

CREATION



HOW PROVEN SCIENCE
SUPPORTS GENESIS CREATION

Jim Kaness

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This living document, revised as information and inspiration become available, is my own work on my own initiative. The references and factual data have been checked and are believed to be correct but errors can occur. Please provide any comments, suggestions, and corrections to the author:

Jim Kaness
4267 Varsity Street
Ventura, CA 93003
(805) 644-3237
<http://www.jimkaness.com>
Email: jim@jimkaness.com

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FOREWORD

The following narrative was forwarded by email all over the world in 2002. The author is unknown to me.

An atheist was taking a walk through the woods, admiring all that the "accident of evolution" had created. "What majestic trees! What powerful rivers! What beautiful animals!" he said to himself.

As he was walking along the river he heard rustling in the bushes. As he turned, he saw a 7-foot grizzly charging him. He ran as fast as he could up the path. He looked over his shoulder and saw that the bear was closing in. He tried to run faster, so scared that tears were coming to his eyes. He looked over his shoulder again, and the bear was even closer. His heart was pumping frantically as he tried to run faster, but he tripped and fell. He rolled over to pick himself up and saw the bear right on top of him raising his paw to kill him.

At that instant he cried out "Oh my God". Just then, time stopped. The bear froze, the forest was silent, the river even stopped. A bright light shone on the man, and a voice came out of the sky saying, "You deny my existence all these years, teach others I don't exist and credit my creation to a cosmic accident and now you expect me to help you out of this predicament? Am I to count you as a believer?"

The atheist, ever proud, looked to the light and said, "It would be hypocritical to ask to be a Christian after all these years, but could you make the bear a Christian?"

"Very well," said the voice. As the light went out, the river ran, and the sounds of the forest continued, the bear put his paw down.

The bear then brought both paws together, bowed his head and said, "Lord, thank you for this food which I am about to receive."

- Author Unknown

INTRODUCTION

This writing is my own understanding of what the Bible says. I do not mean to say or imply that somehow I am “right” and that others are “wrong”. But, until God corrects me, this is how I see it.

The origin of the universe is the subject of much controversy in the church and in the classroom. The theory of creation, which will be examined here, is the creation story in the book of Genesis in the Bible as interpreted by a 21st century electronics engineer. The opinions expressed are my own. It is my aim to explain what the account in Genesis actually says (yes, I thought I knew what it said until I made this study) and how it may be interpreted and understood consistent with *proven* 21st century scientific understanding. I will not argue this position against evolution or any other theory because there have already been plenty of arguments on this subject and the battle lines are still drawn! Unfortunately, arguments only determine who can yell the loudest, and can never establish who is right and who is wrong.

Creation of the world by God is not consistently taught within any Christian (pick your favorite denomination) church. Because the theory of evolution has so influenced our present culture and education, many in the church have sought to somehow reconcile creation and evolution. These reconciliations take many interesting forms, including:

- (a) The universe is much older than Genesis, and the Genesis account concerns only the story of modern man after millions of years of earlier evolutionary history.
- (b) Each "day" of creation mentioned in Genesis was really millions of years long.
- (c) Genesis is only a myth synthesized from older legends handed down by various ancient peoples and is just an easy to understand story about what really happened.

I am one of those stubborn Christians who believe that if the Bible says it, it's so. Imagine my surprise when, after sixty years of hearing (not very often, I might add) the creation account from believers, I finally made my own study and found old familiar passages speaking with new meaning and offering new understanding. **Please note that all the references are secular.** This is not a study of what other Christians have said, although I respect and appreciate their many insights and writings.

An electronics systems engineer (an architect for electronics systems) by profession, I am not trained in geology, biology or anthropology, the disciplines of many who argue creation and evolution. Neither am I trained in Hebrew or Greek, the original languages of the Bible. You will find no discussions here of what the original words "really mean".

The Bible is given to us in order to introduce us to our creator God and the relationship He wants to have with His creation and especially His beloved human children. Many view the Bible as an “Owner's Manual” given to us by God that tells us how to deal with every situation in life. But, creation of the universe and our world is not its main subject and a lot of scientific detail we might like to know is just not given. And, it must be remembered, the Bible was given to people over thousands of years who had no knowledge of modern

scientific discoveries and would be easily confused by very much detail, just as people today are often confused by the technical details of a new car or appliance (and especially computers and smartphones). The Bible was written in language they could understand.

While there are many differences between the theory of evolution and the theory of creation, I have never found any *demonstrated* science, the kind we use every day, that is contrary to what the Bible says when interpreted in context. It is my purpose here to apply *proven, demonstrated* science (not theory) to the account of creation in Genesis to show how modern science confirms and supports creation theory.

Read on and explore with me the Biblical account of the creation of the Earth and our universe.

IN THE BEGINNING

The Bible does not say just when the beginning was. In 1654 the Archbishop of Armagh (Ireland), James Ussher, carefully added up the ages of everyone in the genealogies and concluded that Adam was created about 4004 years before Christ. I have done a similar calculation (see the Appendix) and the numbers do tend to confirm the answer arrived at by the Archbishop. The issue is not whether Bishop Usher was correct (he deserves a lot of credit for doing this without a modern spreadsheet), but whether the Bible itself is correct and can be believed. More about James Ussher's chronology can be found at https://en.wikipedia.org/wiki/Ussher_chronology

It is my personal conviction that Bishop Ussher was essentially correct: that the term "day" as used in Genesis chapter 1 means a 24-hour day of the type we all experience. In the following pages you will find logical arguments supporting this belief, but I cannot prove it, and it is not the purpose of this writing to prove it (What will a skeptic accept as proof?). The author of the book of Exodus certainly believed this when in describing the principle of working six days and resting on the seventh (the Sabbath) he said "...for in six days the Lord made heaven and earth, and on the seventh day he rested, and was refreshed" [Exodus 31:17].

The following questions are presented as logical exercises, examining issues that I have never heard discussed from the pulpit.

Q1. If God is all-powerful, and can create the Earth, and you and me, and all the other wonders of the universe, then why is it so hard to believe that it only took seven 24-hour days? Time as we know it is a feature of the universe that God created, and God is not limited by what He created [Psalm 90:4 and 2 Peter 3:8]. Can we really measure and put limits on God's productivity? God and his ability to create life are concepts vastly different from what we know of daily life or from scientific inquiry. **We are gradually learning to understand the laws and relationships by which the universe and life itself are governed. But man has yet to change any of those laws, or reformulate any of those relationships.** We claim we can "create" life in a test tube. But really we are only re-creating the required conditions of the womb in which a sperm and an egg do "what comes naturally". We have created nothing, but have demonstrated a detailed understanding of a preexisting process.

Q2. How old did Adam appear to be when God created him? The Bible doesn't tell us this, but he apparently was adult enough to do useful work in the garden, pick his dinner off a tree, and be interested in what Eve had to say to him. In my opinion, he was created at or beyond puberty (I like to think he was about 18 years old). We read that God visited with Adam and talked with him shortly after creation. If Adam was created as a baby or child then who fed him, and how could God expect him to work in the garden [Genesis 2:15]?

Q3. How old did the Earth appear to be when God created it? If we could return to the Garden of Eden and run scientific dating tests, what would the results of those tests be? If

God made full-grown trees and placed them in the Garden of Eden [Genesis 2:8] did He not also make dirt and mulch for the nourishment of those trees? Did the soil for nourishing those trees resemble decayed tree limbs, leaves, and needles mixed with worn down rock minerals? How long did it take God to wear down those rocks to make sandy loam? Where did that mulch of rotted vegetation come from if plants and trees never existed before? What age would Carbon-14 dating on that soil reveal? If we cut down one of those newly created full grown trees, how many tree rings would we count?

