## Biblical Math As Heilsgeschichte?

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Even the most casual reader of the Bible will be astonished by the ages of the pre-diluvians as reported in Genesis 5, and to a lesser extent by those of the post-diluvians as found in ch. 11. The particulars are exhibited in Table 1.

Table 1: Early Biblical Ages
The Pre-Diluvians (Genesis 5)

Name Age at marriage | Age at time of |
| :---: |
| first-born |$\quad$ Remaining years Lifespan

| Adam | - | 130 | 800 | 930 |
| :--- | :---: | :---: | :---: | :---: |
| Seth | - | 105 | 807 | 912 |
| Enosh | - | 90 | 815 | 905 |
| Kenan | - | 70 | 840 | 910 |
| Mahalalel | - | 65 | 830 | 895 |

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| Jared | - | 162 | 800 | 962 |
| :--- | :--- | :---: | :---: | :---: |
| Enoch | - | 65 | 300 | 365 |
| Methuselah | - | 187 | 782 | 969 |
| Lamech | - | 182 | 595 | 777 |
|  |  |  |  |  |
| Noah | - | 500 | 450 | 950 |

(The flood began in Noah's 600th year = Shem's 100th year)
The Early Post-Diluvians (Genesis 11)

| Name | Age at marriage <br>  <br>  <br> Age at time of <br> first-born | Remaining years | Lifespan |  |
| :--- | :---: | :---: | :---: | :---: |
| Shem | - | 100 | 500 | 600 |
| Arpachshad | - | 35 | 403 | 438 |
| Shelah | - | 30 | 403 | 433 |
| Eber | - | 34 | 430 | 464 |
| Peleg | - | 30 | 209 | 239 |

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| Reu | - | 32 | 207 | 239 |
| :---: | :---: | :---: | :---: | :---: |
| Serug | - | 30 | 200 | 230 |
| Nahor | - | 29 | 119 | 148 |
| Terah | - | 70 | 135 | 205 |
| The Patriarchal Figures (Genesis-Deuteronomy) |  |  |  |  |
| Name | Age at marriage | Age at time of first-born | Remaining years | Lifespan |
| Abraham | - | 100 | - | 175 |
| Sarah | - | 90 | - | 127 |
| Isaac | 40 | 60 | - | 180 |
| Ishmael | - | - | - | 137 |
| Jacob | - | - | - | 147 |


| Esau | 40 | - | - | - |
| :--- | :---: | :---: | :---: | :---: |
| Joseph | - | - | - | 110 |
| Moses | - | - | - | 120 |
|  |  |  |  |  |
| Joshua | - | - | - | 110 |

The ages of the pre-flood generations at the time of death range from a mere 365 years to a maximum of 969 with the average at 858 years. No less surprising are the ages at which these individuals are presented as having fathered their first child. They range from 65 to 500 with the average being 156 years.

How does one account for such depictions of longevity? Those interpreters who have assumed that the text intended to relate literal biological history have labored long and hard to find a believable explanation. Among the suggestions have been the following.

1. Perhaps names have been accidentally lost from the list. Such a possibility has been suggested for genealogies elsewhere in the Bible. That of Jesus in Matthew 1, for example, omits several generations from the supposed master-list in 1 Chronicles 1-3.

Alternatively, could it be that the list intended to include only the more illustrious ancestors? This conclusion results from the following interesting accommodation of biblical data to modern scientific estimates of the age of the earth.

The assumption is that this genealogy ... (is) consecutive and without omission ... If the ages data are added together ... the flood is seen to occur 1,656 years after the creation of Adam ... (and) a date of creation of 4004 в.c. is obtained. This date is no longer tenable in the light of present knowledge of antiquity ... another view regarding the structure of the dates of chapter $\underline{5}$ must be found ... One can, in general, hold that there are gaps between the ten names, that these were actual people, that they did live certain years, and that others followed them at indeterminate lengths.

In such a view, corresponding perhaps to a list of dynastic heads, the lifespan figure for an individual would actually be the total for all of the missing generations. As for the more problematic age at time of

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first-born, 'it may well be that those are the actual dates at which a son was born, or a grandson even, who is not actually the one named but who was an actual link and from whom came, in the latter's descendants, the son who is the next-named person'.
2. Perhaps a 'year' in the calendar of Genesis 5 was not as long as in our present one. If the term indicated, for example, only a lunar month, then the ages of the pre-diluvians would be reduced to ones comparable to our own. Thus Methuselah's record-breaking 969 would become a reasonable 81 years!

