



## **DISTANT STARLIGHT & PRE AND POST FLOOD AGE'S**

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Perry Atkinson and John Mittendorf

### **INTRODUCTION**

Currently, we are focusing on questions that are forwarded from theDove audience that relates to the Bible and science and typically center on Genesis 1-11 (questions can be forwarded to [hispeoplerejoice@gmail.com](mailto:hispeoplerejoice@gmail.com)). Even though the Bible is explicitly clear on numerous subjects such as the number of days of creation, the reason for a Global Flood and an ark, the death and resultant resurrection of Jesus Christ, and most importantly – the need for salvation from sin – there are some areas of Scripture that do not “*fill in all of the blanks*” leading to the adage of “*the Bible often gives us the mountain tops and not the valleys.*”

This paradox can often become intimidating when trying to explain some portions of Scripture that may initially appear to be in conflict with modern secular science. While the directive in I Peter 3:15 – “*always be ready to give a defense to everyone who asks you a reason for the hope that is in you*” – does not mean that Christians should be experts in all fields of science, it does indicate that Christians should be able and ready to give an adequate defense for what they believe.

In order to facilitate that directive, let's look at two common questions that are often considered to be challenging to explain, but are also typically perceived

to be in conflict with secular science. This month, the following two submitted questions graphically illustrate the current enigma between secular science and the Bible:

- Distant starlight
- Pre and post flood age of humans

As both of these questions are not specifically delineated in Scripture, let's look at each question and see how it relates to Scripture and modern secular science.

## **DISTANT STARLIGHT**

*"How can we see stars that are billions of light years away from Earth if the universe is young"?*

In April 2018, NASA's Hubble Telescope discovered an enormous blue star that has been nicknamed *Icarus*. It is the farthest individual star ever seen and is alleged to be 9 billion years away from Earth. This means that the light from this star has supposedly taken 9 billion light years to reach Earth,<sup>1</sup> and would point towards the universe being at least 9 billion years old from a secular scientific viewpoint. However, a literal reading of Genesis indicates that the universe is about 6,000 years old. As a result, it is asserted by secular science that since we can see light from stars that are more than 6,000 light years away, and light from quasars (remote celestial objects) that are 13 billion light years away, the universe cannot be a mere 6,000 years old with the light from quasars putting the lower limit of the age of the universe at around 13 billion years old.<sup>2</sup> This paradox is known in secular science as the *Starlight Problem*, and in creationism it is referred to as the *Distant Starlight Problem*.

The apparent answer to this paradox can be approached from two perspectives – biblical (practical) and scientific (technical). First, let's look at biblical Scripture.

### **BIBLICAL SCRIPTURE**

*(14) Then God said, "Let there be lights in the firmament of the heavens to divide the day from the night; and let them be for signs and seasons, and for days and years; (15) and let them be for lights in the firmament of the heavens to give light on the earth," and it was so. (16) Then God made two great lights; the greater light to rule the day, and the lesser light to rule the night. He made the stars also. (17) God set them in the firmament of the heavens to give light on the earth, (18) and to rule over the day and over the night, and to divide the light from the darkness. And God saw that it was good. (19) So the evening and the morning were the fourth day"*

*Genesis 1:14-19*

These verses tell us that God created “*lights, sun, moon, and stars,*” not only for light but to also serve as markers, signs, seasons, days, and years. Signs would certainly include weather (Matthew 16:2-3) and markers for navigation purposes (Matthew 2:1-2). The phrase “*it was so*” indicates completion,<sup>3</sup> as the light from the just created celestial bodies was then visible on the Earth. Consider the following two perspectives:

- If God was capable of creating the celestial bodies as delineated in Genesis 1:14-19, He was also capable of ensuring their light was instantly visible on the Earth
- If the light from the newly created celestial bodies took billions and/or millions of years to reach the Earth, the celestial bodies described in Genesis 1:14-19 would have been useless to Adam and Eve and following generations

### **SCIENTIFIC**

Unfortunately, secular science does not recognize biblical Scripture for scientific answers, as naturalism (science without God) is the cornerstone of secular science. Therefore, let's briefly look at two modern scientific views that have merit when explaining the Distant Starlight Problem:

- Gravitational Time Dilation
- Anisotropic Synchrony Convention (speed of light)

Before we begin, it should be noted that secular astronomers also have a light-time-travel problem that is called the “*horizon problem.*” This secular scientific dilemma comes from the big bang theory and its failure to explain how light could have traveled across the universe and produced uniform “*background temperatures*”<sup>4</sup> when secular science believes that celestial temperatures should not be uniform!