Today, antiques forgers will make a new replica of an old item and make it out of very old wood in order to pass the Carbon 14 dating test. This is an example of a brand new item that appears and tests to be very old when it really is quite new.

Q4. When God created the stars, how long did it take for their newly emitted light to reach the Earth? Did God create "previous" light so Adam could see the stars whose newly emitted light would not reach Earth for hundreds, thousands, or even millions of years? Today man is learning to generate and use holograms. Holograms are electromagnetic fields that duplicate the fields that would exist if the object being viewed were in front of us. Holograms cause our eyes to see images of objects that are not really there. If man can generate these images using the laws of physics that God created, then why could God not also create such images? I do not mean to suggest that the stars are holograms, but only that if man can manipulate electromagnetic fields then certainly God can also.

Q5. When God rested on the seventh day, how long did He rest? Is He still resting? We read that He made modifications to His creation when He evicted Adam and Eve from the Garden [Genesis 3:14-24], and again when He caused the flood [Genesis 6: 3-7], and when He made Noah and his family meat-eaters and put the fear of man in the animals [Genesis 9: 1-17]. These efforts to make changes to His creation are certainly the same form of creative effort as the original creation, so God must have been finished with His resting, and these events took place sometime after the seventh day of creation.

Q6. In two of his books, the world renowned theoretical physicist Cambridge University Professor Stephen Hawking asks, "Why does the universe go to all the bother of existing?" Good question! Trying to understand the workings of the universe without reference to the God who made it is like trying to understand the workings of your smartphone without reference to Apple or Samsung who made it. Neither will explain why it exists in the first place. The Psalmist offers his answers in Psalm 8 and Psalm 19: "The heavens declare the glory of God..."

TEXT

The text presented here is from the familiar King James Version for which there are no copyright restrictions. None of the discussions presented here depend upon any particular translation and the reader may wish to compare this text with others - for example, the New American Bible (Roman Catholic) or The Holy Scriptures According to the Masoretic Text (Jewish).

The Internet has made numerous Bible translations available to us for comparative study. See <https://www.biblegateway.com/passage/?search=Genesis%201%20;&version=MSG> for Genesis chapter 1 with a choice of several translations and languages.

CHAPTER 1

- 1 In the beginning God created the heaven and the earth.
- 2 And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters.

1 LIGHT

- 3 And God said, Let there be light: and there was light.
- 4 And God saw the light, that it was good: and God divided the light from the darkness.
- 5 And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.

2 FIRMAMENT

- 6 And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.
- 7 And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament: and it was so.
- 8 And God called the firmament Heaven. And the evening and the morning were the second day.

3 EARTH, GRASS, & TREES

- 9 And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so.

10 And God called the dry land Earth; and the gathering together of the waters called he Seas: and God saw that it was good.

11 And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so.

12 And the earth brought forth green grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good.

13 And the evening and the morning was the third day.

4 SUN, MOON & STARS

14 And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years:

15 And let them be for lights in the firmament of the heaven to give light upon the earth: and it was so.

16 And 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 And God set them in the firmament of the heaven to give light upon 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 And the evening and the morning were the fourth day.

5 FISH & BIRDS

20 And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven.

21 And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that it was good.

22 And God blessed them, saying, Be fruitful and multiply, and fill the waters in the seas, and let fowl multiply in the earth.

23 And the evening and the morning were the fifth day.

6 ANIMALS & MAN

24 And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so.

25 And God made the beast of the earth after his kind., and cattle after their kind, and every living thing that creepeth upon the earth after his kind: and God saw that it was good.

26 And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

27 So God created man in his own image, in the image of God created he him; male and female created he them.

28 And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

29 And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat.

30 And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so.

31 And God saw everything that he had made, and, behold, it was very good. And the evening and the morning were the sixth day.

CHAPTER 2

1 Thus the heavens and the earth were finished, and all the host of them.

7 REST

2 And on the seventh day God ended his work which he had made; and he rested on the seventh day from all his work which he had made.

3 And God blessed the seventh day, and sanctified it: because that in it he had rested from all his work which God created and made.

CREATION THEORY

The Merriam-Webster Dictionary defines the word **theory** as "a plausible or scientifically acceptable general principle or body of principles offered to explain phenomena". The definition implies a lack of hard, obvious proof evident to the senses. We may perform experiments or discover evidence to support a theory, but a theory, by definition, remains forever shy of absolute proof. Creation Theory is how the universe, the earth, and man came into being as outlined in the book of Genesis in the Bible. The principle features of Creation Theory are:

a. The universe and everything in it were intentionally designed and put in place by God who preexisted it: a God who created time and space as we know them and is not limited by what He created [Psalm 90:4 and 2 Peter 3:8]. The Bible explains that God has created other forms of beings (e.g. angels and demons) which are limited in their power and authority over one another, and over man.

b. God's creations were fashioned fully formed and placed into operation – they did not evolve gradually over long periods of time. The Bible does not offer any scientific detail about how our universe was made except to say that it was a deliberate act of God. **God did not depend upon "natural processes" to fashion the Earth, but created those laws and relationships which we see operating daily and consistently, and which we have termed "natural processes"**. For example, God created streams in their beds [Genesis 2:10] flowing toward the oceans, and also created erosion by which the streams could deepen their beds as they flowed, and silting - by which streams could move large amounts of earth and rock to alter their courses and the surrounding land (e.g. The Nile Delta or the Mississippi Delta).

c. On at least two occasions God modified the earth and its inhabitants. The first occasion was when he evicted Adam and Eve from the garden, and the second was at the time of the Great Flood which He sent to destroy all life except that saved in Noah's ark. The Bible does not say what scientific changes were made, but only what the results of those changes were.

Modifications in Adam's time included:

1. The serpent lost its legs [Genesis 3:14].
2. Sorrow of motherhood multiplied [Genesis 3:16].
3. Husband to rule over wife [Genesis 3:16].
4. Thorns and thistles to grow and make harder work for man [Genesis 3:18].
5. Man to work hard for his existence [Genesis 3:19].

Modifications in Noah's time included:

1. Man's lifetime reduced to 120 years from nearly 1000 [Genesis 6:3].
2. A one-time flood to cover the earth for nearly a year [Genesis 6:7].
3. Man and animals changed from vegetarian to omnivorous [Genesis 1:29 and 9:3].
4. Rainbow a sign of no more flood [Genesis 9:13].

A WORD ABOUT AGE DATING

"It is the theory that decides what we can observe..." - Albert Einstein

Current scientific theory holds that the universe is about 13.7 Billion years old, and that the Earth itself is about 4.5 Billion years old. These dates are derived from the amount of shift in the wavelength of light emitted from distant galaxies (for the age of the universe), and from the amount of radioactive decay of Uranium-238 in the earth's crust (for the age of the Earth). The measurements of these data are as accurate and consistent as man can measure. However, the interpretation and application of these data depend upon some important fundamental assumptions.