The problem here, of course, is evident within the surrounding biblical material. In the story of the flood, for example, we read not merely of years, but of divisions within them called 'months' (twelve in a year) and within those of 'days' ( 29 or 30 each). All indications are that the calculation of duration of the biblical year was little different from modern ones.
3. Perhaps the environment was cleaner then and one could lead a healthier (and presumably longer) life? Martin Luther cites this approach as well worn, even in his day, and then finds it unnecessary.
... compared with our own lifetime, they lived incredibly long. This, as explained by some, was because at that time the nature of man was stronger, the food more salubrious, and man more moderate in eating and drinking ... Today our bodies are more weakened by our food and drink than they are nourished. For me this one explanation suffices, namely, that God during that best age of the world wanted people to live that long.

Modern Creationists have their own variation on this explanation for pre-diluvian longevity. They usually propose that, prior to the biblical flood, the earth was surrounded by a massive canopy of water vapor (the condensation of which produced that great catastrophe). The implications for human longevity have been expressed as follows:

Perhaps the most important effect of the canopy was the shielding action provided against the intense radiations impinging upon the earth from space. Short wave-length radiation, as well as bombardment of elementary particles of all kinds, is known to have diminishing effects - both somatic and genetic effects-on organisms ... But to return to the question of antediluvian longevity, it surely is quite reasonable ... to infer that, over the centuries since the Flood, the accumulation of these effects in man in particular has resulted in gradual deterioration and decreasing life-span.

Such explanations have not been compelling save to a small number of persons. To 'old line' fundamentalists, they are transparent and unnecessary attempts to make the Bible acceptable to the modern rational mind. By contrast, ought one not simply to accept Scripture at face value? ('It says what it means, and means what it says! God is capable of this minor feat, so what is the problem?')

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Modern historical-critical scholarship, by contrast, has centered on the suspicion that some sort of sophisticated symbolic 'number game' is being presented in the ages. 'Cracking the code', however, has been exceedingly difficult. Thus an able modern interpreter has put it this way.

Every commentator on Genesis, including the present writer, has spent hours over pencil and paper, and recently with pocket calculator, trying to wrest some sense or pattern out of the figures with which the MT supplies us. The best conclusion drawn from this effort is that there are other pursuits more rewarding. There undoubtedly is, or was, a key to these numbers ... but whether it has disappeared in transmission or simply now eludes us is impossible to determine.

The state of affairs is not quite so bleak, however. The text contains clues, if not clear indications, not only to the likelihood that biological 'facts' are not intended but also to the nature and origin of the numerical scheme. The present article will outline what has been or can be said about the origin of these expressions of longevity, and conclude with reflections upon how the genealogies may have been understood when they were first heard within the larger narrative context.

## Divisibility by Five

The first fundamental observation to be made is that the ages are not randomly distributed. One might reasonably expect them to end in each integer from zero to nine, were they actual expressions of biological duration. Instead, the vast majority of them are divisible by five (i.e., they end in a zero or a five). Among the pre-diluvians, 21 of the 30 ages end in this fashion. Useful contrast can now be made with the true randomness of the length of reigns of the kings of Israel and Judah (as recorded in the books of Kings, beginning with Rehoboam): 17, 3, 41, 2, 24, 2,7 days, $12,22,25,2,8,1,28,40,17,16$, $29,52,41,6$ months, 1 month, 10, 2, 20, 16, 16, 9, 29, 55, 2, 21, 3 months, 11,3 months, and 11. Note that these end in every available number of the $0-9$ sequence, and that only five of them (from a total of 36) are divisible by five (about what one would expect from random distribution). It is quite unlikely, therefore, that the ages in Genesis 5 represent biological reality.

A concern for units of five years (which the Romans called a lustrum) is also evident in the focus of the lifespan on the number 900 (the two deviations, Enoch and Methuselah, will be discussed below). This number may be composed of five units of $(60+60+60)$, or alternatively as $30^{2}$ or as $(60 \times 15)$. For the symbolic role of the number 60, see below.

