

1	21	32	57	74
14	36	44	63	81
3	29	47	69	90

Making Sense of the Numbers of Genesis

Carol A. Hill

Among the greatest stumbling blocks to faith in the Bible are the incredibly long ages of the patriarchs and the chronologies of Genesis 5 and 11 that seem to place the age of the Earth at about 6,000 years ago. The key to understanding the numbers in Genesis is that, in the Mesopotamian world view, numbers could have both real (numerical) and sacred (numerological or symbolic) meaning. The Mesopotamians used a sexagesimal (base 60) system of numbers, and the patriarchal ages in Genesis revolve around the sacred numbers 60 and 7. In addition to Mesopotamian sacred numbers, the preferred numbers 3, 7, 12, and 40 are used in both the Old and New Testaments. To take numbers figuratively does not mean that the Bible is not to be taken literally. It just means that the biblical writer was trying to impart a spiritual or historical truth to the text – one that surpassed the meaning of purely rational numbers.



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One of the greatest stumbling blocks to faith in the Bible has been, and is, the numbers found in Genesis – both the incredibly long ages of the patriarchs and the chronologies of Genesis 5 and 11 that seem to place the age of the Earth at about 6,000 years before present. As stated by Hugh Ross in the *Genesis Question*: “When readers encounter the long life spans in Genesis, they become convinced that the book is fictional, or legendary at best, whether in part or in whole.”¹

Apologists have attempted to explain the long ages in Genesis in various ways.

1. *Year-month-season explanation.* This theory proposes that perhaps a “year” to the people of the ancient Near East had a different meaning than it does today. Instead of being marked by the orbit of the sun, a “year” then marked the orbit of the moon (a month) or a season (three months). Among the Greeks, years were sometimes called “seasons” (“*horoi*”), and this explanation of possible one-month or three-month equivalents of a year was mentioned by the ancient authors Pliny and Augustine, among others.²

However, this theory is nonsensical if one looks at the “begetting” ages of the patriarchs. If the ages for Adam and Enoch are

divided by twelve (1 year = 1 month), then Adam would have fathered Seth at age eleven and Enoch would have been only five when he fathered Methuselah.³ Enoch’s age (65; Gen. 5:21) divided by four (1 year = 1 season) would result in an age of sixteen, which is biologically possible. But if the same number four is divided into 500 – Noah’s age when his first son(s) were born (Gen. 5:32) – then the age of “begetting” would have been 125 years old, another unlikely possibility.

2. *Astronomical explanations.* Astronomical explanations also have been proposed to explain the incredibly long patriarchal ages. Perhaps the rotation period of the Earth has changed, so that the days then were not equivalent to those we have now. Or, perhaps a supernova could have damaged the Earth’s ozone layer, thus increasing ultra-

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- (1) Year-month-season explanation;*
- (2) Astronomical explanations;*
- (3) Tribal, dynasty, or "clan" explanation; and*
- (4) Canopy theory explanation.*

violet radiation and systematically decreasing the age of humans.⁴ A problem with such astronomical explanations is that there is no concrete evidence for them. Some scientists have speculated that the transfer of angular momentum from the Earth to the moon over time has resulted in an appreciable increase in the length of a day.⁵ But this happened very early in Earth's history—not within the last 10,000 years or less when the patriarchs lived. Similarly, there have been no known supernova explosions within the last 10,000 years that can account for the long ages of the patriarchs and a supposed decrease in the age of humans over time.

3. *Tribal, dynasty, or "clan" explanation.* Another explanation is that, when the Bible makes a statement like "Adam was the 'father' of Seth," it means that the Adam "clan" had exercised dominion for 130 years (the age of Adam when Seth was born). In this view, Seth would be a direct-line descendent of Adam (grandson, great-grandson, etc.), but not the immediate son of Adam.⁶ Then, Seth's "son" descendants would become part of the Seth dynasty or tribe. While this theory might have some merit, as will be described later in the Chronology section (p. 247), it is not in accord with the personal encounters that the "fathers" supposedly had with their "sons"; e.g., Noah was 500 years when his son(s) were born (Gen. 5:32), yet he coexisted with them on the ark (Gen. 7:13).

4. *Canopy theory explanation.* Other people have tried to explain the long ages of the patriarchs by creating a "different world" for pre-Flood humans. Whitcomb and Morris' explanation of these long ages fits with their idea of a vapor canopy.⁷ Before Noah's Flood this canopy supposedly shielded Earth from harmful radiation so that people could live to a very old age. After the Flood, harmful radiation slowly increased so that the patriarchs' ages exhibit a slow and steady decline to the biblical life span of 70 years mentioned in Ps. 90:10.

The problem with the canopy theory is that there is not one shred of geologic or physical evidence to support it. In addition, there is no archaeological evidence that substantiates incredibly long ages for people in the past—in Mesopotamia or anywhere else. It is known that humans living in the Bronze Age (which time span includes most of the patriarchs) had an average life

span of about forty years, based on human skeletons and legal documents of the time.⁸ If infants and children are included in this life-span average, it would be even lower. Examination of skeletons in a number of graves at al'Ubaid (one of the oldest known archaeological sites in Mesopotamia) has indicated that some people lived to be over sixty—a great age at that time.⁹ A wisdom text from Emar describes the stages of a man's life as follows: forty as prime, fifty as a short time (in which case he died young), sixty as "wool" (that is, gray hair), seventy as a long time, eighty as old age, and ninety as extreme old age.¹⁰

How then can the great ages of the patriarchs and other problematic numbers of Genesis be explained? Does one have to construct a fantastical world based on fantastical ages in order to come up with an adequate explanation? The answer is quite simple—if one considers the "world view" or "mind-set" of the people living in the age of the patriarchs; that is, the Mesopotamians (the people who lived in what is now mostly Iraq) and the Hebrews in Palestine descended from the Mesopotamians. This world view includes both the religious ideas of these people and the numerical system used by them.