Whenever a chemical element is heated high enough, the increased molecular activity causes energy to be released in the form of light - not just any light but a precise spectrum of specific frequencies of light. Each chemical element emits a unique spectrum of light frequencies, like a fingerprint is unique. Today, we use the science of **analytical spectroscopy** routinely for the chemical analysis of unknown substances. The light from distant stars can be analyzed and displays the unique spectra for hydrogen and helium and other known constituents of stars with one important difference: the spectra are all shifted lower in frequency (called the "red shift" as the color red is the lowest frequency of visible light). This red shift tells us that the stars are moving away from us at a specific velocity (just as the sound of a train whistle lowers as it passes us and moves away from us). From the amount of this red shift we can calculate that about 13.7 Billion years ago all the stars might have been at a single point in space. **It is an assumption, published by the scientist George Gamow in 1948, that all matter existed at one point in space and was propelled outward by an unexplained unique event some 13.7 Billion years ago (the Big Bang, or scientific creation).** This theory does not discuss where the original matter came from or what made it go 'bang'. For further discussion on this theory see https://en.wikipedia.org/wiki/Age_of_the_universe

The Uranium-238 process measures the ratio of Uranium-238 to Lead-236 found in certain rocks. We know the half-life of U238 is about 4,500 million years. By measuring the ratio of lead to uranium we can extrapolate backwards to when most of the lead was once uranium. **It is an assumption that most of the lead was once uranium.** For more information, see https://en.wikipedia.org/wiki/Age_of_the_Earth

The Carbon-14 dating process, developed by Willard Libby in the late 1940's, measures the ratio of regular Carbon-12 to the small amount of Carbon-14 present in all plant and animal life on the earth. Carbon-14 is believed to be created when cosmic rays from the Sun strike the nitrogen in our atmosphere. It is well established from present-day measurements that a very small percentage of Carbon-14 is present along with Carbon-12 throughout the earth and the atmosphere. Living plants and animals incorporate this

carbon (both 12 and 14) through normal eating and breathing. When life ceases, eating and breathing cease, and the ratio of Carbon-14 to Carbon-12 in the plant or animal is fixed at whatever value it was at the moment of death.

After death, the unstable Carbon-14 begins to decay into stable Nitrogen-14 with a half-life of 5,730 years. This means that when a living thing has died, after 5,730 years the dead plant or animal matter will contain only half the Carbon-14 it had when it died. In another 5,730 years (11,460 years total) it will have only a quarter of the Carbon-14 it had at death, and so on. The Carbon-14 dating process is good to about 50,000 years or so, at which age there are just not enough Carbon-14 atoms to count! From present day measurements we know what this ratio is at the moment of death. Unfortunately, this ratio is not a single constant number but is known to have varied throughout history, and that complicates the dating process. By measuring the ratio in a bone or piece of wood we can determine how long it has been since the bone or wood we are dating was alive. If, for example, we date a piece of wood from a chair, the process will tell us how long ago the tree (from which the wood came) died - not how old the chair is. **It is an assumption that the craftsman used new wood to make the chair. It is a known false assumption that the ratio of Carbon-14 to Carbon-12 has remained unchanged throughout Earth's history.** Further information on the Carbon 14 dating process can be found at https://en.wikipedia.org/wiki/Radiocarbon_dating .

In 1785 the Scottish geologist James Hutton formulated the principle now known as the "doctrine of uniformitarianism". This principle simply states that the physical laws now operating have always operated as they do now. Uniformitarianism starts with an understanding of our earth based on present day measurements and observations, and extrapolates them backward in time to see what the earth used to be like. It says, for example, that the red shift, the Uranium-238 process and the Carbon-14 process may be extrapolated backward without fear of any discontinuities or interruptions of the process. **This principle, of course, leaves no room for creation at all. Creation by any means is not a uniform process.** Reference <https://en.wikipedia.org/wiki/Uniformitarianism> .

The problem of scientifically dating the earth is not that the dating processes are faulty. They are, after all, processes created by God when He made the universe. But, those processes are assumed to have functioned without interruption from the "instant of creation", and that "instant of creation" is not a supernatural one initiated by God, but a natural one brought about by undefined circumstance. If the universe spontaneously came into existence with a "Big Bang" then the ages determined from the red shift and radioactive decay are reasonable.

If, however, the Bible is true and the universe came into existence at the deliberate spoken word of God then it could have had any form He wished it to have. The positions and velocities of the stars, the ratio of uranium to lead, the patterns of upheaval and erosion and the percentage of Carbon-14 in the atmosphere could have been anything He wished.

Is the doctrine of uniformitarianism valid? The very concept of creation is non-uniform, whether by the spoken word of God or by a “big bang”. The changes made to man's habits and lifespan at the flood, and the flood itself, are inconsistent with this doctrine.

PROBABILITY OF A UNIVERSE BY CHANCE

What is the mathematical probability of our universe being created by random chance? Sir Roger Penrose, Emeritus Rouse Ball Professor of Mathematics at the Mathematical Institute of the University of Oxford, is the only person I have discovered who has attempted to calculate an answer to this question. His answer, 1 chance in $10^{10^{123}}$, is a chance so remote that it is nearly impossible for any of us to understand! The table below might help put it into perspective.

PROBABILITY or NUMBER	COMMENT	SOURCE
1 chance in $10^{10^{123}}$	Universe created by chance alone	Roger Penrose, “The Emperor's New Mind” , 1990 Paperback edition, Page 343
10^{80}	Approximate number of atoms in the whole visible universe	https://en.wikipedia.org/wiki/Observable_universe#Matter_content
1 chance in 292×10^6	Win Powerball Lottery	http://www.durangobill.com/PowerballOdds.html
1 chance in 667×10^3	Royal Flush in 5-card Stud Poker (5 to 10 cards dealt)	https://wizardofodds.com/games/poker/

NOTES:

- $10^3 = 10^3 = 10 \times 10 \times 10 = 1,000$
- $10^6 = 10^6 = 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 1,000,000$
- $10^{80} = 10^{80} = 10$ times itself 80 times = 1 followed by 80 zeros.
- $10^{10^{123}} = 10^{10^{123}} = 10$ times itself 10^{123} times = 1 followed by 10^{123} zeros! If you could put a single “0” on each atom in the universe, you would run out of atoms long before you finished writing the number!

CREATION OF ANYTHING

On several occasions in my life I have enjoyed the challenge and excitement of creating something out of nothing – starting with only a dream and a vivid imagination and ending up with a physical product that did what it was intended to do. Some were professional electronics products that had never existed before, and some were simple items for personal use. Creation of anything, a smartphone or a universe, consists of two separate, related efforts: planning and doing. In my professional systems engineering career I learned that it takes at least ten parts of planning to one part of doing!

The first effort is the thinking and planning: What shall we make and how will it function? What external support and infrastructure will it require? What laws, standards and specifications must it be compatible with? How will people interact with it, and what training will those people require? What maintenance will it require and how will that be done? How long it is expected to be useful? All this effort takes place behind the scenes and there is nothing yet visible to see for all this work.

The second effort is the actual construction and implementation of what was planned. Only now, during this second phase, does the thing created take form and become visible.

As an example of this familiar to most of us, consider the popular smartphone – everyone seems to have one these days. Has a smartphone (Apple or Android) ever evolved? Not by itself, and certainly not by chance! It takes many engineers and technical specialists to design one. And can it function all by itself? Of course not. It must be compatible with the external wifi, cellular and GPS systems it requires for its operation as well as the Internet, email, audio, video, application and other standards it uses internally. It has to speak its user's language. And, of course, its battery must have a way to be recharged. All of this takes enormous planning – *before* it can ever be constructed and used. But, once the design is finalized, the factory can construct them quickly and cheaply by the millions.