## The Addition of a Seven

Notice, furthermore, that eight of the remaining nine pre-diluvian ages end either in seven or two, a percentage far too high to represent historicity. There is a relationship between this series and the previous one in that the addition of seven to a number divisible by five yields either two or seven ( $5+7$ $=[1] 2 ; 0+7=7)$. The consequence is that 29 of the 30 ages in the list belong in a divisible-by-five

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category. Even the one deviation, Methuselah, may fit the scheme, since his 969 years may be $955+7+$ 7. That is, his age at time of first-born is $180+7$, and his remaining years are $775+7$.

Is there evidence elsewhere in ancient Near Eastern literature of the deliberate addition of a seven to numbers? It is conspicuously present in the lists of pre-diluvian rulers known as the Sumerian King List. In two of the three editions that have been preserved, the ancient scribe expressed the total of reigns in terms of a standard symbolic number plus an additional number seven (see Table 2 , below).

As for biblical literature, consider the case of the number of provinces in the Persian Empire. Internal records list from 20 to 30 of them at the time of Darius, whereas the Bible states that there were 120 (Dan. 6:1). However, at the time of his successor (Ahasuerus), there were 127 of them (Est. 1:1). Nothing prevents an empire from expansion, but why precisely by seven?

Then, consider the ages of the patriarchal figures (Table 1). Keep in mind that the 'ideal' age among the Egyptians was variously stated to be 110 or 120, and that the maximum lifespan allowable by the Bible is also 120 (Gen. 6:3). Curiously, only those persons who attain precisely those ages have been residents of Egypt (Joseph and Joshua at 110 and Moses at 120). One might be astonished, therefore, to notice that Sarah attains the age of 127 !

These concerns apply to the ages of the post-diluvians as well, although less conspicuously so (Table 1):15 cases out of 27 . It is also evident in most of the other numbers in the early chapters of Genesis, among them the following: the dimensions of Noah's ship ( $300 \times 50 \times 30$ ), rain for 40 days and 40 nights, water covers the tops of the mountains to a depth of 15 cubits and endures for 150 days.

## Calculation in Base-60

The second fundamental observation to be made is that a substantial number of the ages involve the number 60. For example: Enoch's 300 years is $60 \times 5$, Kenan's 840 years is $60 \times 14$, Moses' 120 years is $60 \times 2$, Methuselah's 187 years is $(60 \times 3)+7$, Sarah's 127 years is $(60 \times 2)+7$, Enosh and Sarah's 90 years is $60+60 / 2$, and Shelah, Peleg and Serug's 30 years is $60 / 2$. Fixation with this same number is evident in many other places in the early chapters of Genesis and conspicuously so in the dimensions of Noah's ark. Its volume is 450,000 cubic units, which can be expressed as $602 \times[(60 \times 2)+5]$ cubic units.

That this focus on the number 60 represents a common ancient Near Eastern convention, rather than biological reality, becomes clear from a comparison with the Sumerian King List (Table 2).

Table 2: The Sumerian King List

Name
Length of Reign

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W-B $62 \quad$ W-B $444 \quad$ Berossos

| Alulim | $\begin{aligned} & 67,200 \text { (to } \\ & \text { to } 68,400) \\ & \left(60^{2} \times 19\right) \end{aligned}$ | $\begin{aligned} & 28,800 \\ & \left(60^{2} \times 8\right) \end{aligned}$ | $\begin{aligned} & 36,000 \\ & \left(60^{2} \times 10\right) \end{aligned}$ |
| :---: | :---: | :---: | :---: |
| Alalgar | 72,000 | 36,000 | 10,800 |
|  | $\left(60^{2} \times 20\right)$ | $\left(60^{2} \times 10\right)$ | $\left(60^{2} \times 3\right)$ |
| Emmenluanna | 21,600 | 43,200 | 46,800 |
|  | $\left(60^{2} \times 6\right)$ | $\left(60^{2} \times 12\right)$ | $\left(60^{2} \times 13\right)$ |
| Emmengalanna | not listed | 28,800 | 64,800 |
|  |  | $\left(60^{2} \times 8\right)$ | $\left(60^{2} \times 18\right)$ |
| ... kidunnu | 72,000 | not listed | not listed |
|  |  |  |  |
| ... alimma | 21,600 | not listed | not listed |
|  | $\left(60^{2} \times 6\right)$ |  |  |