The Mesopotamian System of Numbers

The Mesopotamians were the first to develop writing, astronomy, mathematics (algebra and geometry), a calendar, and a system of weights and measures, accounting, and money.¹¹ Even as early as the Ubaid Period (~3800–5500 BC), Mesopotamian architects were familiar with numerous geometric principles such as 1:2, 1:4, 3:5, 3:4:5 and 5:12:13 triangles for laying out buildings,¹² and by ~3000 BC scribes were working with unrealistically large and small numbers.¹³ The Mesopotamians were the first to arrive at logarithms and exponents from their calculations of compound interest,¹⁴ they knew how to solve systems of linear and quadratic equations in two or more unknowns,¹⁵ and they calculated the value of pi (π) to an accuracy of 0.6%.¹⁶ The so-called Pythagorean Theorem was invented by the Mesopotamians more than 1,000 years before Pythagoras lived, and was known not only for special cases, but in full generality.¹⁷

Sexagesimal Numbers

The mathematical texts of the Sumerians or Babylonians (people who lived in southern Mesopotamia) show that these people were regularly using a *sexagesimal* numbering system at least by Uruk time (~3100 BC). Along with the numbers sixty and ten on which their combined sexagesimal-decimal system was based, the number six was also used in a special "bi-sexagesimal system."¹⁸ Examples of the Mesopotamian sexagesimal system are still with us today in the form of the 360° circle, with 60-minute degrees and 60-second minutes, and with respect to time, the 60-minute hour and 60-second minute. The Mesopotamians' sexagesimal basis for time is also reflected in their 360-day (60 x 6) year, where a "13th month" (called *iti dirig*) was added every sixth year to make up for the days in an actual 365-day solar year.¹⁹ A sexagesimal (base 60) system made it possible for the Sumerians to construct a family of nicely interrelated measurement systems, with sequences of naturally occurring standard units that were easy to deal with in computation.²⁰

One disadvantage of the Sumerian numbering system was ambiguity. The Sumerians wrote their system of numbers in cuneiform—a series of wedged marks impressed onto clay tablets. Although the Babylonians had developed the important principle of "position" (place-value notation) in writing numbers, the absolute value of the digits impressed on cuneiform tablets remained a matter of intelligent guesswork.²¹ Another uncertainty was introduced through the fact that a blank space in a cuneiform text could sometimes mean zero (the Mesopotamians had no symbol for zero).²² In practice, these types of ambiguities were not that serious for Mesopotamian scribes because the order of magnitude and position of the numbers could be realized from the context of the tablet (e.g., whether one was denoting rations of barley, rings of silver, or whatever). However, such contextual ambiguities could have created confusion for later Hebrew biblical scribes who were not familiar with the sexagesimal system and its peculiarities.

Despite the inherent difficulties in the Mesopotamians' sexagesimal numbering system, these are not considered to be the major problem when it comes to understanding the ages of the patriarchs. The most important consideration in this regard is the Mesopotamians' concept of sacred numbers.

Sacred Numbers

The Mesopotamians incorporated two concepts of numbers into their world view: (1) numbers could have real values, and (2) numbers could be symbolic descriptions of the sacred. "Real" numbers were used in the everyday administrative and economic matters of accounting and commerce (receipts, loans, allotment of goods, weights and measures, etc.), construction (architecture), military affairs, and taxation. But certain numbers of the

sexagesimal system, such as *sošsōs* (60), *neros* (600), and *saros* (3600) occupied a special place in Babylonian mathematics and astronomy.²³ In religion, the major gods of Mesopotamia were assigned numbers according to their position in the divine hierarchy. For example, Anu, the head of the Mesopotamians' pantheon of gods, was assigned sixty, the most perfect number in the hierarchy. In addition, the Mesopotamians sometimes used numbers cryptographically; e.g., names could have a corresponding numerical value. For example, during the construction of his palace at Khorsabad, Sargon II stated: "I built the circumference of the city wall 16,283 cubits, the number of my name."²⁴

The sacred numbers used by the Mesopotamians gave a type of religious dignity or respect to important persons or to a literary text ... [and] fit into [their] world view of symmetry and harmony.

At least from the late third millennium BC onward, "sacred numbers" were used in religious affairs for gods, kings, or persons of high standing. Just as a name held a special significance to the ancients (e.g., Noah, Gen. 5:29)—beyond its merely being a name—a number could also have meaning in and of itself. That is, the purpose of numbers in ancient religious texts could be *numerological* rather than *numerical*.²⁵ Numerologically, a number's *symbolic* value was the basis and purpose for its use, not its secular value in a system of counting. One of the religious considerations of the ancients involved in numbers was to make certain that any numbering scheme worked out numerologically; i.e., that it used, and added up to, the right numbers symbolically. This is distinctively different from a secular use of numbers in which the overriding concern is that numbers add up to the correct total arithmetically. Another way of looking at it is that the sacred numbers used by the Mesopotamians gave a type of religious dignity or respect to important persons or to a literary text.

Sacred numbers also fit into the Mesopotamians' world view of symmetry and harmony, which was at the core of their meaning of life. It was important to associate one's life with the right numbers and to avoid wrong numbers that might bring disharmony (kind of like the Chinese concept of Yin and Yang). Symbolic numbers were of highest value in religious texts because they were considered to be the carriers of ultimate truth and reality. And what was

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Article

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the “really big” unit to the Mesopotamians—the number around which their whole mathematical system revolved? It was the number sixty (and to a lesser degree the number ten), or some combination of these two numbers (e.g., $60 \div 10 = 6$; $60 \times 10 = 600$).²⁶ Because sixty was considered to be the fundamental unit of the sexagesimal system, it is not surprising that it came to be thought of as sacred.