My guess is that God had this universe all planned out before He made it: the speed of light, the nature of atoms, gravity and our own DNA to name but a few of the really intricate and inter-related things God pre-planned. If the pre-planning (first part) is done right, then the construction (second part) is an anti-climax and goes smoothly without trouble.

Professor Stephen Hawking puts it this way: “...if the electric charge of the electron had been only slightly different, it would have spoiled the balance of the electromagnetic and gravitational force in stars, and either they would have been unable to burn hydrogen and helium or else they would not have exploded. Either way, life could not exist.” [“A Briefer History of Time”, page 117]

THE FIRST DAY

"LET THERE BE LIGHT"

We all know what light is. Light is what makes the day bright and the absence of light makes the night dark [Genesis 1:3-5]. But if daylight is what was created here, then where did it come from? It was not until the fourth day that God created the Sun, Moon, and stars - a whole day after the Earth was created - and three days after He said, "let there be light".

We can thank 19th and 20th century science for the answer to this question. What we commonly call "light" is now known to be just one form of electromagnetic radiation, of the same type as radio and television signals but vibrating at a much faster rate. The number of vibrations per second is now called "Hertz" (named in honor of German Professor Heinrich Hertz, 1857 – 1894) and a few variations are listed below.

60 Hertz	Power Distribution (on wires)
One million Hertz	AM Radio Broadcasting
One hundred million Hertz	FM Radio & TV Broadcasting
Ten thousand million Hertz	Satellite TV and Radar
One million million Hertz	Heat (Infra-Red)
One hundred million million Hertz	Visible Light
One million million million Hertz	X-Rays
A thousand times higher still	Cosmic Rays

The important point of all this is not to remember all those big numbers, but that all these separate phenomena of the universe are just different forms of the same thing. Light, heat, radio waves and x-rays are all very different things to us as people, but they all, varying one from another only in their rate or frequency of vibration, follow the same physical laws. Those laws were described in mathematical form (Maxwell's equations) by the Scottish physicist James Clerk Maxwell in 1865. Professor Heinrich Hertz became the first person to broadcast radio signals, and he also conducted experiments to prove that light was an electromagnetic radiation. Thus, when God said, "Let there be light", all of the variations listed above were created at the very same time. Now that's efficient productivity!

More than you wanted to know about this is available at https://en.wikipedia.org/wiki/Electromagnetic_spectrum

In the 21st century we do not talk about the “speed of heat” or the “speed of radio waves”. Rather, we commonly and routinely talk about “the speed of light” with the word “light” being understood to represent and include all the other forms. The speed of light, a measured constant number in a vacuum, plays a role in so many laws of the universe that physicists and mathematicians universally use the small letter “c” to represent it. The “c” comes from the Latin *celeritas* (speed, swiftness).

However, there is a much more important reason why “light” was created on that very first day, and which explains why **the concept of light had to be the first thing created**. Besides our human familiarity with light in its various forms, light plays a much more important and fundamental role in the universe.

In 1905, Professor Albert Einstein intrigued the world with his famous equation $E = mc^2$. In words this says that the Energy (E) in a piece of matter (m) such as an atom is equal to the mass of that matter times the square of the speed of light (c). A simple rearranging of this equation gives us $E/m = c^2$. This says that the amount of energy in one unit of mass is a constant, and that constant is the square of the speed of light. For more on this, see https://en.wikipedia.org/wiki/Mass%E2%80%93energy_equivalence

In Genesis 1:2 we read that the Earth was initially without form and void. God began His creation by starting with nothing! Thus, in order for God to create the Earth, the universe, and life itself, He first had to create the physical laws of the universe, starting with the concepts of matter and energy and their relationship to each other. The propagation velocity of electromagnetic radiation (i.e. the speed of light) is the essential fundamental relationship between matter and energy. It is the cornerstone of all physical laws. **Thus, light, and especially the speed of light, had to be created before any matter or energy could be created.**

With light speeding along at a bit over 186,000 miles per second (a bit under 300,000,000 meters per second) there is a lot of energy in very little matter. With the release of that energy from just an armload of uranium, we can destroy ourselves with the atomic bomb, or light and heat our homes through nuclear power generation.

I believe the "light" God created that first day - a day of no sun, no moon, no stars, and no earth - were the very concepts of matter and energy and their relationship by the velocity of what Moses called "light" and which is known by us today as "electromagnetic radiation". Here, on the very first day of creation, God created the laws of the universe - the rules by which everything He would make should follow - all the relationships of matter and energy, physics and chemistry, that scientists devote their careers to understanding, and engineers devote their careers to applying.

THE SECOND DAY

"LET THERE BE A FIRMAMENT..."

Having now created the concepts of energy and matter, the next day God set about making something out of them. God set aside a portion of matter and separated it from all other matter by what we call our atmosphere, or the sky, or the heavens.

On this second day of creation, God did not begin by making a vast, complicated universe of stars and planets. God focused his attention on just one thing - our planet Earth. God specifically set aside a portion of matter that He would use on the following day, the third day, to make our Earth. The firmament, His task on this second day, would be the buffer between the earth and all the other matter He created. God already knew He would be making suns, moons and planets, and reserved some of the matter for their creation.

Four of the six days of active creation, 67%, were devoted specifically to our Earth and its contents. That two-thirds of God's time was spent on our Earth alone suggests to me that our Earth was a lot more important to Him than the rest of the universe. Already, we see the idea of a singular, unique place being prepared where other concepts, such as plants, animals and people, might later be realized.

The importance of this atmosphere created on the second day cannot be overrated. The 21% oxygen content is used by animals for life, exchanging it for carbon dioxide that the plants require to live and to create oxygen for the animals. This is a simple cycle to understand but one essential to life. The atmosphere provides an insulation blanket which, with the enormous heat-storage capability of the oceans, regulates the temperature on the Earth (typically 0 to 100 degrees Fahrenheit) at a precise amount between the atomic heat of the Sun (some 10,000 degrees Fahrenheit) and the absolute cold of outer space (minus 459 degrees Fahrenheit). The atmosphere also shields us from ultra-violet rays, cosmic rays, and other radiation from the sun and stars that is harmful to living things on Earth.

Our atmosphere is singularly unique in the universe. With great ingenuity we have sent probes to other planets and their moons and found other gaseous atmospheres, but none like ours - none that man can go out into and breathe.

PLANET	OXYGEN	NITROGEN	CARBON DIOXIDE	OTHER GASSES
VENUS	0%	0%	96%	4%
EARTH	21%	78%	0.04%	1%
MARS	0%	3%	95%	2%

THE THIRD DAY

“LET THERE BE...EARTH”

When we build a new house on bare land, a lot of work goes on beforehand that doesn't show: buying the land, arranging financing, choosing an architect to design the house, choosing a contractor to build the house, laying out and grading the land and arranging for utilities. Only then can lumber and nails and carpenters show up and construction can begin.

On this third day, construction of the Earth finally began. God made the dry land appear out of the seas, forming the continents, oceans, and major geographical features of the Earth. After that, he made plants, trees, and grass as the first living things created. All of these living things created on the third day depended upon the atmosphere he had created the second day for breath, and for life itself. Clearly God knew the atmosphere had to be in place before He created living plants and animals that would depend on that atmosphere.

God already knew that flowers, trees and plants created on the third day had to wait for sunlight (created on the 4th day) to begin photosynthesis, and that they had to wait for birds (created the 5th day) or bees and other animal life (created the 6th day) for pollination and the spreading of their seed. But they could wait for two or three days, couldn't they?