| Evedoragxos | not listed | not listed | 64,800 |
| :---: | :---: | :---: | :---: |
|  |  |  | $\left(60^{2} \times 18\right)$ |
| Ammemon | not listed | not listed | 43,200 |
|  |  |  | $\left(60^{2} \times 12\right)$ |
| Dumuzi | 28,800 | 36,000 | 36,000 |
|  | $\left(60^{2} \times 8\right)$ | $\left(60^{2} \times 10\right)$ | $\left(60^{2} \times 10\right)$ |
| Ensipazianna | 36,000 | 28,800 | 36,000 |
|  | $\left(60^{2} \times 8\right)$ | $\left(60^{2} \times 10\right)$ | $\left(60^{2} \times 10\right)$ |
| Enmenduranna | 72,000 | 21,000 | not listed |
|  | $\left(60^{2} \times 20\right)$ | $\left(60^{2} \times 5\right)+(60 \times 50)$ |  |
| Ubartutu | 28,800 | 18,600 | 28,800 |
|  | $\left(60^{2} \times 8\right)$ | $\left(60^{2} \times 5\right)+(60 \times 10)$ | $\left(60^{2} \times 8\right)$ |
| Ziusudra | 36,000 | not listed | 64,800 |
|  | $\left(60^{2} \times 10\right)$ |  | $\left(60^{2} \times 18\right)$ |

or:

$$
60^{2} \times[120+7]
$$

$60^{2} \times[60+7]$
$60^{2} \times 120$
or:

$$
\left(60^{2} \times 120\right)+\left(7 \times 60^{2}\right)
$$

$60^{3}+\left(7 \times 60^{2}\right)$
$60^{3} \times 2$
or:
120 šar* + 7 šar
1 great šar + 7 šar
120 šar

The names are those of kings who reigned in Sumer before a great flood. Each of the ages is multiple of $60 \times 60\left(60^{2}\right)$, a reflection of calculation in the so-called sexagesimal system (base-60, as opposed to the Western system in base-10).

The intention is to idealize kingship by expressing the duration of each reign in terms of multiples of the 'fundamental' number. Especially conspicuous is the total of elapsed time from the beginning of kingship to the flood as derived from Berossos's list: the cube of the ideal number! Note also that two of the totals can be expressed by the addition of a seven.

The same concept is at work in the expression of the dimensions of the 'Babylonian Noah's' boat: it is a cube, each side being $120(60 \times 2)$ cubits in length, for a volume of $60^{3} \times 8$ units. Little wonder, then, that it survived the waters of the great deluge!

The parallel between Genesis 5 and the King List is more than a common concern with pre-diluvian generations. There are five other considerations which make the comparison a valid one.

1. Both are concerned with divine activity which set a chronological period into motion. In the case of the Bible, it is the creation of the world to be followed quickly by that of human generations. In the case of the King List, it is divine intervention into the created order by means of instituting human monarchy based upon a heavenly paradigm. Hence the List begins: 'When kingship was [first] lowered from heaven, the kingship resided in [the city of] Eridu'. That is, meaningful history only begins with this gift of a divine order.
2. The list of pre-diluvian generations is the same. W-B 62 and Genesis 5 have ten each. W-B 444 and Genesis 4 have eight each, although the latter does not conclude with the flood. Curiously, if one

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begins in $\underline{\text { Genesis } 5} 5$ with Enosh ('human being') instead of with Adam ('human being'), the result is eight as well.
3. The King List states that, after the great flood, kingship was again lowered from heaven, initially to the city of Kish. It then lists 23 kings, giving the duration of reign for 21 of them. The ages are drastically reduced from multiples of $60^{2}$ to multiples of 60 . It is clear that there is a fascination with a duration of 900 years, which can be understood either as $5(60+60+60)$, or as $(60 \times 10)+(60 \times 10) / 2$. Specifically, five of the reigns are 900 years exactly, two are $960(900+60)$, and three are $840(900-60)$. The list of lifespans in Genesis 5 is quite similar: eight of the ten are very close to 900 years.
4. Both W-B 444 and Genesis 5 have, as the seventh generation, a character with an unusual and identical fate: both Enmenduranna and Enoch are summoned to heaven (see below).
5. Elapsed time between generations drops without exception from Adam through Mahalalel: 130, $105,90,70$, and 65 years. Then, at the time of Jared, the trend is reversed: 162 years pass before the birth of Enoch. This is an all-time high. The figure goes higher still for Methuselah, then drops off again. These fluctuations may indicate that, in a lost narrative about these patriarchs, there were 'happenings' of some sort: a new situation or condition of humanity which affected the birth rate. Awareness of the possibility of a correlation with the King List at this point must await the mathematics to be outlined below (under the heading 'Derivation of Elapsed Time').

