population has doubled only 31½ times since the first human couple appeared on earth. This gives 6,500 years. You can work it out for yourself on your own calculator..."*

If the exponential growth of human population is anything to go by, an old earth model is impossible. Famularo (2009) explains that impossibility as follows;

*"Even if the average time that the population doubled in the past was as slow as once every thousand years (that is one twenty-fifth of the present growth rate), this would put the first pair of humans on Earth only 31,500 years ago... According to the now-prevailing view, the first humans lived over a million years ago. If that is really so, where are all the trillions of people who should either be alive, or whose buried remains, potentially fossilized, should be found in vast graveyards scattered around the world?" If counter arguments against the foregoing remain absent, our case would be established in preference for a young earth; but there is equally biological information to look at in support of our young earth argument.*

### **Biological evidence**

As early as 1991, some interesting biological evidence began to emerge showing that it was implausible that the earth could be as old as asserted to by evolutionists. Sykes (1991) commenting on the discovery of DNA in *Magnolia* leaf fossils said “This means these compression leaf fossils defy the prediction from *in vitro* estimates of the rate of spontaneous hydrolysis that no DNA would remain intact much beyond 10,000 years...” In the laboratory DNA had already been proven to breakdown by itself and therefore the discovery of DNA in *Magnolia* leaf fossils which were supposed to be 20 million years old speaks against the idea of the earth being of great age. Short DNA sequences have also been isolated and identified from some ancient bacteria, mammals, Neanderthals and other archaic humans (Criswell, 2006), though, as already pointed out, such remnant DNA should not be able to last more than 10,000 years (Sykes 1991). Thus even the discovery of ribosomal gene in a bacterium touted as being 250 million years (Vrieland, Rosenzweig and Powers, 2000) raises a lot of suspicion concerning the age it was assigned.

In recent years, the discovery of fossil-containing rocks with original animal material has added decisive evidence pointing to a young earth (Thomas, 2009). A classic example is the discovery by Mary Schweitzer of transparent, flexible, hollow blood vessels containing small round microstructures that could be expressed from the vessels into solution in the femur of a *Tyrannosaurus rex* (Schweitzer *et al.*, 2005). These materials were found to be largely intact even after the “vast eons” they had supposedly been incorporated in the soft sandstone fossil rock in which they were discovered. The question that arises from this finding is whether it was even remotely possible that blood vessels and the other soft tissue materials discovered in the femur bone of *T. rex* could exist undamaged over 68 million years? This question led other workers to revisit the work done by Schweitzer *et al.* but now using a different line of investigation. Schweitzer *et al.* (2005) had dissolved fossil bone of *T. rex* in acid in order to expose the preserved microstructures within. However Kaye *et al.* (2008) examining the interior of unaltered fossil dinosaur bone prior to dissolution in acid using scanning electron microscopy (SEM) and energy dispersive spectroscopy (EDS), found a bacterial biofilm that mimics soft structures which they pointed out previous workers had mistakenly thought to be biological tissue. Also, what Schweitzer *et al.* (2005) had concluded were blood vessels appeared to actually be bacterial biofilm endocasts formed by the coating of holes where blood vessels once existed by bacteria but which now mimicked pliable vascular structures after the bone was dissolved (Kaye *et al.*, 2008). A host of other findings by Schweitzer *et al.* were found to be deceptive by Kaye *et al.* (2008). For example what Schweitzer *et al.* had concluded were red blood cells inside their dinosaurian “blood vessels” turned out to be round pyrite crystals (Kaye *et al.*, 2008). So what the study by Kaye *et al.* seemed to have done was to cast doubt on Schweitzer’s teams evidence that they had discovered *T. rex* tissues in fossilized bones. However, in 2009 Schweitzer and team once again came up with multiple lines of evidence which now truly showed that proteinaceous material had been preserved in bone fragments and soft tissues from an 80-million-year-old Campanian hadrosaur, *Brachylosaurus canadensis* (Schweitzer *et al.*, 2009). This time round their evidence was also analyzed by different independent labs an aspect which seemed to bear them out against previous challenges made against their findings by Kaye *et al.* (2008). Recent investigations using cutting-edge technology have also satisfactorily demonstrated that biological materials can be preserved in fossils. A research team in England clearly demonstrated the presence of keratin, a soft skin tissue, in lizard skin fossil discovered in the Green River Formation in the USA (Edwards *et al.*, 2011). Using innovative molecule-mapping technology they showed that keratin molecules from the fossilized lizard skin were similar to the same protein in skin obtained from a modern lizard. Similarly, another research team from

Sweden showed, using synchrotron radiation-based infrared micro spectroscopic studies, that collagen, another protein, had been preserved in fossilized bone from a mosasaur - an extinct giant marine lizard (Lindgren *et al.*, 2011).