The Mesopotamian-Biblical Connection

Scholars in biblical and Mesopotamian studies have tried over the years to show the common traditions of both cultures, including the creation and flood stories and the numbers contained in Genesis. Stories from the ancient Akkadian (northern Mesopotamia) and Sumerian (southern Mesopotamia) cultures also tell of extraordinarily long life spans of important persons. This is not proof of long life spans, only that the two cultures were connected in their dual concept of sacred and secular numbers, and that people from both cultures were educated in essentially the same mathematical curriculum.²⁷ Similar to the Mesopotamians, the Egyptians had exaggerated “long reigns” for their gods and kings,²⁸ and this seems to have been a common religious tradition for peoples of the ancient Near East. A number of scholars have specifically attempted to mathematically determine a numerical connection between the long time spans in the Sumerian king lists and the long ages of the patriarchs in Genesis,²⁹ but despite these attempts, there still remains no absolute demonstrable relationship between the two besides a superficial similarity.³⁰

What has emerged from such comparative studies, however, is that the concept of numbers has changed over time (Table 1). While the Mesopotamians used a sexagesimal-based system, the Hebrews centuries later were using only a decimal-based system.

A possible scenario for this noted change is: When Abraham left Mesopotamia (Ur) for Palestine, he and his descendants came in contact with other Semitic peoples and the Egyptians who were using the decimal system.³¹ Thus, gradually the decimal system replaced the sexagesimal system in the Hebrews’ numerical world view as they moved from Mesopotamia to Palestine to Egypt and back to Palestine. Certainly Moses, the author of Genesis, would have used the decimal system, having been raised and educated in Egypt, but perhaps some of the numerological elements of the Mesopotamians’ world view remained in the Hebrew culture even at this time. It seems certain that a sound and really historical chronology had become established in Israel by the time of David (~900 BC), as two hundred or so chronological dates in the books of Samuel, Kings, and Chronicles are, with a few exceptions, of remarkable consistency.³² But even then, and long after, preferred or figurative numbers continued to be used throughout both the Old and New Testaments. During the Middle Ages, the concept of “sacred” numbers was lost, and it was not until the discovery and publication of the Babylonian mathematical texts in the second quarter of the twentieth century that the numerological nature of the patriarchal ages was rediscovered.³³

This change in the conception of numbers may be the reason for the overall general decrease of patriarchal “begetting” ages and life-spans over time (from 930 years for Adam down to 175 years for Abraham; Table 2). The tendency to use exaggerated sacred numbers decreased after the Hebrews left Mesopotamia and slowly acquired a different numerical world view in Palestine and Egypt. However, in the generally decreasing age trend, there is an enormous jump in the “begetting” age of Noah (Table 2). This may signify an attempt by the biblical writer to favor the more righteous, or those who “stand out” from the rest due to their promi-

TABLE 1: How the Concept of Numbers May Have Changed over Time

>2000 BC	~1500 BC	~1000 BC	1 st Century AD	Middle Ages	2000 AD
Mesopotamia	Egypt	Palestine	Palestine	Europe	Western World
Sexagesimal, exaggerated, <i>sacred</i> numbers (60, 7); Genesis (to Abraham)	Decimal numbers Joseph-Joshua-Moses; preferred and figurative numbers (40, 12, 7, 3)	Decimal numbers Solomon-David; real numbers, but religious use of preferred numbers	Time of Christ; real numbers, use of preferred numbers waning	Real numbers only; concept of Mesopotamian <i>sacred</i> numbers completely lost	Cuneiform tablets found; concept of <i>sacred</i> numbers rediscovered

nence in the unfolding story (i.e., Noah, the hero of the Flood). Nahor, a relatively non-essential person to the story, quickly begets children and quickly leaves the world. His son Terah, however, since he is privileged to raise up so eminent a son as Abraham, is vouchsafed to rise from the low-ebb to which life-expectancy had sunk and to live much longer than his father.³⁴

Preferred or Figurative Numbers

Besides the "sacred" Mesopotamian numbers in the early chapters of Genesis, the rest of the Bible uses "preferred" numbers consistent with the Hebrews' changing numerical world view. Even a cursory reading of the Bible will reveal that certain numbers are used over and over again. Among these preferred numbers are three, seven, twelve, and forty.

Three. Three is the number of emphasis in the Bible; e.g., "holy, holy, holy" signified that God was being especially hallowed. Jesus often repeated himself three times to emphasize a point, or things were done three times for emphasis. Three as a number also symbolized completeness; e.g., as when Jesus rose from the dead in 3 days, his mission was complete. Jonah was in the whale 3 days and 3 nights, in 3 days the temple will be raised, etc.

Seven. The number seven was especially sacred to the Jews because of the Sabbath, the seventh day of their week. As the last day of the week it signified wholeness, contentment, and peace.³⁵ It is a recurrent biblical symbol of fullness and perfection: 7 golden candlesticks, 7 spirits, 7 words of praise, 7 churches, 70 (7×10) nations, 70 (7×10) elders, forgive 70 $\times$ 7 times, Terah's age of 70 (7×10), Lamech's age of 777, etc.

The addition of seven to round numbers of the sexagesimal system is typical of some of the patriarchal life spans recorded in Genesis (Table 2). In the sexagesimal system, 120 (60×2) meant a large number or a long time; 127 ($120 + 7$) meant an even greater number, as in the years of Sarah's life (Gen. 23:1) or in the number of provinces ruled over by Xerxes (Ahasuerus) the king of Persia (Esther 1:1). The number seventy (7×10) also may not represent an exact number, but this was unimportant to the traditional way of thinking.³⁶ The number seventy symbolized a numerical *ideal*, not a numerical reality. Thus, in chapter 10 of Genesis seventy nations are mentioned—which number was symbolic among the Israelites for any family blessed with fertility (e.g., the 70 "sons" of Jacob who went down to Egypt in Gen. 46:27 and Exod. 1:5).