### **Gravitational Time Dilation**

Due to Einstein's physics, it has long been established that *distance, speed* and *gravity* affects the rate at which time flows in any particular location in the universe. As a result, we know that gravity is capable of affecting the speed of time (and clocks). Let's look at two examples of Einstein's General Relativity physics (that are still relevant and accepted today) and see how clocks in different locations can run at different speeds:

- A clock at sea level (i.e., Royal Observatory, Greenwich), will run slower than a clock at 5,280-feet (i.e., National Bureau of Standards, Boulder, Colorado), as in Figure 1 because of a difference in the amount of gravity. When this difference in time is applied to millions and/or billions of light years of distance, it is easy to see how our clocks on Earth run significantly slower than the clocks of celestial bodies billions of light years away (as an example, when dealing with different time zones, consider that a plane can leave

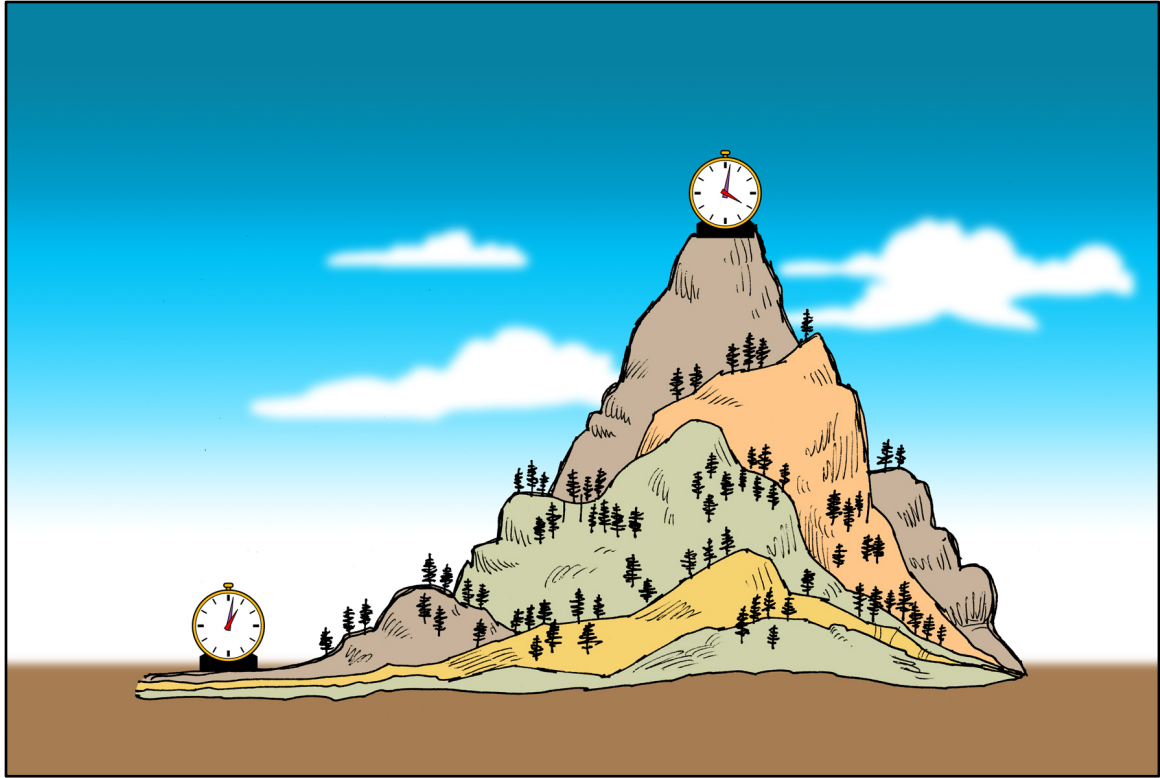


Figure 1. Gravitational Time Dilation

Kentucky at 4 pm and arrive in Colorado at 4 pm). Therefore, Einstein's physics tells us that it can literally take no time at all for light to travel from a distant galaxy to the Earth from the Earth's perspective