Nevertheless, the question that remains unanswered, even from the studies cited above, is whether it is possible for soft tissues to remain intact for millions of years without losing their consistency and form? When viewed from a young earth perspective, the discoveries by Schweitzer *et al.* (2005, 2009), Edwards *et al.* (2011) and Lindgren *et al.* (2011) would make perfect sense because the most straightforward fit to this evidence is that the time of burial of these dinosaurs was not millions of years ago at all, but only thousands of years ago at most (Wieland 2009). Hitherto the preservation of dinosaur tissue and protein remains strong direct biochemical evidence that these fossils are not millions of years old (Anderson, 2017) because every attempt made by evolutionists has not been able to convincingly explain how such material can survive such long periods of time. As evidence has continued to mount that dinosaur fossils do indeed contain well-preserved soft tissue structures and identifiable proteins, the assumption that evolutionists will increasingly make is that they now know that such tissue components can last that long, after all (Wieland, 2009) but without providing convincing scientific evidence of how this is possible. Wieland (2009) contends that this is a paradigm-rescuing assumption and he points out the circularity of reasoning followed by evolutionists against what would be more science-based reasoning as outlined in Table 3:

**Table 3: Evolution reasoning compared to Science-based reasoning.**

Evolutionists reasoning	Science-based reasoning
1. We know that this dinosaur fossil is 80 million years old	1. This dinosaur fossil is claimed to be 80 million years old
2. Calculations based on operational (observational) science indicate that no collagen should survive anywhere near that long	2. Calculations based on operational (observational) science indicate that no collagen should survive anywhere near that long
3. Collagen has been identified in these dinosaur fossils. <b>Therefore</b>	3. Collagen has been identified in these dinosaur fossils. <b>Therefore</b>
4. There must be a mistaken assumption in the calculations mentioned in Point 2 – though we don't know for sure how, collagen must be able to survive for 80 million years. How do we know that?	4. The claim in point 1 is wrong. The fossil cannot be anywhere near that old. This matches the expectations of a worldview based on the history given to us in the book of Genesis
5. Because we know that this dinosaur fossil is 80 million years old	

The problem of genetic entropy, that is, degeneration or decay of genomes (often also referred to as mutation accumulation) further complicates things for advocates of an old earth. It is considered as powerful evidence that points to life and mankind being young rather than old (Batten, 2008). Recent evidence advanced by Carter and Sanford (2012) indicates that genetic entropy is a reality and it is considered to probably be the fundamental underlying mechanism that explains the extinction process

(Batten 2008). Carter and Sanford (2012) analyzed mutation accumulation in the human H1N1 influenza genome using 95 years' worth of genetic sequences (dating back from 1918) and showed that the various influenza viruses that infect humans cannot survive long term. From the data they had, they documented two extinctions of the human H1N1 lineage; one known to have occurred in the 1950's and for the first time noticed another disappearance in mid-2009. They concluded that these extinctions must have been the result of mutation accumulation. Organism extinctions that have taken place in the past and even those occurring in the present can best be understood, not in terms of environmental change, but in terms of mutation accumulation which is consistent with a miraculous beginning, a young earth and a perishing earth which "will wear out like a garment" (Batten, 2008).

In conclusion, if the dating methods that are relied on to propose an old earth are unreliable and do not meet a sufficient scientific threshold for the validation of an assumption, then it means that those who rely on such dating have believed something worse than a myth. Again, macro-evolution seems to suggest spontaneous generation, random chance and the survival of the fittest as an explanation for the principles that demand an old earth. However, entropy works against this, leaving us with a shorter time to observe surviving processes within the last few thousands of years. The implication of this is that entropy actually disproves an old earth and puts macro-evolution to a harsh acid test. If, by evolutionary thinking, we have been moving from less perfect states to more perfect ones, not only would it defy the 2<sup>nd</sup> Law of Thermodynamics, but it would help us see why evolutionists favour long periods of time for their theory to hold water, hence their preference for an old earth.

Something is true, no matter where it is found. If the book of Genesis proposes that an all-intelligent, wise and powerful being called God brought everything into existence *ex nihilo* (out of nothing) and that He saw "it was very good," the biblical account in Genesis would fit the principle of entropy better than evolution because it proposes a perfect state of the created universe which enters the process of decay (entropy) because of man's sin. 2 Peter 3 even postulates the final end of the universe when it is folded up like a garment, signifying the ultimate culmination of this entropic process. Given the foregoing, Adam and Eve did not live billions or millions of years ago, but quite recently.

From the evidence that is getting stacked by the day against the old-earth theory propagated by evolutionists, it seems that it is just a matter of time before the evidence will become overwhelming and cause the collapse of this far-fetched theory.

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