Twelve. Another number that is repeated over and over in the Bible is twelve (6×2). There are 12 pillars, 12 wells, 12 springs, 12 precious stones, 12 silver bowls, 12 golden spoons, 12 bullocks, rams, lambs, and goats, 12 cakes, 12 fruits, 12 pearls, 12 tribes of Israel, 12 tribes of Ishmael, 12 districts of Solomon, 12 gates of the New

Jerusalem, 12 disciples of Jesus, 12,000 horsemen, 144,000 ($12 \times 12 \times 1000$) remnant of Israel, etc. Twelve was the symbol of wholeness and totality.³⁷

Forty. The number 40 also occurs many times in the Bible in different contexts, and it can be taken either literally or figuratively (for a long period of time). The Flood lasted 40 days and 40 nights, Moses fasted 40 days and 40 nights, Jesus fasted 40 days and 40 nights. The Israelites were in the wilderness for 40 years, Jesus was seen by his disciples after his resurrection for 40 days, Jonah preached to Nineveh for 40 days, Solomon, David, and Saul are each credited with a reign of 40 years, Goliath presented himself 40 days, etc.

Besides the "sacred" Mesopotamian numbers in the early chapters of Genesis, the rest of the Bible uses "preferred" numbers consistent with the Hebrews' changing numerical world view. ... Among these preferred numbers are three, seven, twelve, and forty.

In the case of all of these preferred numbers, which are to be considered literal and which figurative? How such symbolic numbers were meant at the time of writing is something that we may only guess at today, and if a specific principle ever underlay such figurative numbers, it is no longer readily apparent.³⁸ Unless we assume that God prefers certain numbers over other numbers, and somehow passed that preference down to the Hebrews, we must acknowledge that in many cases where preferred numbers are used in the Bible, they are to be taken symbolically or figuratively. Furthermore, we must acknowledge that the Jews (including Jesus) sometimes *purposely* used preferred numbers just because of their historical and/or spiritual meaning. To take a number symbolically or figuratively does not mean that the Bible is not to be taken literally. It just means that the biblical writer was trying to impart a spiritual or historical truth to the text—one that surpassed the meaning of purely rational numbers.

Long Ages of the Patriarchs

Having discussed the Mesopotamians' concept of sacred and secular numbers, with their dual numerological and numerical meanings, we can now tackle the difficult problem of the long ages of the patriarchs. By the word "patriarch," it is meant any of the biblical personages regarded as the

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Article

Making Sense of the Numbers of Genesis

fathers of the human race or Israelites; that is, from Adam down to Abraham, or "the book of the history of Adam" specifically outlined in chapters 5 and 11 of Genesis. In other words, the term will be used in this paper in its general sense, not in the specific sense of Abraham, Isaac, Jacob, and Joseph.

A list of the patriarchs from Adam to Abraham, containing their ages when their first son was born, their remaining years of life, and total years, is shown in Table 2. These ages are then "deciphered" into their common components with respect to the sexagesimal (sacred) numbers of the Mesopotamians or preferred numbers of the Hebrews.

The first thing that is immediately apparent in Table 2 is that the numbers listed in the Genesis chronologies are based on the sexagesimal (60) system and can be placed into one of two groups: (1) multiples of five; that is, numbers exactly divisible by five, whose last digit is 5 or 0; and (2) multiples of five with the addition of seven (or two sevens).³⁹ The significance of the number five is that 5 years = 60 months, and combinations or multiples of 60 years + 5 years (60 months) are basic to Table 2. Note that for the 30 numbers listed for the antediluvial patriarchs up to the Flood (from Adam to Noah), all of the ages end in 0, 5, 7, 2 ($5 + 7 = 12$), or 9 ($5 + 7 + 7 = 19$)—a chance probability of one in a billion! For the entire 60-number list (antediluvial and postdiluvial), none of the ages end in 1 or 6—a chance probability of one in about one-half million. Surely, if the ages of the patriarchs in Genesis are random numbers, as would be expected for real ages, this could not be the case. *It is inconceivable that all of this should be accidental!* Undoubtedly these numbers have a special significance. What is it? Are some of these ages (that end in zero) round numbers? Are sacred ages somehow mathematically connected to the real ages of the patriarchs? Were these numbers "assigned" to the patriarchs on the basis of their character, accomplishments, or relationship with God? Or, could the ages be cryptographic (*gematria*) numbers, where numerical values were assigned to different letters of the patriarchs' names? Whatever the specific intent of the biblical writer for each of these patriarchal ages, it does seem apparent that the overall

purpose of the text was to preserve the harmony of numbers.⁴⁰

Further evidence that the patriarchal ages in Genesis are not real numbers is the "overlap" of the patriarchs' life spans. If the genealogies in Genesis 5 and 11 are both literal and complete, then the death of Adam has to be dated to the generation of Noah's father Lamech.⁴¹ Shem, Arphaxad, Shelah, and Eber would have outlived all of the generations following as far and including Terah. Noah would have been the contemporary of Abraham for 58 years and Shem (Noah's son) would have survived Abraham by 35 years. But where does the Bible indicate that any of these men were coeval? They are spoken of as respected ancestors, not as contemporaries that interacted with them or who were to be cared for in their old age. The whole impression of the biblical narrative in Abraham's day is that the Flood was an event long since past, and that the actors in it had long passed away. Concluding that the ages for the patriarchs are literal is contrary to the spirit of the record that presupposes gaps between the lines of Adam and Noah and between Noah and Abraham.⁴²

There is another problem with assuming absolute literal ages for the patriarchs in Genesis: these ages differ significantly in the Masoretic (MT), Septuagint (LXX), and Samaritan Pentateuch (SP) texts.⁴³ The antediluvial ages before the birth of the first son from Adam to Noah is 1,656 years in the Masoretic text, 1,307 in the Samaritan text, and 2,262 years in the Septuagint text. The postdiluvian ages before the birth of the first son in the interval between the Flood and Abraham is 292 years in the Masoretic text, 942 years in the Samaritan text, and 1,072 years in the Septuagint text. If the Bible is literally correct with respect to patriarchal ages, *which* Bible is correct? Cassuto argued that the Masoretic text was the autograph copy of the Old Testament (from which the others were modified) and thus the most reliable, and since this is the version that has made it into our Bible, it is the one that has been used in this discussion and in Table 2.⁴⁴ But this discrepancy should point out that the ages in Genesis may not have been reliably handled or transmitted over time, and thus cannot be considered inviolate from an absolutely literal point of view.