Such analysis and comparison does not suggest that the biblical figures are not 'true'. Rather, it raises the possibility that they depict a mode of 'truth' that differs from modern concern with chronological accuracy. The expressions are a translation of narrative hyperbole into mathematics. In the case of the Persian Empire, it is a way of expressing admiration, regardless of the true number of provinces ('There's a real government for you!'). In the instance of Sarah, this is a way of saying that she attained the ideal age and then some: 'She lived life to the full; the perfect paradigm of the Israelite woman'. In the case of the pre-diluvians, it is unclear why certain persons have had their age garnished with the mathematical complement 'seven' whereas others have not.

## The Relationship between 5 and 60

The fundamental question now becomes: Why should there be a concern to express ages that are divisible by five? The answer, apparently, resides in the fact that our two fundamental observations are related. The common ground between 5 and 60 is that 5 years contain 60 months. The ages of the prediluvians, thus converted, are shown in Table 3.

Table 3: Ages of the Pre-Diluvians in Months (Multiples of 60)

Name
Age at time of first-born
Remaining lifetime

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| Adam | $60 \times 26$ | $2\left(60^{2}\right)+(60 \times 40)$ |
| :---: | :---: | :---: |
|  | or: 2(60) years $+2(60)$ months |  |
| Seth | $60 \times 21$ | $2\left(60^{2}\right)+(60 \times 40)+7$ years |
| Enosh | $60 \times 18$ | $2\left(60^{2}\right)+(60 \times 43)$ |
| Kenan | $60 \times 14$ | $2\left(60^{2}\right)+(60 \times 48)$ |
| Mahalalel | $60 \times 13$ | $2\left(60^{2}\right)+(60 \times 46)$ |
|  | or: 60 years +60 months |  |
| Jared | $(60 \times 31)+7$ years | $2\left(60^{2}\right)+(60 \times 40)$ |
| Enoch | $60 \times 13$ | $60^{2}$ |
| Methuselah | $(60 \times 36)+7$ years | $2\left(60^{2}\right)+(60 \times 35)+7$ years |
| Lamech | $(60 \times 35)+7$ years | $60^{2}+(60 \times 59)$ |

Lamech
$(60 \times 35)+7$ years
$60^{2}+(60 \times 59)$

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Noah

$$
60^{2}+(60 \times 40)
$$

$$
60^{2}+(60 \times 30)
$$

at flood: $2\left(60^{2}\right)$

The formulators of the biblical list, apparently aware of the Mesopotamian literature (most likely in Berossos's edition), sought to depart from it in their own mathematical idealism in two ways: (1) by using multiples of 60 rather than of $60^{2}$, and (2) by computing in multiples of 60 months (converted to years) rather than of 60 years.

This does not mean that the persons who formulated Genesis 5 took the King List and modified it line by line by a standard formula. In fact, in only one case does there seem to be a clear connection, that of the hero of the flood story.

## Derivation of Individual Ages

Only in a few cases can the origin of the individual ages be plausibly conjectured.

1. In the Sumerian version (W-B 62), Ziusudra reigns for 36,000 years ( $602 \times 10$ ), whereas his biblical equivalent (Noah) was aged 600 when the flood began ( $60 \times 10$ ).
2. It has often been pointed out that Enoch's lifespan of 365 years equals the number of days in the solar year. The connection between the two lies in the identity of his counterpart in the W-B 444 King List (both in the seventh position), named Enmenduranna. Another text tells us that he was summoned to heaven to be instructed in the lore of the baru-priesthood. His cult city, according to the King List, is Sippar, well known as a seat of solar worship. Further connection between the two persons (Enoch and Enmenduranna) may be found at Gen. 5:24 where the former is likewise taken to heaven ('Enoch walked with God; and he was not, for God took him').
3. The lifespan of Lamech, the seventh-born in the list in Genesis 4, is 777 years. As a mighty man, boasting of his power of revenge, it is perhaps appropriate that he be considered a 'perfect seven' (7-77). Another factor may be at work, however. He is listed as the son of Methuselah (the seventh successor of Adam), the gematria of whose name is exactly 777.
4. Elapsed time from creation to the birth of Methuselah is 687 years. He then lives a total of 969 years which brings one to the year of the great flood (Anno Mundi 1656). Why the biblical genealogists wanted him to die at that time, and why him as opposed to some other pre-diluvian, is unclear. Either they want him to perish in the flood as a means of punishment (hence setting his date deliberately in

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that year), or they want him to die just before and thus escape its judgmental effects. In the latter case, his age might have been derived (as aforementioned) by the double-complement of seven: 955+7+7.