On this third day when God created grass and trees He had yet to create the Sun, or the Moon, or the stars to give them life-giving light for photosynthesis. But they can live for 24-hours in darkness. The Earth, reads the book of Genesis, was created **before** the universe. It was only later, on the fourth day, that a place for the Earth to hang and function was prepared. The Earth, therefore, is a unique creation, made separately, but not independently, from the rest of the universe. One might say the universe was later created as a gallery in which to display God's masterpiece work of art: the Earth.

We take the same approach today with our man-made satellites. The satellite is first built and tested in the laboratory. Next, it is placed in its intended orbit. Only after it is safely in orbit, is the satellite commanded to turn on and begin functioning.

Speaking of orbits, Genesis does not say what the shape of the earth is or how it is suspended in space. In Job 26:7 we read, “[God] suspends the earth over nothing.” and in Isaiah 40:22 we read, “[God] sits enthroned above the circle of the earth...”. These were written long before the early Greeks calculated the size of our spherical earth.

Starting in the twentieth century, man has at last escaped this Earth to set foot on the Earth's moon, and sent machines to Mars and Venus and way beyond. These are remarkable scientific achievements. Man naturally asks himself, "Am I the only intelligent creature in the universe? With so many known stars, is it not possible that there are other

planets with other men on them asking this same question?” If all we know is what we see, this is a very reasonable question. The pictures from Mars are remarkable in their clarity. Yet those pictures reveal no trees, no seas, no grass, not even a single weed (and no Martian X-wing fighters scrambled to intercept our inter-planetary probes, which to them would be UFO’s).

The earth is composed of quite different elements from the remainder of the universe. The major elements of the earth are:

Element	Percentage	Atomic Weight
Iron	35-40%	55.8
Oxygen	25-30%	16
Silicon	13-15%	28
Magnesium	0%	24.3

Spectral analysis of the light from a variety of stars and galaxies throughout the universe tells us the major elements of the remainder of the universe are:

Element	Percentage	Atomic Weight
Hydrogen	76%	1
Helium	23%	4

That hydrogen was once used in dirigibles and helium is now used in blimps should remind us they are the lightest elements known to exist in the universe. They have fewer protons and electrons in them than the other elements and contain much less mass than the heavier elements. In other words, for its vast size the universe did not take much matter to build.

THE FOURTH DAY

“LET THERE BE...LIGHTS”

Having spent one day creating the physical laws of the universe, and two more days making an Earth with an atmosphere, forests, rivers and oceans, God now needed a place to put the Earth so it could operate and function as God intended. It was time now for God to make our Sun and our solar system, and then many other suns and solar systems as well. It is clear in Genesis 1:14-19 that the Earth is not just a byproduct from creating the universe, but rather the universe was created *after* the Earth to provide an infrastructure with the light, heat, gravity and other external influences the Earth would need to function as God had already planned for it.

When God created our Sun and moon and all the stars, He also created the concept of diurnal variation: alternating day and night as we know it, as well as cycles of work and rest, and cycles of spring, summer, fall, and winter. This is when time as we know it began. Before the Sun there could be no years. Before the moon there could be no months. Time, as we measure it today, began here in the fourth day of creation.

We now know that at the speed of 186,000 miles per second it takes about 500 seconds or 8.3 minutes for light to reach us from the sun 93,000,000 miles away. The next nearest star to us, Alpha Centauri in the constellation Centaurus, is about 2.5×10^{13} miles or 4.2 light-years distant. The radius of the "observable" universe is estimated to be about 13.7 Billion light-years. Those stars were either created some thousands of millions of years ago, or they and their light rays were created much more recently so man could enjoy them shortly after creation.

The concept of creating stars with their light already moving toward us is not really so strange. For years, electronics engineers have designed circuits with various positive and negative feedback circuits in them designed so the circuit's behavior is governed by what went on previously. What then is the state of that circuit when it has first been energized and when the previous behavior was no behavior at all? To be sure there may be some momentary start-up transient behavior when the circuit is first energized but then a well-designed circuit settles down to operate as though it had always been operating. Some electronics circuits are even designed with “bootstrap” capabilities to simulate the “previous operation” during start-up until some real “previous operation” is available to govern that circuit’s behavior.

In 1692 Isaac Newton reasoned that a finite universe should collapse into its center from the gravitational attraction between the various stars and planets. If, however, the universe were somehow "flung out" from its center at the moment of its creation, then the energy given to each star and planet propelling it outward will counteract the forces of gravity drawing them inward toward the center. The existence of the "red shift" indicates that the universe is still expanding outward.

THE FIFTH DAY

“LET THERE BE...FISH AND FOWL”

The Earth is now complete with mountains and rivers, grass and trees, sunlight and seasons, but there is no movement but the rustling of leaves in the evening breezes. The Genesis account is short and clear: the waters brought forth living creatures and the sky above the earth was filled with birds. However God created them, the fish and birds showed up this same fifth day of creation. The old question of “Which came first, the chicken or the egg?” has always been answered in Genesis 1:21. The chicken was created fully functional to begin her egg laying for future generations.

The earth and the seas were now complete with the food required by these animals and also by those to come afterward on the sixth day. In Genesis 1:30 we read that all mammals, fowl, and insects (virtually everything except fish) were to be plant-eating creatures. It was not until after the flood that God modified His creation to make some creatures meat-eating and some animals man-fearing [Genesis 9:1-19].

Fish and fowl, as well as the animals and humans which would come the sixth day, had to be compatible with the air, water and land they were placed in and on. The water and air had to provide necessary oxygen for their breathing, and be free of anything that might harm them. Their food had to be compatible with their digestive systems and provide the nourishment they needed to live. Gravity had to be compatible with their body designs. The birds had to be able to fly in the air God made. All of God's creation is incredibly interdependent. Today we use the word “ecology” to describe this interdependence and we are only beginning to learn how intricate it all is.

The largest animal ever known, much larger even than the largest dinosaurs, is the Blue Whale which can reach lengths of 100 feet and weigh up to 160 tons at maturity. Because of their great size they have no fear of large modern ships and will not move out of a ship's way. See <https://www.afsc.noaa.gov/nmml/education/cetaceans/blue.php>

The order of creation - sea creatures first, birds second, and land mammals and man following - is not unlike the order proposed by the evolutionists. But the deliberate engineering of these creatures and their home by God is completely unlike the purposeless random chance theories of the evolutionists.

THE SIXTH DAY

“LET THERE BE...ANIMALS...AND MAN”

On the sixth day God directed the earth to bring forth living creatures "after their kind" including all the insects, land animals, and finally man. Man was given dominion over the other creatures. Man was placed in a position of authority over them and over all the earth [Genesis 1:26].

It is clear in Genesis that we humans are unique in our relationship to God, and not just another animal. We may share the mechanical or physiological designs of parts of animals' bodies, but our relationship to them is one of authority. We have God's permission to destroy them, but we can also appreciate their valuable qualities and capabilities and out of respect we can protect them. We are their masters but we can exercise a responsible stewardship over them. This is God's law.

God created DNA and the gene structures that determine what our offspring will be. The phrase "after their kind" simply means that dogs don't give birth to cats, but that dogs only bear other genetically similar offspring. There is certainly observable tolerance, variation, and some mutation. This is not my area of expertise, but the application of selective breeding has made many horse and dog breeders quite wealthy. Their livelihoods depend upon the variations possible by following the laws of genetics created by God.