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TABLE 2. Ages of Patriarchs and Corresponding Sexagesimal and Preferred Numbers

Patriarch	Age (yrs) when first son born	Sexagesimal and Preferred Numbers	Re-main-ing years of life	Sexagesimal and Preferred Numbers	Total years	Sexagesimal and Preferred Numbers
Adam	130	60x2yrs + 60x2mos	800	60x10x10mos + 60x60mos	930	60x3x5yrs(60mos) + 6x5yrs(60mos)
Seth	105	60x10x2mos + 60mos	807	60x10x10mos + 60x60mos + 7yrs	912	60x3x5yrs(60mos) + 5yrs(60mos) + 7yrs
Enosh	90	(6+6+6) x 60mos	815	60x10x10mos + 60x60mos + 60x3mos	905	60x3x5yrs(60mos) + 5yrs(60mos)
Kenan	70	7x2x5yrs(60mos)	840	60x10x10mos + 60x60mos + 60x8mos	910	60x3x5yrs(60mos) + 2x5yrs(60mos)
Mahalalel	65	60yrs + 5yrs(60mos)	830	60x10x10mos + 60x60mos + 60x6mos	895	60x3x5yrs(60mos) – 5yrs(60mos)
Jared	162	60x6x5mos + 5yrs(60mos) + 7yrs	800	60x10x10mos + 60x60mos	962	(60+60+60+6+6)x60mos – 5yrs(60mos) + 7yrs
Enoch	65	60yrs + 5yrs(60mos)	300	60x5yrs(60mos)	365	60x6yrs + 5yrs(60mos) = 1 solar year
Methuselah	187	60x3yrs + 7yrs	782	60x10x10mos + 60x60mos – 6x3yrs	969	(60+60+60+6+6)x60mos – 5yrs(60mos) + 7yrs + 7yrs
Lamech	182	60x7x5mos + 7yrs	595	60x10yrs – 5yrs(60mos)	777	7x10x10 + 7x10 + 7yrs
Noah	500	60x10x10mos	450	40x2x5yrs(60mos) + 10x5yrs(60mos)	950	60x3x5yrs(60mos) + 10x5yrs(60mos)
Flood						
Shem	100	60x10x2mos	500	60x10x10mos	600	60x10yrs
Arphaxad	35	7x5yrs(60mos)	403	40x2x5yrs(60mos) + 3yrs (6x6mos)	438	40x2x5yrs(60mos) + 60x6 + 60 + 6x6mos
Shelah	30	60x6mos	403	40x2x5yrs(60mos) + 3yrs (6x6mos)	433	40x2x5yrs(60mos) + 6x(60+6)mos
Eber	34	60x6mos + 6x8mos	430	40x2x5yrs(60mos) + 6x60mos	464	40x2x5yrs(60mos) + 60yrs + 6x8mos
Peleg	30	60x6mos	209	40x5yrs(60mos) + 5yrs(60mos) + 6x8mos	239	40x5yrs(60mos) + 6x6yrs + 6x6mos
Reu	32	60x6mos + 6x4mos	207	40x5yrs(60mos) + 5yrs(60mos) + 6x4mos	239	40x5yrs(60mos) + 6x6yrs + 6x6mos
Serug	30	60x6mos	200	40x5yrs (60mos)	230	40x5yrs(60mos) + 60x6mos
Nahor	29	60x6mos – 6x2mos	119	60x2yrs – 6x2mos	148	60x10x2mos + 6x8yrs
Terah	70	7x2x5yrs(60mos)	135	60x2yrs + 60x2mos + 5yrs(60mos)	205	40x5yrs(60mos) + 5yrs(60mos)
Abraham	100	60x10x2mos	75	5yrs(60mos) x 3x5yrs(60mos)	175	60x10x2mos + 15x5yrs(60mos)

All age-numbers (30 in all) from Adam to Noah are a combination of the sacred numbers 60 (years and months) and 7. No numbers end in 1, 3, 4, 6, or 8—a chance probability of one in a billion. Thirteen numbers end in 0 (some multiple or combination of 60), 8 numbers end in 5 (5 years = 60 months), 3 numbers end in 7, 5 numbers end in 2 (5yrs + 7 yrs = 12), and 1 number ends in 9 (5yrs + 7yrs + 7yrs = 19). All of this cannot be coincidental. The Mesopotamians were using sacred numbers, not real numbers. Therefore, these numbers were not meant to be (and should not be) interpreted as real numbers.

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Article

Making Sense of the Numbers of Genesis

Other Scripture Besides Genesis

Genesis is not the only book of the Bible where symbolic or figurative numbers are used. Figurative numbers are used throughout the Old Testament, and also (but less frequently) in the New Testament. An example of Scripture outside of Genesis where a symbolic number is used is the description of Moses when he died: *And Moses was a hundred and twenty years old when he died; his eye was not dim, nor his natural force abated* (Deut. 34:7). The number 120 (60×2) is first mentioned in Gen. 6:3: *yet his days shall be a hundred and twenty years*. This number has also been mentioned in a similar context in a cuneiform text found at Emar: "One hundred twenty years (are) the years of mankind—verily it is their bane." This is the only known extra-biblical parallel to Gen. 6:3. The figure 120, shared by Gen. 6:3 and the Emar text, is to be regarded as a maximal and *ideal* figure, which in the world view of that time could be reached only by extremely virtuous individuals.⁴⁵ Indeed, in the Bible there is only one person to whom this life-span was attributed—namely Moses.

Similarly, Joseph and Joshua were each recorded as dying at age 110—a number considered "perfect" by the Egyptians. In ancient Egyptian doctrine, the phrase "he died aged 110" was actually an epitaph commemorating a life that had been lived selflessly and had resulted in outstanding social and moral benefit for others.⁴⁶ And so for both Joseph and Joshua, who came out of the Egyptian culture, quoting this age was actually a tribute to their character. But, to be described as "dying at age 110" bore no necessary relationship to the actual time of an individual's life span.