- Today, GPS satellite systems are commonplace and used for numerous applications in daily life, such as motor vehicles. The position of a receiver (auto, etc.) on Earth is determined by comparing the time necessary for signals from a number of visible satellites to reach a receiver on Earth (trilateration). This requires an extreme amount of high precision timing for obvious accuracy. As the satellites orbit the Earth at an altitude of about 12,540 miles and at a speed of about 87,724 mph, the atomic clocks on the satellites run faster than the same clocks on Earth by about 38 microseconds per day.<sup>5</sup> This combination of factors is responsible for their atomic clocks running 38 microseconds per day faster than the equivalent clocks on Earth. Therefore, if this difference were not compensated for, the entire system would be completely useless.<sup>6</sup> Similar to the preceding section on Gravitational Time Dilation, there is no doubt that Earth clocks run much slower than galactic clocks, particularly when distances of billions of light years away from Earth are evaluated in conjunction with the time it takes light from distant celestial bodies to reach Earth. Therefore, this perspective

can be useful in understanding and/or discussing the Distant Starlight Problem from a scientific perspective

### **Anisotropic Synchrony Convention**

A light-year is the maximum distance that light can travel in one year at 186,282 miles-per-second in a vacuum<sup>7</sup> (6 trillion miles in one year). Consequently, it should take billions of years for light to travel billions of light-years through space as a basic premise of secular science is grounded on the speed of light is a constant. However, based on modern factual science, is that really true? Contrary to popular opinion, it appears that it is possible for light to *instantaneously move*, even today! That means the time required for light to travel from the most distant celestial bodies to Earth can be zero today as well as on the Fourth Day of Creation. So, as the previous comments are certain to be questioned, let's consider their viability.

The principle of instantaneous time-light-travel as outlined in Einstein's Theory of Relativity demonstrates that the time-light-travel problem is more about underlying assumptions than observation and empirical science. Prior to the 20<sup>th</sup> century, it was believed that space and time are not affected by direction and speed (velocity). However, after the turn of the century Einstein showed that velocity does indeed affect the passage of time and our measurement of length (direction) as well. As a result, it is now known that time-durations and lengths are not unconditional but are relative to velocity and is why Einstein's physics can be referred to as *relativity* (absence of standards of absolute and universal application).

An important portion of Einstein's Relativity Physics states that the speed of light in *one direction* cannot be objectively measured so it must be assumed and/or agreed upon by *convention* (an assembly of people of a particular profession).<sup>8</sup> This scientific agreement is in direct contrast to the round-trip speed of light, which is always a constant. If this perspective sounds somewhat confusing, let's look at a simple example in Figure 1.

Assume that we shine a flashlight down a long corridor and towards a mirror at the end that reflects the light back to our flashlight. Now, assume that if we have accurately timed the two-way distance the light has traveled and our timing device indicates 2 seconds for the round-trip travel time we can be assured that this time is categorically correct. However, even though we can be certain of the overall time, we cannot be certain of the time it took the light to travel to the mirror, or the time it took the light to return to the flashlight from the mirror, as it is possible that the light could have traveled at different speeds for each direction.