Present day scientific experience is that the effect of drugs and radiation on sperm and eggs is to prevent or degrade the birth product. Thus, to date there is no "emerging species" list, only an "endangered species" list as man's irresponsible dominion results in the extinction of various creatures.

The Book of Job is considered by many scholars to be the oldest book of the Bible. It speaks of a time of cities and civilization, a time of moral diversity, and a time of familiarity with very large, fearsome animals. In the book of Job we find descriptions of two animals of great size and strength: A land animal [Job 40:15 – 40:34] with a tail like a cedar tree and bones like bronze and iron, and a water animal [Job 41:1 – 41:34] with terrible teeth, of scales close together and form fitting, and out of whose mouth a flame comes that can kindle coals [See also Psalm 74:14, Psalm 104:26 and Isaiah 27:1]. The physical descriptions suggest to me what we now call dinosaurs.

On the sixth day God created man, male and female, "in His own image". This is said of no other part of creation. The animals were not created "in His own image", only mankind. What does it mean?

Is God male or female? Throughout the Bible God is spoken of in the male gender. However, there is no reference to a female God or to procreation by God. In Exodus 3:14, God told Moses His name is "I Am". He did not say "We Are". My own belief is that God is not a sexual being, but rather combines the emotional attributes of both male and

female, as we understand them (and some maintain we do not understand them very well at all).

Does God have a physical resemblance to humankind? While there are many references to the "eye of God" [e.g. Psalm 33:18], the "hand of God" [e.g. Exodus 33:22-23] and other anatomy [e.g. Numbers 11:23] in the Bible the context suggests that these are not to be taken literally, but that the expressions are used to clarify in man's terms what God is saying. If the eye of God watches us it means that God knows what we are up to. If His hand reaches out to us it means He is offering us the assistance we need.

If no man has seen God, and His eyes and hands are functional rather than literal, how then can man be made in the image of God? The entire Biblical account refers over and over again to the *emotions* of God: God's great love for man [Numbers 14:18], God's great anger at man's disobedience [Numbers 32:10-13], God's compassion and forgiveness for man's disobedience [2 Chronicles 7:14]. In Genesis 3:22 we have God's statement that by knowing good and evil man would be like God. The references given here are but a token of the many such references throughout the Bible.

Like God, man is also a creator, a maker of new things using the materials at hand. We don't just pick apples off a tree - we make applesauce and apple cider. We don't just pile up rocks and downed trees for shelter - we make bricks and lumber and construct elaborate and beautiful homes. As man learned to understand the rules for molecular structure, man created a few new elements not found in nature. As man learns to understand DNA and gene structure, man is now using gene splicing to create plant and animal life with modified characteristics. Man is modifying God's creations, **but only within the rules for their function as created by God.**

Man was not made to live the way we live today. Placed in the Garden of Eden, man was told to do useful work by taking care of the garden, but it was watered [Genesis 2:6] and weed-free [Genesis 3:18] until Adam's disobedience. Man was told to procreate, but his offspring would naturally respect their parents [Genesis 3:16] until Adam's disobedience changed all that. Man was created to live on this earth for several hundred years before he died of old age [Genesis chapter 5]. In Genesis 6:3 we read of God's decision to limit man's lifespan to 120 years because of the great wickedness displayed by man, a change made just before the great flood. This change in human lifespan was not made suddenly, but took at least fifteen generations, from Noah to Judah, to complete as can be seen in the Appendix.

Man is not the only intelligent being that God has created. In Psalm chapter 8, for example, we read that even though man was made lower than the angels, and has dominion over animal life on earth, that God cares about man. Throughout the Bible are references to angels who serve God, and to angels who disobeyed God and are called demons. We read of angels as God's messengers to man, and of demons possessing humans.

This is not a study on supernatural beings, but in order to understand the relationship of man to God one must understand the whole story of creation. The Biblical hierarchy of authority on this earth is :

- 1- God [Exodus 20:3-7]
- 2- Man [Genesis 3, Psalm 8:4-8]
- 3- Animals. [Genesis 1:27-28]
- 4- Plants [Genesis 1:29-30]

Although man was made “a little lower than the angels” [Psalm 8:5] the angels have no authority over man, but are God's servants and messengers to man. Anything that angels do with man is only by the direction and authority of God.

- 1- God [Exodus 20:3-7]
- 2- Angels who serve God [Psalm 148:2]
- 3- Fallen Angels who reject God [Jude 1:6, Revelation 12:9]

Our universe was never intended to be around forever. In the book of Revelation we read of a coming day when God, His loyal angels, and men who accept God's forgiveness {John 3:1-21, 1 John 1:8-10} will be the only survivors in a "new heaven and new earth" [Revelation 21:1]. Additional references to the end of the universe and the earth can be found in Isaiah chapters 24, 51 and 65 and in 2 Peter chapter 3.

THE SEVENTH DAY

“GOD...RESTED”

The seventh day, the Sabbath, was not an end, but only a pause in God's creative efforts. Curiously, the familiar phrase "and the evening and the morning were the ... day" is not used for the seventh day. Is God still resting?

Although God rested from his work on the seventh day, he took it up again on at least two occasions when he modified his creation. In our modern technological world we are all familiar with model years and the idea that whatever is made can be revised or improved. Well, God made a few revisions after he saw how His creation was going.

In Genesis 3:14-24 God responded to Adam and Eve's disobedience by putting the serpent on its belly without legs, made woman more subservient to man's desires and multiplied the pain of motherhood. My own observation is that besides the pain of natural childbirth, the greatest sorrow of motherhood is the lifelong deep concern a mother has for each of her children. Whenever a man questions this concern the usual response is, "You've never been a mother!" Man found the ground cursed with weeds and even more hard work added to his task of gardening (Now we know what the world's oldest profession really is!). Men and women would work harder and fear more and enjoy less than God originally intended. It's a bit like the prodigal son leaving his father's grand estate and then returning to live in the bunkhouse.

In Genesis 6:1-8 God shortened man's lifespan from the 900 odd years previously recorded to 120. This change did not happen suddenly but took at least fifteen generations to be fully in effect, from Noah to Judah, as the Appendix illustrates. It has recently been announced in the scientific press that human lifespan has an upper limit of about 120 years. See the report on this at <https://www.ncbi.nlm.nih.gov/pubmed/16075672> .

The flood itself was a creation act as nothing like it before or since has occurred. With the flood came the first rain, and rainbows, the probable extinction of many species, and the conversion of man and many animals from plant eating (herbivorous or vegetarian) to both plant and meat eating (omnivorous).

From the Genesis chronology, Adam was 130 years old when Seth was born, and this was well after Adam's eviction from the Garden of Eden, when God first modified his creation, so the seventh day of creation must have been much less than 130 years long.

SUMMARY

The high points of this study of creation may be summarized as follows:

1. The earth was deliberately and uniquely created by God. It is the only one of its kind.
2. The creation of light in Genesis 1:3 represents all electromagnetic energy and, indeed, the concepts of energy and matter and their relationship by the *speed* of light. This is fundamental to all that followed and explains why light had to be the first thing created.
3. The universe was created after the earth, as a setting and home for the earth: a system to provide the infrastructure, the external energy and forces required for the earth to function.
4. When God reduced man's maximum lifespan from the original 900-odd years to 120 years, the change did not happen suddenly but took at least fifteen generations to be fully in effect, from Noah to Judah, as the Appendix illustrates.
5. Creation does not necessarily mean a "brand new" creation. The universe and the earth were created in a fully operating condition with all conditions necessary to sustain life. Mature trees grew in a soil of decayed vegetation and worn down rocks. Animals and man were created beyond the infant stage capable of taking care of themselves. Mature animals bred and gave birth following instincts created in them. The sun, moon, and stars functioned as they do now even when only a few hours old, and their light was immediately visible for man's use and enjoyment.
6. God got everything ready, set it in place and turned the switch to "on". From our life's vantage point things have not changed. "The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no new thing under the sun." [Ecclesiastes 1:9]. But, we are told that a day is coming when God will reach out and turn the switch to "off". In Revelation 21:1 John saw a "new heaven and a new earth for the first heaven and the first earth were passed away..."