Numerical Symmetry of Scripture

There is a symmetry and regularity to Genesis that also cannot be accidental. Rather, there seems to have been an intentional attempt to impart religious harmony and prosaic beauty to the text, commensurate with the style of literature and numerological concepts of that time. For example, each genealogy presented in chapters 5 and 11 of Genesis includes ten names. Adam to Noah contains ten names and Shem to

Abraham contains ten names (Table 2). To break a text into a ten-generational pattern was common for many Near Eastern people-groups of that time,⁴⁷ and reflected an overall sense of numerical importance and harmony (ten was the base of the decimal numbering system for most of these peoples, including the Egyptians and Hebrews). In addition, the description of each of these ten generations ends with a father having three sons; e.g., in Gen. 5:32, Noah begot Shem, Ham, and Japeth, and in Gen. 11:26, Terah begot Abram, Nahor, and Haran. This is likewise the case for the Cainite genealogy with Jabal, Jubal, and Zillah (Gen. 4:20–22). By ending each of these sections with three sons, an overall symmetry was established in Genesis using the preferred number three for emphasis. Thus, it appears that the symmetry of these primitive genealogies is *artificial* rather than natural.⁴⁸ This is not to say that Noah or Terah or Cain did not have three (or more) sons, or that these sons were not real historical people. It is to say that the biblical writer mentioned only these sons so that the text was made numerically symmetrical and harmonious within the overall framework of religious intent.

Numerical symmetry is contained in all of Genesis. A prime example is chapter 1, on which the Hebrew scholar Cassuto expounded in detail.⁴⁹ First, the whole chapter is based on a system of numerical harmony. Not only is the number *seven* fundamental to its main theme (God created the world in six days and rested on the seventh), but it also serves to determine many of its details. The number seven was the number of *perfection*, and thus the basis of ordered arrangement; also, particular importance was attached to it in the symbolism of numbers. It was considered a perfect period (unit of time) in which to develop an important work, the action lasting six days, and reaching its conclusion and outcome on the seventh day. It was also customary to divide the six days of work into three pairs; i.e., into two series of three days each. So, a completely harmonious account of creation, in accord with other ancient examples of similar schemes in the literature of that time, and using the rules of style in ancient epic poetry and prose of the ancient Near East, would be the parallel form of symmetry found in Genesis 1, where the first set of three days represents a general account of creation, while the second set

There seems to have been an intentional attempt to impart religious harmony and prosaic beauty to [Genesis], commensurate with the style of literature and numerological concepts of that time.

TABLE 3: A "Literary" Interpretation of Genesis One

Day 1. Light	Day 2. "Waters"; sea and heaven	Day 3. Earth or land; vegetation
Day 4. Luminaries (sun, moon, stars)	Day 5. Fish (whales) and fowl	Day 6. Land creatures that eat vegetation; man

Day 7. Rest

of three days is a more specific account of the first three days (Table 3).

Much debate has revolved around the Genesis 1 topics: (1) Are the days of Genesis long epochs of time or 24-hour periods? (2) How could the sun have been created on the fourth day after plants? (3) Does "each according to its kind" refer to the fixity of species? and (4) Is modern science in concordance or discordance with the "days" of Genesis 1? But if taken in the proper and intended context of literature written in the ancient Near East, there is no conflict in any of these topics. The Genesis writer was simply writing in the "politically-correct" cosmogenic and prose style of that day.⁵⁰ Does this negate the importance or truth of God's revelation in Genesis 1 to humankind? Not at all. If you were given a revelation from God, you would write it down in a style prevalent today and from your world view and cultural perspective. That is what the Hebrews did. They tried to show the highest respect for God by using the most sacred language they knew how to create—where every word and phrase was weighed scrupulously and woven together to present the most harmonious text possible. If one takes into account the literary style and numerological conceptions of the ancient Mesopotamians, then the dilemmas that arise from a literalist (literally a 24-hour day creation) or concordist (each day represents a geologic age or epoch) view disappear.

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An even closer look at Genesis 1 reveals the carefully constructed and intricate harmony of the *original Masoretic Hebrew text*.⁵¹ After the introductory verse (v. 1), the section is divided into *seven* paragraphs, each of which pertains to one of the *seven* days. Each of the *three* nouns that occur in the first verse ("God," "heavens," and "earth") are repeated throughout the chapter a multiple of *seven* times: "God" occurs 35 times (7×5), "earth" is found 21 (7×3) times, and "heavens" appears 21 (7×3) times. Each verse after the first contains *three* pronouncements

that emphasize God's concern for humankind's welfare (*three* being the number of emphasis), namely the type phrases "Let us make man," "be fruitful and multiply," and "Behold I have given you every plant yielding seed." Thus, there is a series of *seven* corresponding dicta of triads (*threes*). The terms "light" and "day" are found *seven* times in the first paragraph, and there are *seven* references to "light" in the fourth (parallel) passage. "Water" is mentioned *seven* times in paragraphs two and three; "beasts" *seven* times in parallel paragraphs five and six; the expression "it was good" appears *seven* times—the seventh time "very good" for emphasis, etc. To suppose that all of this is a mere coincidence is not possible—the text was *purposely* constructed this way using preferred numbers and prosaic symmetry.

We find the same kind of symmetry and symbolism in other chapters of Genesis in the original Masoretic Hebrew text. Some examples that show the numerical "tightness" and regularity of the text are: in Gen. 2, Adam is mentioned 28 (7×4) times; in Gen. 4:15, vengeance shall be taken on him (Cain) *sevenfold*; in Gen. 4:24, Lamech shall be avenged *seventy and sevenfold*; the names listed in Cain's family, counting from Adam to Naamah are 14 (7×2); and Cain's name is mentioned 14 (7×2) times. In the story of Noah and the Flood in chapters 6–9, there is also a numerical symmetry and parallelism to the text.⁵² The number *seven* is used repeatedly; *seven* days (Gen. 7:4, 10; 8:10, 12), *seven* pairs of clean animals and birds (Gen. 7:2–3); the number of times that God spoke to Noah was exactly *seven*. Repetitions (such as the "waters prevailed and increased"; Gen. 7:17, 18, 19, 20, 24) are included for the sake of parallelism in accordance with the customary stylistic convention of the time. Noah's age of 600 (60×10) was considered to be a perfect number in the sexagesimal system, and was symbolic of Noah's perfection as a person (Gen. 6:9). The size of the ark was 300 (60×5) cubits by 50 (10×5) cubits by 30 (6×5) cubits—numbers that also probably should be taken symbolically (numerologically) rather than literally.