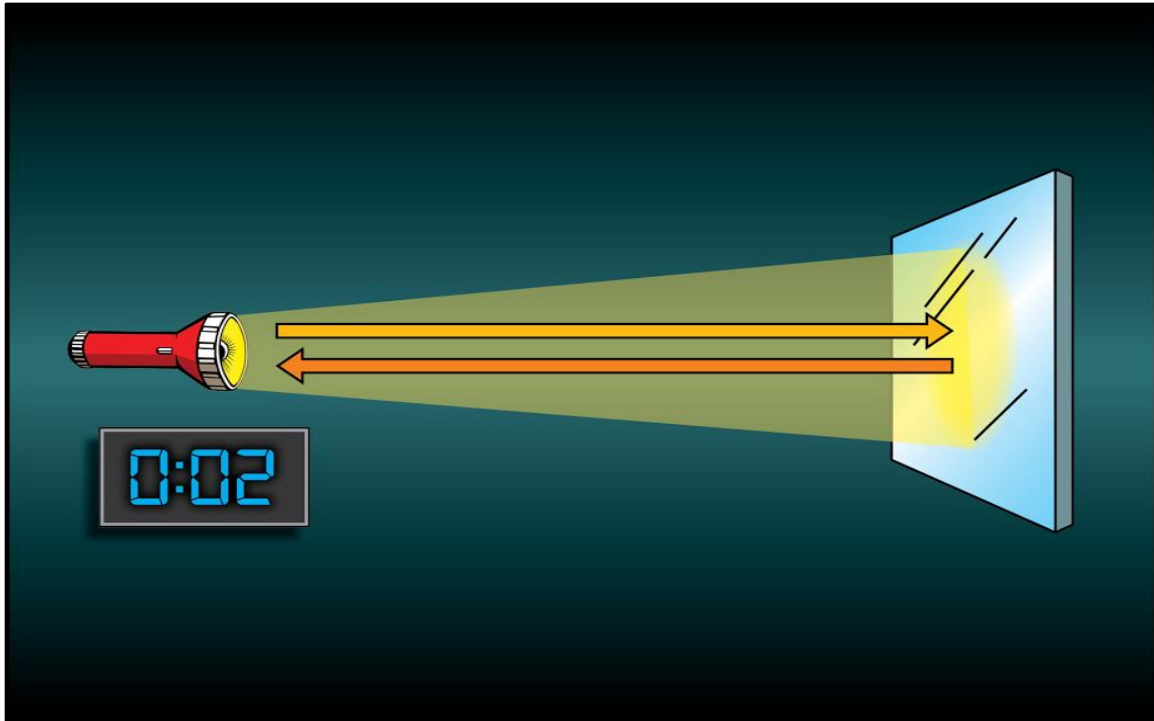


Figure 1. Two-Way Speed Of Light

A practical solution to this time-speed-distance dilemma would be to measure the time for the one-way speed of light, as it would seem simple to synchronize two clocks and then move one of the clocks to the mirror. However, it is impossible to measure the one-way speed of light because moving a clock to the mirror may change the time on the clock (remember our previous discussion on Einstein's Relativity Physics on velocity and length)? At this point it could be assumed the resolution to this dilemma might be resolved as follows:

- Synchronize two clocks then move one to the mirror. *Unfortunately, we cannot be certain the clocks are still in sync after one moves to the mirror because travel can affect time*
- Move one clock to the mirror and then synchronize both clocks. *Again, when one clock sends a synchronization signal to the other clock at the speed of light, we will be unsure how long the signal took unless we are familiar with the one-way speed of light*

As a result of the two preceding inadequate resolutions, the one-way speed of light cannot be correctly measured since there needs to be an accurate methodology to synchronize two clocks that are separated by a distance. However, and as we have previously discussed, Einstein has indicated that in order to synchronize two clocks that are separated by distance it is necessary to know the one-way speed of light which presently cannot be accurately done.<sup>9, 10</sup>

Interestingly, Einstein's resolution to this conundrum was to put forward the concept that the one-way speed of light is actually a *convention* (something that can be chosen). As a result and in the interest of simplicity, many secular physicists have chosen to consider the speed of light as the same in all directions (although that assumption cannot be scientifically proven). Being aware of this conundrum, Einstein has stated that the one-way speed of light – "*is in reality neither a supposition nor a hypothesis about the physical nature of light, but a stipulation which I can make of my own freewill in order to arrive at a definition of simultaneity.*"<sup>11</sup> For reference, simultaneity is defined as – "*the relation between two events assumed to be happening at the same time in a frame of reference.*"<sup>12</sup>

### **Speed of Light**

To summarize the preceding discussion on Einstein's speed of light conundrum:

- The one-way speed of light is a convention and is something that can be chosen
- As different choices are acceptable, many physicists view the speed of light the same in all directions
- It is scientifically acceptable to view the speed of light as being instantaneous (i.e., when traveling toward us) as long as the round-trip speed in a vacuum and/or empty space is always 186,282 miles per second. This fact can be verified from other credible sources such as:
  - The One-Way Speed of Light Conundrum, Massachusetts Institute of Technology, Technology Review
  - The Speed of Light is Instant, University of Maryland, Baltimore County
- Therefore, the viewpoint of instantaneous starlight from distant celestial bodies to Earth is not an issue – either biblically or scientifically
- Note: The term *convention* as used in this discussion can also be referred to as the "*anisotropic synchrony convention*" or ASC. Although this initially appears as an overly technical phrase, in reality it simply means that light can travel at different speeds in different directions (anisotropic)