Mention should here be made of a highly original approach to the problem taken by Dwight Wayne Young. He suggests that the formulas and solutions to foundational problems in Babylonian mathematics have been utilized by those who set the biblical lifespans (who presumably were trained in that mathematical tradition). Take, for example, the Old Babylonian text which expresses the relationship between the squares of certain numbers. It is concerned with those cases where $a^{2}+b^{2}=c^{2}$, a formula later to be appropriated by the so-called Pythagorean Theorem. The first entry of the tablet, presumably known to any mathematician at the time, is 120 . The initial line says, in effect: if $a=120$ and $b=119$, then $c=169$. Concerning this Young remarks:

The author of the patriarchal life spans seems to have been familiar with at least the initial computation ... since two of the numbers show up in the biblical material ... Twice in the Pentateuch this same number [120] is mentioned ... the delimitation of human lifetime [Gen. 6:3] ... (and) as the number of years that Moses lived [Deut. 34:7] ... [The number] 119 ... is the final segment of Nahor's lifetime [Gen. 11:25].

As for the remaining member of this 'Pythagorean triple' (169), it can be understood as a component of the lifespan of Methuselah: $800+169$ (where 800 seems to be a fundamental number in other age calculations).

Such an explanation would be quite compelling, of course, if all of the equations which Young employs had come from a single text, or if all of the solutions (yielding biblical ages) were sequentially from a single equation (or even a single cuneiform text), or if the data from a single equation explained all of the data for a given individual in Genesis 5. When, instead, many equations are called upon, and when the data from a single solution must range for applicability over Moses, Nahor and Methuselah, considerable doubt is cast upon it.

## Derivation of Elapsed Time

Since there is no obvious reason for the other individual ages (within the confines of each being a multiple of 60 months), the possibility arises that such ages are secondary to the accumulated total. That is, perhaps the basic datum is elapsed time from Adam to the flood ( 1,656 years), with the individual ages then tailored to produce the total. How this figure might have been derived has given rise to much speculation.

1. Jules Oppert begins with Berossos's total of 432,000 years (Table 2), dividing it into groups of five (comparable to the Roman lustrum), which yields 86,400 units. In the Bible, however, the fundamental liturgical time-unit (for the Priestly writers of Gen. 5) is the week. How many weeks are contained in the 1656 years from Adam to the flood? The answer is 86,407 , in close agreement with the number of lustra

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in Berossos's total. Expressed in other ways: (1) Berossos's total is $72 \times 6,000$ years ( $72 \times 1,200$ lustra), while the MT total is $72 \times 1,200$ weeks; (2) 6,000 years in the King List is the equivalent of 23 years in Genesis 5; (3) Genesis 5 years are the equivalent of .0038333 King List years.

This formula now enables us to discover the fifth correlation between Genesis 5 and the King List (for anticipation of which see above under the heading, 'Calculation in Base-60'). Ages at time of firstborn decrease from Adam through Mahalalel, for a span of 460 years. This is not an intelligible unit in biblical terms (i.e. it is not divisible by 60, 40,12 or 7 , the standard 'symbolic' numbers). When converted to their Mesopotamian 'equivalent', however, the result is 120,000 years ( $60 \times 2 \times 10^{3}$, or 20 periods of 6,000 years each). One is alerted to the possibility of such 'equivalency' by noting that 460 is a multiple of $23(23 \times 20)$.

One then looks for other blocks of elapsed time in Genesis 5 that are divisible by 23. The next three patriarchs then emerge as candidates, just as they should, given the downward plunge after Methuselah. The total for Jared, Enoch and Methuselah is 414 years ( $23 \times 18$ ), yielding a Mesopotamian figure of 108,000 years ( $60^{2} \times 30$ ).