Biblical Genealogies and Chronology

Can the biblical genealogies in Genesis chapters 5 and 11 be used as a chronological time scale to determine the date for Adam and Eve and thus the creation of the world? There have been a number of attempts to do just this. One of the first attempts was that of Jose Ben Halafta in the second century AD, who calculated that Adam was created in 3761 BC.⁵³ This date of ~3760 BC has become part of ortho-

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	14		36	44		63	81
3		29		47		69	90

Article

Making Sense of the Numbers of Genesis

Since a number of names are known to have been omitted from biblical genealogies, it is logical to conclude that these genealogies should be used in a wide sense to indicate overall descent ("X fathered the line culminating in Y") rather than a direct father-to-son relationship ("X fathered Y").

dox Jewish tradition and is the basis for the Jewish calendar. Most famous of these "literal" chronologies, and the one most cited, is Bishop Ussher's 1654 date for the creation of the world in 4004 BC. The results of these (and other) dates vary partly because the data itself is not consistent, partly because the three earliest manuscripts of the Old Testament (Masoretic, Samaritan, and Septuagint) contain different numbers for the patriarchal ages, and partly because the historical benchmarks chosen to relate the dates to the Christian era differ.⁵⁴

Condensed Genealogies

The matter of obtaining creation dates from the patriarchal ages is not that simple if one looks carefully at the whole genealogical record of the Bible. Genealogies in the Bible are frequently abbreviated by the omission of unimportant names.⁵⁵ In fact, abridgment was the general rule for biblical writers who did not want to encumber their texts with more names than necessary for their intended purpose. Numerous examples of abridgment exist, the most notable example being the genealogy of our Lord in Matthew 1; e.g., in verse 8, three names are dropped since Uzziah was not the son but the great-grandson of Joram. Another example is Exod. 6:16–24, where it seems that Moses (and Aaron) are the grandsons of Kohath, son of Levi. Kohath was born before the descent into Egypt (Gen. 46:11), and the abode of the children of Israel in Egypt continued 430 years (Exod. 12:40, 41). Now, as Moses was 80 years old at the time of the Exodus (Exod. 7:7), he must have been born more than 350 years after Kohath, who consequently could not have been his grandfather. The tradition of breaking down genealogical lists into a ten-generational pattern also suggests that only the most important persons in longer lists were retained.

Since a number of names are known to have been omitted from biblical genealogies, it is logical to conclude that these genealogies should be used in a wide sense to indicate overall descent ("X fathered the line culminating in Y") rather than a direct father-to-son relationship ("X fathered Y"). And the fact that each member of a series is said to have "begotten" the next succeeding member is not evidence in itself that some genealogical links have not been omitted.

Different Degrees of "Begot" and Gaps in the Record

Descent indicated by the word "begot" (or "beget") in the Bible is not always from biological father to son or even along the son line. For example, in the line of the "sons" of Kohath, the third, fourth, and fifth names represent brothers, not sons, as shown by comparing Exod. 6:24 with 1 Chron. 6:36–37. Also, a comparison of 1 Chron. 1:36 with Gen. 36:11, 12 shows that the "seven sons of Epiphaz" are really six sons, and the sixth "son" was Epiphaz' concubine, who was the mother of his seventh son.⁵⁶ Sometimes "begot" does not even apply to people. It can also refer to geography (e.g., Elishah, Tarshish; Gen. 10:4 and 1 Chron. 1:2), to cities (e.g., Sidon; Gen. 10:15), to people groups or tribes (e.g., Kittim and Dodanim; Gen. 10:4 and 1 Chron. 1:17), and even to nations (e.g., Canaan, the grandson of Noah is said to have begotten the Jebusites, Amorites, etc.; Gen. 10:16–18).

These gaps in people, and the flexibility of the word "begot," must be considered in the interpretation of the stated ages of the patriarchs. When it is said, for example, in Gen. 5:9: *And Enosh lived ninety years, and begot Kenan*, how do we know that "begot" means that Kenan was the immediate son of Enosh or if he was in the descendent line of Enosh? Perhaps Enosh was ninety years old when his grandson Kenan or great-grandson Kenan was born.

Correlation of Genesis Chronologies with "Real" Time

If the patriarchal ages are considered to be literal and complete, then one can approximate the length of time back to Adam. Archaeological and geologic evidence places Abraham at ~2000 BC.⁵⁷ If 2,000 years is added to the total of 2,046 years from Adam to Abraham (Masoretic text), then these dates add up to about 4000 BC, or ~6,000 years before the present (YBP). And, if one also assumes that the dates in Genesis 1 are literal 24-hour days, then this also places the creation of the Earth and universe at about 6,000 years ago—a basic tenant of Young-Earth Creationism.

However, not only does this date of ~6000 YBP contradict astronomical evidence (that places the age of the universe at 13.7

billion years) and geological evidence (that places the age of the Earth at 4.6 billion years), it also does not fit with archaeological evidence from the Near East. It is known that Egyptian and Babylonian civilizations were highly developed *before* 4000 BC, and that Ubaid culture (the first civilization that has been discovered in Mesopotamia) is as old as ~5500 BC. However, if there are “missing links” or “gaps” in these genealogies, as has been discussed above, perhaps these dates can be pushed back further in time.

Green concluded from his in-depth study of Genesis that the genealogies in chapters 5 and 11 were not intended to be used – and cannot properly be used – for the construction of a chronology on an absolute time scale.