FOR THE RECORD

Jesus Christ is my Lord and Savior. That makes me a "Christian" by the original definition. I am a sinner saved by grace. Jesus would love to be your Lord and Savior also. It's easy. Just ask Him to forgive your sins (disobedience toward God) and come into your life and be your Lord and Master. He will. Then you and Jesus can have a one-on-one personal relationship. Best thing I ever did.

THOUGHTS FROM STEPHEN HAWKING

Cambridge University Professor Stephen Hawking has earned an international reputation as the most brilliant theoretical physicist since Einstein. Nowhere does Professor Hawking suggest he believes in Biblical creation, but he clearly has some doubts about our universe happening by random accident. I do not wish to mis-represent (or spin) what Professor Hawking wrote so I will just point to and share some of his comments. Please read these books yourself for the complete context.

Quotes from Kitty Ferguson's book, "Stephen Hawking - Quest for a Theory of Everything" published by Bantam in 1992. ISBN 0-553-29895-X. Page numbers refer to the August 1992 paperback edition.

Page 85, second paragraph: "It is difficult to discuss the beginning of the universe without mentioning the concept of God. My work on the origin of the universe is on the borderline between science and religion, but I try to stay [on the scientific] side of the border. It is quite possible that God acts in ways that cannot be described by scientific laws. But in that case one would just have to go by personal belief."

Page 93, second paragraph: "The odds against a universe like ours emerging out of something like the Big Bang are enormous. I think there are clearly religious implications whenever you start to discuss the origins of the universe."

Quotes from Stephen Hawking's book (with Leonard Mlodinow) "A Briefer History of Time" published by Bantam Dell in 2005, ISBN 978-0-553-38546-5. Page numbers refer to the May 2008 paperback edition.

Page 73, last paragraph: "It would be very difficult to explain why the universe should have begun in just this way, except as the act of a God who intended to create beings like us."

Page 117, last paragraph: "...the remarkable fact is that the values of these numbers seem to have been very finely adjusted to make possible the development of life. "

Page 134, next to last paragraph: "Time is a property only of the universe that God created. Presumably, He knew what He intended when He set it up!"

Page 142, first paragraph: "Why does the universe go to all the bother of existing? Is the unified theory so compelling that it brings about its own existence? Or does it need a creator, and if so, does He have any other effect on the universe? And who created Him?"

Page 142, last paragraph: "If we find the answer to [why it is that we and the universe exist], it would be the ultimate triumph of human reason---for then we would know the mind of God."

EPILOGUE

On Thursday, 14 October 2004 a Ventura County, California STAR newspaper editorial reported that a VeriChip the size of a grain of rice can now be injected under the skin and read out to display one's medical record.

A handy device, that chip is, and no batteries to replace either. Next thing you know they will add on the chip a link to driver's license and passport information, and then banking information. Voila! No more need to carry a wallet! Putting some biometric data (DNA, fingerprint or retinal scan data) on the VeriChip could bring an end to identity theft. Put that VeriChip in the back of one's hand and they could waive it like a can of peas over a scanner in any store or even at the border.

Further information may be found at:

<http://www.webmd.com/healthy-aging/news/20050727/chip-implants-better-care-privacy-scare#1> and at: https://en.wikipedia.org/wiki/Microchip_implant_%28human%29

If you think this is a bit unreal, please be reminded that already we are "chipping" animals so their owners can be identified. For more information see:

https://en.wikipedia.org/wiki/Microchip_implant_%28animal%29

By itself, technology is neither good nor bad. Any technology can be used for beneficial or sinister purposes. The VeriChip has tremendous usefulness. The only problem might come if some world leader should demand our allegiance (or worship) in order for the chip to be recognized by the central computer.

Somehow this all seems vaguely familiar to me. Oh yes, now I remember: "He also forced everyone, small and great, rich and poor, free and slave, to receive a mark on his right hand or on his forehead, so that no one could buy or sell unless he had the mark ..." [Revelation 13:16-17].

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APPENDIX

Two genealogies of Jesus Christ are given in the New Testament - one in Matthew chapter 1, and another in Luke chapter 3. The Matthew account begins with Abraham and goes forward in time to Jesus. The Luke account begins with Jesus and goes backward in time all the way to Adam. These two accounts are in agreement from Abraham through King David. From King David to Jesus they are very different, with the Luke account having more generations than the Matthew account. Both accounts are in agreement with the listing given in First Chronicles, chapter 1 in the Old Testament, which begins with Adam and ends with Isaac, son of Abraham (except for the listing of Cainan as the grandson of Shem in Luke 3. and which appears nowhere else).

Over the centuries, scholars have offered several theories about why the Matthew and Luke accounts are so different. Neither they nor I have anything solid to say about this. To be generous, none of their theories would date creation of the Earth and the universe at more than about 5,000 BC. See https://en.wikipedia.org/wiki/Genealogy_of_Jesus

The Matthew and Luke accounts have each been put in a spreadsheet and are presented in the following pages. I have used actual ages given in Genesis for everyone from Adam through Jacob. From there, the ages are not generally given so it has been necessary to estimate them.

The generational displacement (my term - I am not an anthropologist) is the age at which a man became a father of the succeeding generation in the lineage being studied. Today this age may typically be anywhere from about 16 to 60. Without knowing exactly at what age every generation produced the succeeding generation, a wide variation is possible in calculating these dates.

Using the Luke genealogy and estimating (where exact ages are not given) the average generational displacement at 40 years gives a date for Adam's creation of 4226 B.C. and a date for the great flood of 2570 B.C.

Using the Matthew genealogy and estimating the average generational displacement at 40 years gives a date for Adam's creation of 3626 B.C. and a date for the great flood of 1970 B.C.

There is no reason to believe that 40 is the correct generational displacement, or that the two accounts should use the same number. Putting the average generational displacement at 40 is only an estimate and the spreadsheet allows playing "what if" with the number. What is known from the Biblical record is that these men produced many sons and daughters, and that the lineage is usually not through the man's first-born child, but was often continued by a child born late in the father's lifetime.

Names in the genealogies are from the King James 1611 translation. Other traditions and translations from the original text may use different spellings for these names.