The remaining pre-flood persons in Genesis 5 (Lamech, Noah and Shem, who is aged 100 at the time of the flood) yield a total elapsed time of 782 years $(23 \times 34)$, for a Mesopotamian equivalent of 204,000 years.

There may be, then, three distinct time periods for the biblical prediluvians, discoverable only if the figures were dependent in some way upon a Mesopotamian prototype. Oppert is possibly right when he remarks: 'The three periods correspond to legends now altogether lost'.
2. Umberto Cassuto, finding Oppert's calculations too complicated to be acceptable, initially sought to explain the common figure $(86,400)$ as
a characteristic figure of the sexagesimal system in use among the Sumerians ( $60 \times 60 \times 24$, which is the number of seconds in a day), and to conjecture, on this basis, that there was a common tradition in the ancient near east concerning 86,400 units of time that elapsed before the flood.

He subsequently became convinced that this was not the case, primarily because Genesis 5 'contains not the slightest allusion to a hebdomadal unit'. I do not find his skepticism compelling at this point since the week is, after all, the fundamental chronological and liturgical unit of the Priestly source to which modern scholars have assigned the chapter.

Cassuto then opts for beginning with a hypothetical biblical total of 600,000 days from creation to the flood. This yields 1,643 solar years of 365 days each. To this he would add $7+7$ ('as was done in the case of Methuselah's years'), obtaining 'exactly 1657' (1,656 plus the year of the flood).

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It is amusing to note that Cassuto, having objected to Oppert's solution on the basis that the unit 'week' plays no role in Genesis 5 , introduces the unit 'day' about which it is likewise silent! Perhaps this incongruity struck him as well, since he remarks, 'The fact that the total of 600,000 days is not expressly mentioned is not a valid objection. The omission is characteristic of the Torah.' He seeks to bolster his approach by pointing to the accumulated total of lifespans of the pre-diluvians: 8,226 years. This can be understood, he says, as 8,219 years ( $3,000,000$ days) +7 years. He might have made his figure more in line with others in the chapter by factoring it into $5\left(60 \times 10^{4}\right)$ days +7 years.

The likelihood of a relationship between Berossos's total for the pre-diluvian monarchs and that of Genesis 5 (in MT), and thus that Oppert's approach cannot be ruled out as easily as Cassuto prefers, is supported by the Lxx total of elapsed time (Anno Mundi date for the flood). It is 2,242 years, which may be related (in a different way) to the account of ancient divine rulers in Egypt as reported by the Egyptian historian Manetho (a contemporary of Berossos). These two historians, whose countries were rival fragments of the empire of Alexander the Great, each extolled the glory of his particular realm by pointing to the great antiquity of its kingship. Presumably, at a time when the text of Genesis 5 was still fluid and consisted only of a list of names, editors sought to determine a total of elapsed time. Those in Babylonia (in the proto-MT textual tradition) appealed to the indigenous King List tradition, whereas editors in Egypt appealed to local traditions as reported in Manetho and others. Details of the latter calculation need not detain us here.

For that minority of 'conservative' interpreters who have concluded that elapsed time is actual history and is to be measured, not by the accumulated total of ages at time of first-born, but rather by the accumulated total of lifespans as indicators of generation gaps (see above at n .2 ), then the span from creation to the flood becomes 8,225 years and creation may be set at 11,465 BCE. It is much more likely, however, that this figure is part of the symbolism of the base- 60 computations outlined above: 8,226 years (adding one for the duration of the flood itself) $=5\left(60 \times 10^{4}\right)$ days +7 years.

## The Purpose(s) of the Chapter

## 1. The Chapter in Isolation from its Literary Context

Since parallels with the Sumerian King List tradition are too numerous to be ignored, it is plausible to suggest that the departures therefrom in Genesis 5 (outlined above) are deliberate and didactic. Cassuto has put the matter clearly.