The question is: How far back in time can biblical genealogies be stretched, assuming that legitimate gaps exist in the record? Some people have suggested that Adam may have been a hominid created some two or more million years ago,⁵⁸ while others have sought a “mitochondrial Eve” or “Y-Chromosome Adam” who lived ~40,000–200,000 years ago in Africa.⁵⁹ While recognizing that there may be gaps in the biblical record, is it reasonable to push the date for Adam and Eve back tens of thousands to hundreds of thousands to millions of years? The gap from Kohath to Amram to Aaron and Moses (Exod. 6:20) is a mere 300 years, not 3,000 or 30,000 or 300,000 or 3 million years. Matthew’s (1:8) gap is limited to just three kingly generations comprising a total of only 70 years, not 700 or 7,000 or 70,000 years! The known gaps can push biblical chronology back at least several hundred years and up to one thousand years or so at the most.⁶⁰

The Bible itself seems to constrain how far the genealogies in Genesis can be stretched. According to Gen. 4:2: *Abel was a keeper of sheep, but Cain was a tiller of the ground.* Archaeology has revealed that both agriculture and husbandry (domestication of animals including sheep) originated in the Middle East at about 10,000 YBP.⁶¹ If this is true, then Cain and Abel must have lived sometime after 10,000 years ago. Archaeologists also know that people first began to live in cities in the Middle East during the fourth millennium BC,⁶² and this places Cain and Abel at around 4000 BC (or later), since the Bible claims that Cain went out from Eden and established a city (Gen. 4:17). Also, the “Professions list” of Gen. 4:19–22 places the descendants of Cain (Jabal, Jubal, and Tubal-cain) somewhere in the time frame of about 3300–3100 BC.⁶³ So even

if there were some gaps between Adam and these descendants, surely the Bible does not imply that the gaps amounted to thousands or to millions of years!

From the above discussion, it appears that the biblical chronologies based on the patriarchal ages roughly correlate with the archaeological record of the Middle East. Therefore the question can be asked: Do the patriarchal ages hold some significance to real time? Perhaps the biblical writers had an approximate idea of how much real (secular) time had elapsed between Adam and Noah and between the Flood and their day and thus constructed the chronologies to fit into this overall real-time frame, all the while maintaining a sacred-numbers literary style. Following this hypothesis let us speculate that the biblical writer(s) allowed for approximately 2,000 years between Adam and Abraham, with Noah and the Flood being the most important person and event in the story line. Also let us hypothesize that, for an average “begetting” age of 40, there would have been a total of fifty generations in the genealogical line from Adam to Abraham. This would then imply that thirty generations of less-important people were excluded from the record, while only the twenty most important people in the two 10-generation schemes were included in the direct line from Adam to Abraham. Sacred ages were then ascribed to these people that befit their relative importance in the story line; e.g., Noah was 600 years ($60 \times 10 =$ a perfect number) when the Flood started. This idea is a variation on the “dynasty” or “clan” explanation described at the beginning of this paper, but allows for the interaction of persons in the narrative. For example, the sons of Noah would have been his real sons—interacting with him on the ark—but the 500-year age of Noah when his sons were born only indicated Noah’s relative prominence in a story line containing many genealogical “gaps” in the “clan” line between Adam and Noah.

What then is to be made of the Genesis chronologies? Green concluded from his in-depth study of Genesis that the genealogies in chapters 5 and 11 were not intended to be used—and cannot properly be used—for the construction of a chronology on an absolute time scale.⁶⁴ To do so would be a fundamental mistake. It is putting the chronologies to a purpose for which they were not designed to serve, and for which the biblical writers did not intend. Biblical genealogies were intended to confirm a specific line of descent for the Jews in the Old Testament, from Adam down to Jesus in the New Testament.

Conclusion

The fact that the numbers in Genesis may have been “contrived” or “intentional” rather than “real” is difficult for many people to accept. Does this compromise the integrity of the Bible and mean that the Bible cannot be trusted? Does it mean that it cannot be taken “literally”? No, it means only that the text must be approached from the

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Ironically, by interpreting the numbers of Genesis “literally” Christians have created a mythological world that does not fit with the historical or scientific record. ... [It] has caused millions of people to reject the Bible and the truths contained therein.

Article

Making Sense of the Numbers of Genesis

culture of the people who wrote it. We have to try and “get into the minds” of these ancient people and understand what made them tick—just like modern missionaries must try and understand the world view of the people they are trying to evangelize. In the case of Genesis, we must try to understand the text from the world view of the ancient Near East of ~2000 BC, not from the world view of the early 1600s AD (King James) Europe or the scientific world view of the twentieth through twenty-first centuries. Peoples of the ancient Near East simply did not think along the same lines, or express themselves in the same manner, as the European races.⁶⁵

The important question to ask is: Is Genesis, and the record of the patriarchs from Adam to Abraham, to be considered mythological or historical? Ironically, by interpreting the numbers of Genesis “literally” Christians have created a mythological world that does not fit with the historical or scientific record. Or as Hyers aptly put it: “unwittingly, ‘literal’ or ‘concordist’ views are secular rather than sacred interpretations of the text.”⁶⁶ The “literal” (or numerical) view is secular while the “symbolic” (or numerial) view is sacred because that is how the original biblical author(s) intended for it to be. To faithfully interpret Genesis is to be faithful to what it really means as it was written, not to what people living in a later age assume or desire it to be. It is also ironic that the mythological world created by many well-intentioned and serious “literal” Christians, based partly on the numbers in Genesis, has caused millions of people to reject the Bible and the truths contained therein. ★

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They welcome proposals for contributed papers and poster presentations on all topics related to science and Christianity, though special consideration will be given to papers and posters dealing with important and current research results in neuroscience and psychology, Christian environmentalism, medical bioethics, evolutionary psychology, sociobiology, and on concerns of teaching biology.

A 200-250 word abstract that emphasizes what is *new* and *important* in your presentation and that is *intelligible* and *clear* to non-specialists should be submitted online at: http://129.82.76.41:591/asa_presentations/applications.html

Abstract deadline is **Jan. 30, 2004.**

Students and early career scientists are encouraged to submit abstracts. The abstract deadline for students and early career scientists is **March 3, 2004.**

See **www.asa3.org** for details.