## **PRE AND POST FLOOD AGES**

*"Why did people live such long lives before the global flood?"*

The Bible indicates that about 1,650 years elapsed between the creation of Adam and Eve and the Global Noahic Flood. During that time, the *average* length of life for the ten patriarchs (excluding) Enoch) was an average of 912 years with Methuselah living to the ripe old age of 969 years (Genesis 5:27). Interestingly, similar claims of long life spans can be found in the secular literature of ancient cultures such as the Sumerian King List,<sup>13</sup> Babylonians, Greeks, Romans, Indians, and the Chinese. Yet, during the 1,000 years that followed the Flood, the Bible

records a progressive decline in the life span of the patriarchs from Noah who lived to be 950 years old until Abraham who died at 175 years (Figure 3).

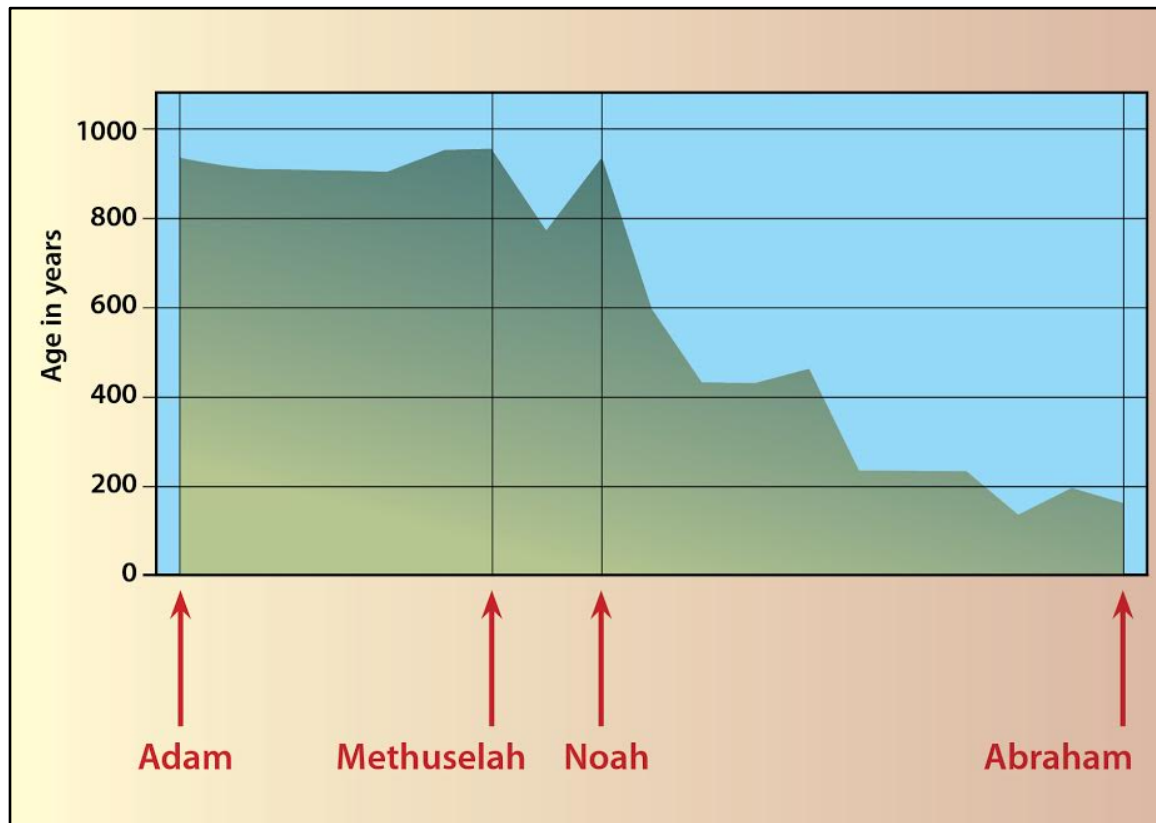


Figure 3. Declining Ages Of Early Biblical Patriarchs

After the Flood, Moses was unusually old for his era at 120 years and he commented in Psalm 90:10 – *“The days of our lives are seventy years; and if by reason by strength they are eighty years, yet their boast is only by labor and sorrow; for it is soon cut off, and we fly away.”* Currently, the *maximum* life span is about 120 years with the *average* life expectancy about 70-80 years of age.