The Babylonian tradition was essentially ... of a mythological epic character. It told of ancient kings, the representatives of the monarchy that 'descended from heaven' ... who were in part divinities ... To these kings was attributed an excessively exaggerated longevity ... The Torah sets itself in opposition to all this. Scripture did not consider it right to invalidate completely all the existing traditions on the subject, or to pass over them in silence, since they could be of value for its didactic purpose. However, it sought to purify and refine them, and to harmonize them

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with its own spirit ... It is correct-the Bible comes to tell us-that there lived before the flood ten generations of notable personages; but they were only ordinary mortals, not gods, or demigods, or even men transformed into divinities, and they had no mythological associations whatsoever. They were born, they begot sons and daughters, and in the end they died; that is all ... There is no reference here to kingship that descended from heaven ... Neither monarchy nor might is important in the eyes of the Torah, for God's pleasure is not in the power of man.

Whereas the Sumerian King List merely concludes its description of each reign with the statement that $X$ ruled for so many years, Genesis 5 not only observes that each person lived for so many years but also adds 'and he died'. These concluding words 'represent that recognition of the inevitability of death which sounds through all history like the strokes of an iron bell'.

## 2. Is Genesis 5 Part of a Larger Chronological Framework?

Computation of elapsed time since creation (Anno Mundi dating) easily proceeds through the early postdiluvians with the aid of Genesis 11 (which continues the seriatim listing of age of parent at time of firstborn). Beyond that point, things get increasingly difficult. The most famous projection, of course, is that of Archbishop James Ussher. He dated the initial act of creation to 'the entrance of the night preceding the twenty third of Octob. in the year of the Julian Calendar, 710', which a marginal notation fixes as 4004 вс.

Most modern interpreters, having grown wary of the many uncertainties in constructing such an absolute chronology (be it 'historical' or not), have settled for a more modest goal. Is there a pivotal event within the Hebrew Bible itself, the Anno Mundi date for which the pre-diluvian ages are merely the introduction? Many such interpreters have been fond of setting the exodus from Egypt at 2666 Anno Mundi, conceived as 'two thirds of a world era of four thousand years' (100 generations of 40 years each). However, I know of no value placed upon the fraction $2 / 3$ in ancient Near Eastern chronology, and in any case the proposed date is not a factor of 60.

It seems more likely to me that the real goal of the chronology of the Priestly writer is the founding of the contemporary Second Temple. That date may, with some difficulty, be set at 3600 Anno Mundi. If so, it would have been made to fall on the conspicuous and highly symbolic number, $60^{2}$.

## 3. The Chapter in Literary Context

Presuming the Pentateuch to have taken its final and present form at the hands of the Priestly writers during and after the exile to Babylonia, the question may be asked as to how the intended audience 'heard' Genesis 5. What significance, intended or otherwise, might they have perceived for their difficult historical circumstance? Perhaps at least the following themes will have occurred to them.

1. The focus upon computation in base-60 conveys an element of regularity and control. The events depicted are thus not mere random 'happenings': they evidence a marvelous divine oversight. Even if

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the ages are not 'historically' correct, they nonetheless attest a divine providence that incorporates an otherwise enigmatic period of exile.
2. The extended ages of the pre-diluvians suggest that the 'primeval' world was an ideal one. God intended continuity, tranquillity and longevity for humans, in keeping with the 'paradise' story in Genesis 2-3. Otherwise put: The world as it now appeared to the exiles was not the ideal that God had in mind. Genesis 5 supplies no explanation for a departure from the ideal, but the larger context does. Neither does the chapter provide a remedy for the emerging human problem. That remains for subsequent materials in the context, primarily the story of the flood and the 'call' of Abraham.
3. In Genesis 1 humans are blessed and told to 'be fruitful, and multiply, and fill the earth' (v. $\underline{28}$ ). That narrative source continues in ch. 5 where God's blessing begins to materialize: one generation follows another with mathematical regularity. Despite the human rebellion to which chs. 2-4 attest, God's blessing continues unabated. This must have been a comforting realization to the initial audience, amidst the negativism of the surrounding Babylonian and Canaanite cultures.
4. When the so-called 'Primeval Story' (Gen. 1-11) was prefaced to that of the history of the patriarchs, the call of Abraham and Sarah became the goal toward which the entire story seemed to move. The purpose of their call became God's response to the condition to which humanity has descended. They are to become the beginning of a community through which 'all the families of the earth will be blessed'. Even so, that blessing was a long time in coming, as the genealogy in ch. 5 makes clear. Repeatedly we read, 'X lived so many years, and he died ... his son Y lived so many years and he died'. How things will ultimately turn out is not yet clear in transit. The generations rise and pass away. Only at some future date does God's sovereignty, God's saving activity in history, become clear.

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