NAME	BORN	BORN	DAD AT AGE	AGE DIED	DIED *AA	MATTHEW CHAPTER 1 NOTES
	B.C.	*A.A.				
Adam	3626	0	130	930	930	*A.A. After Adam's creation
Seth	3496	130	105	912	1042	Ages from Genesis chapter 5.
Enos	3391	235	90	905	1140	
Cainan	3301	325	70	910	1235	
Mahalaleel	3231	395	65	895	1290	
Jared	3166	460	162	962	1422	
Enoch	3004	622	65	365	987	Genesis 5:24
Methuselah	2939	687	187	969	1656	
Lamech	2752	874	182	777	1651	
Noah	2570	1056	500			
Shem	2070	1556				
THE FLOOD	1970	1656				Gen. 6:3 Life reduced to 120 yrs. Gen.: 7:6, Flood, 1056 + 600
Noah				950	2006	
Shem			100	600	2156	
Arphaxad	1970	1656	35	438	2094	
Shelah	1935	1691	30	433	2124	
Eber	1905	1721	34	464	2185	
Peleg	1871	1755	30	239	1994	
Reu	1841	1785	32	239	2024	
Serug	1809	1817	30	230	2047	
Nahor	1779	1847	29	148	1995	
Terah	1750	1876	70	205	2081	
Abraham	1680	1946	100	175	2121	Matthew chapter 1 starts here.
Isaac	1580	2046	60	180	2226	
Jacob	1520	2106	40	147	2253	Estimated from here on
Judah	1480	2146	40	80	2226	120 year lifespan in effect
Perez	1440	2186	40	80	2266	Gen.: 46:12 In Egypt with Joseph
Hezron	1400	2226	40	80	2306	
Ram	1360	2266	40	80	2346	
Amminadab	1320	2306	40	80	2386	
Nahshon	1280	2346	40	80	2426	
Salmon	1240	2386	40	80	2466	
Boaz	1200	2426	40	80	2506	
Obed	1160	2466	40	80	2546	Ruth 4:17
Jesse	1120	2506	40	80	2586	
King David	1080	2546	40	80	2626	Agreement from here back.

NAME	BORN	BORN	DAD AT AGE	AGE DIED	DIED *AA	MATTHEW CHAPTER 1 NOTES, continued
	B.C.	*A.A.				
Solomon	1040	2586	40	80	2666	Separate from here forward.
Rehoboam	1000	2626	40	80	2706	
Abijah	960	2666	40	80	2746	
Asa	920	2706	40	80	2786	
Jehoshaphat	880	2746	40	80	2826	
Joram	840	2786	40	80	2866	
Uzziah	800	2826	40	80	2906	
Jotham	760	2866	40	80	2946	
Ahaz	720	2906	40	80	2986	
Hezekiah	680	2946	40	80	3026	
Manasseh	640	2986	40	80	3066	
Amon	600	3026	40	80	3106	
Josiah	560	3066	40	80	3146	
Jeconiah	520	3106	40	80	3186	
Shealtiel	480	3146	40	80	3226	
Zerubbabel	440	3186	40	80	3266	
Abiud	400	3226	40	80	3306	
Eliakim	360	3266	40	80	3346	
Azor	320	3306	40	80	3386	
Zadok	280	3346	40	80	3426	
Akim	240	3386	40	80	3466	
Eliud	200	3426	40	80	3506	
Eleazar	160	3466	40	80	3546	
Matthan	120	3506	40	80	3586	
Jacob	80	3546	40	80	3626	
Joseph	40	3586	40	80	3666	
Jesus	0	3626				Born of Mary, wife of Joseph.

NOTE: Regarding the birth of Jesus, there is no “year 0”. In our Gregorian calendar the year 1 BC is followed by the year 1 AD. Current scholarship places the birth of Jesus somewhere between 6 BC and 4 BC. See https://en.wikipedia.org/wiki/Anno_Domini and https://en.wikipedia.org/wiki/Chronology_of_Jesus#Historical_birth_date_of_Jesus .

NAME	BORN	BORN	DAD AT AGE	AGE DIED	DIED *A.A.	LUKE CHAPTER 3 NOTES
	B.C.	*A.A.				
Adam	4226	0	130	930	930	*A.A. After Adam's creation
Seth	4096	130	105	912	1042	Ages from Genesis chapter 5.
Enos	3991	235	90	905	1140	
Cainan	3901	325	70	910	1235	
Mahalaleel	3831	395	65	895	1290	
Jared	3766	460	162	962	1422	
Enoch	3604	622	65	365	987	Genesis 5:24
Methuselah	3539	687	187	969	1656	
Lamech	3352	874	182	777	1651	
Noah	3170	1056	500			
Shem	2670	1556				
THE FLOOD	2570	1656				Gen. 6:3 Life reduced to 120 yrs. 1056 + 600 = year of the flood
Noah				950	2006	
Shem			100	600	2156	
Arphaxad	2570	1656	35	438	2094	
Cainan						Not listed in Genesis 11:12
Shelah	2535	1691	30	433	2124	
Eber	2505	1721	34	464	2185	
Peleg	2471	1755	30	239	1994	
Reu	2441	1785	32	239	2024	
Serug	2409	1817	30	230	2047	
Nahor	2379	1847	29	148	1995	
Terah	2350	1876	70	205	2081	
Abraham	2280	1946	100	175	2121	
Isaac	2180	2046	60	180	2226	
Jacob	2120	2106	40	147	2253	Estimated from here on
Judah	2080	2146	40	80	2226	120 year lifespan in effect
Perez	2040	2186	40	80	2266	Gen.: 46:12 In Egypt with Joseph
Hezron	2000	2226	40	80	2306	
Ram	1960	2266	40	80	2346	
Amminadab	1920	2306	40	80	2386	
Nahshon	1880	2346	40	80	2426	
Salmon	1840	2386	40	80	2466	
Boaz	1800	2426	40	80	2506	
Obed	1760	2466	40	80	2546	Ruth 4:17
Jesse	1720	2506	40	80	2586	
King David	1680	2546	40	80	2626	Agreement from here back.

NAME	BORN B.C.	BORN *A.A.	DAD AT AGE	AGE DIED	DIED *A.A.	LUKE CHAPTER 3 NOTES, continued
Nathan	1640	2586	40	80	2666	Separate from here forward.
Mattatha	1600	2626	40	80	2706	
Menna	1560	2666	40	80	2746	
Melea	1520	2706	40	80	2786	
Eliakim	1480	2746	40	80	2826	
Jonam	1440	2786	40	80	2866	
Joseph	1400	2826	40	80	2906	
Judah	1360	2866	40	80	2946	
Simeon	1320	2906	40	80	2986	
Levi	1280	2946	40	80	3026	
Matthat	1240	2986	40	80	3066	
Jorim	1200	3026	40	80	3106	
Eliezer	1160	3066	40	80	3146	
Joshua	1120	3106	40	80	3186	Exile to Babylon
Er	1080	3146	40	80	3226	
Elmadam	1040	3186	40	80	3266	
Cosam	1000	3226	40	80	3306	
Addi	960	3266	40	80	3346	
Melki	920	3306	40	80	3386	
Neri	880	3346	40	80	3426	
Shealtiel	840	3386	40	80	3466	
Zerubbabel	800	3426	40	80	3506	
Rhesa	760	3466	40	80	3546	
Joanan	720	3506	40	80	3586	
Joda	680	3546	40	80	3626	
Josech	640	3586	40	80	3666	
Semein	600	3626	40	80	3706	
Mattathias	560	3666	40	80	3746	
Maath	520	3706	40	80	3786	
Naggai	480	3746	40	80	3826	
Esli	440	3786	40	80	3866	
Nahum	400	3826	40	80	3906	
Amos	360	3866	40	80	3946	
Mattathias	320	3906	40	80	3986	
Joseph	280	3946	40	80	4026	
Jannai	240	3986	40	80	4066	
Melki	200	4026	40	80	4106	
Levi	160	4066	40	80	4146	
Matthat	120	4106	40	80	4186	
Heli	80	4146	40	80	4226	
Joseph	40	4186	40	80	4266	
Jesus	0	4226				Born of Mary, wife of Joseph.