According to the Creation account in Genesis, God created Adam and Eve without sin and with the ability to live forever as they were created *“in the image of God,”* (Genesis 1:27). Yet, Adam and Eve sinned by disobeying God and suffered the sin curse penalty of eventual death, as would all of their descendants after them (Genesis 2:16-17). This curse instituted the 2nd Law of Thermodynamics that we know today as being responsible for the – *“natural tendency of any isolated system to degenerate into a more disordered state,”* or *everything is degenerating.*<sup>14</sup> This is evident in the exponential graph in Figure 3 resulting in the common question of – *“why the precipitous plunge in life spans after the Global flood?”*



As science still has no definitive answer to this question, let's look at some applicable influences that can help to explain the rapid decline in ages and life expectancy for mankind (the following factors are not listed in any specific order as they were all likely contributors of varying degrees of importance).

### **MAGNETIC FIELD OF THE EARTH**

The decline in the Earth's magnetic field has been scientifically measured since 1835 and has indicated it was much stronger in the past. If scientific extrapolations are correct, the magnetic field could have been twenty times stronger at the time of Creation and ten times stronger at the time of the Flood. Laboratory experiments have indicated that exposure to high levels of magnetism from conception to puberty stabilizes chromosomes, slows the aging process and increases longevity.<sup>15</sup> A strong magnetic field also has the potential of reducing the effect of radiation upon Earth that speeds up the aging process and can also cause a demonstrable rise in cancer cases.

### **DIET**

In Genesis 1:29, God instructed Adam and Eve to eat of the green plants for their *sole source* of food. This command was not changed to include meat and green plants until after the Flood, and is found in Genesis 9:3. Today, the health benefits from a diet high in vegetable matter and low in animal fat is well established. Animal fat is known to contribute towards artery and heart disease, and high blood pressure.

### **FLOOD EVENT**

Based on the biblical description of Creation as outlined in Genesis, the Earth was created perfect for the enjoyment of mankind as Genesis 1:31 states that – *"God saw everything that He had made, and indeed it was very good."* Unfortunately, Adam and Eve sinned, causing God to curse His Creation that began a steady decline in the perfection of God's Creation (and continues through today and until the end of time). Until the catastrophic Global Flood, the Earth still had the basic attributes of Creation such as an abundance of plant life, temperate weather patterns (no hurricanes, tornadoes, floods, thunderstorms or lightning, and a lack of an ice age. Remember that Genesis 2:5-6 indicates the Earth was *"watered by a mist that went up from the Earth"* that would not only have contributed to a temperate climate but likely would have increased the amount of moisture in the air. This could have been responsible for reducing the incoming ultraviolet (UV) radiation from the sun. Exposure to UV radiation has a direct effect on skin cancers and premature aging.

The Global Flood created a radically different environment after the Flood as compared to the environment prior to the Flood. When Noah and his family members stepped off the Ark, they encountered a more hostile environment,

living conditions, and the remains of an Earth that had been catastrophically destroyed by a Global Flood. These conditions were not conducive to long life spans.

### **IMMUNE SYSTEM**

Originally, the human immune system was created perfect and initially would have been a contributing factor towards long life spans by minimizing many, if not all of the diseases that are commonplace today. As an example, the increasing number of genetic mutations that make it disastrous for near relatives to intermarry did not build up to be a significant problem until the time of Moses, a time frame of 1,000 years after the Flood (even Abraham married his half-sister without a problem). The increasing human mutation rate and its detrimental effect on the human immune system can be better understood when modern studies propose that – *“the rate at which all types of mutations occur per generation has been suggested to be greater than 1,000.”*<sup>16</sup> Remember the definition of a mutation is – *“a change that occurs in our DNA sequence, either due to mistakes when the DNA is copied or as the result of environmental factors such as UV light and cigarette smoke.”*<sup>17</sup>

### **GENETICS**

Adam was the genetically perfect creation of God and had no physical or genetic defects that would have been passed on to his children. However, once the curse from his sin had been implemented by God biological genetics began a downward course that significantly affected aging and length of life for all of mankind. Much of the downward trend of aging and related life spans can be attributed to the increasing number of mutations that are passed on (inherited) from parents to descendants, and their descendants, and so on. Noticeably, this will negatively and also accumulatively impact human genetics (*“the study of heredity and the variation of inherited characteristics”*).<sup>18</sup> Therefore, the curse was responsible for the generations between Adam and Noah beginning to slowly accumulate an increasing number of mutations until the Flood, and then it dramatically increased after the Flood as a result of population/genetic bottlenecks.

A problematic acceleration of mutations in concert with a detrimental affect on human genetics can occur from a genetic conundrum known as *“genetic or population bottlenecks.”* These abnormalities likely occurred at the Flood and Tower of Babel, and are defined as follows:

- Genetic Bottleneck – *“events that limit genetic variation in a population and result in founding populations that can lead to genetic drift”*<sup>19</sup>

- Population Bottleneck – *“an event that drastically reduces the size of a population. Following a population bottleneck, the remaining population faces a higher level of genetic drift”*<sup>20</sup>
- Genetic Drift – *“random fluctuations in the numbers of gene variants in a population. Typically, genetic drift occurs in small populations. Genetic drift is common after population bottlenecks”*<sup>21</sup>

Genetic bottlenecks are capable of causing a loss of access to other people's genes (called alleles) that are lost because of a reduction in the available number of people and/or bad genes (i.e., genes detrimental to longevity) becoming dominant. As a result of the Global Flood, the human population was reduced to eight people (Noah and his family, Genesis 6-9). In reality, there were only six people from a genetic viewpoint as Scripture records that Noah and his wife had no more children after the Flood (Genesis 10). Therefore, Shem, Ham, and Japheth inherited their genes from the same two parents, Noah and his wife. This bottleneck was likely responsible for the loss of a great many alleles from the gene pool from those who perished in the Flood and would have exaggerated any *negative age related genes* that were inherent in Noah's family.

Looking at the ages of people born after the Flood, a sudden drop in ages is evident but begins to stabilize at about 450 years (Figure 3). As an example:

- Arphaxad – 438 years, Genesis 11:12-13
- Shelah – 433 years, Genesis 11:14-15
- Eber – 464 years, Genesis 11:16-17

About 100 years after the Flood, a second bottleneck occurred at the Tower of Babel where the population that consisted of several generations were divided as delineated in Genesis 11:8 – *“So the Lord scattered them abroad from there over all the face of the earth, and they ceased building the city.”* The subsequent population bottleneck at Babel would have further contributed to another genetic bottleneck and genetic drift. Interestingly, after Babel, ages again suddenly drop from about 450 years old to 235 years old for about three generations:

- Peleg – 239 years, Genesis 11:18-19
- Reu – 239 years, Genesis 11:20-21
- Serug – 230 years, Genesis 11:22-23

After Babel, the age limits of the following three generations continue to trickle downward. From modern science, it would appear that a combination of mutations and genetic bottlenecks had severe effects on aging and resultant diminishing life spans.

Modern genetic research illustrates that all humans inherit the inescapability of aging and then death. When we look in the mirror each morning and notice that we are not getting any younger, it should be a reminder of the consequences of sin in the sight of a Holy God. Yet, we should also be thankful that God has provided a way of escape from the righteous judgment on our sin, through His son, the Lord Jesus Christ who willingly died for our redemption and the ability to live forever with God.

## RESOURCES

Figure 1. Paul Bunch

Figure 2. Paul Bunch

Figure 3. Paul Bunch

A. The MacArthur Study Bible

Dr. John MacArthur

Word Bibles, 1997

B. Systematic Theology

Wayne Gruden

Zondervan, 1994

C. ESV Study Bible

CrossWay Bibles, 2008

D. Understanding Genesis

Dr. Jason Lisle

Master Books, 2015

E. The Genesis Account

A Theological, Historical, and Scientific Commentary on Genesis 1-11

Jonathan D. Sarfati, Ph.D., F.M.

Creation Book Publishers, 2015

F. The Heavens Proclaim His Glory

Lisa Stilwell

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G. Creation and Change

Douglas F. Kelly

Bell and Bain, Glasgow, 2017

H. Distant Starlight – The Anisotropic Synchrony Convention

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21. [www.nature.com/scitable/definition/random-genetic-drift](http://www.nature.com/scitable/definition/random-genetic-drift)