

"children of Israel" were in Egypt 430 years, and Moses was 80 when he led the exodus. So Hill states that Moses "must have been born ... 350 years after Kohath, who consequently could not have been his grandfather" (p. 248). Hill counts this as a gap of 300 years in biblical chronology, assuming that Kohath was around 50 when he begat the line of Moses. However, this gap does not exist because Hill's conclusion is based on a faulty premise: that the 430 years began when Jacob and his sons went to Egypt to join Joseph. According to Paul (Gal. 3:16-17), they began more than 200 years earlier when Abram and Sarai went to Egypt. This interpretation by Paul, a student of Gamaliel, was duly followed in "Reece's Chronological Bible" (1977) and by Bishop Ussher (1650), as noted by James Barr in "Archbishop Ussher and Biblical Chronology" (*Bulletin of the John Rylands University, Library of Manchester*, 67: 575-608). Reece, for example, has Jacob and his sons moving to Egypt 135 years before Moses' birth, which presents no problem fitting the male line of Levi → Kohath → Amram → Moses into that time frame. If Levi went to Egypt when he was 46 (approx. 7 years older than Joseph) and his son Kohath was 3, then Kohath could have begotten Amram 66 years later, at age 69, and Amram could have begotten Moses at age 69, and therefore 135 years (66 + 69) after the move to Egypt.

Hill does not mention a different problem associated with Moses' mother. Jochebed was a daughter of Levi (Num. 26:59) and a sister of Kohath (Exod. 6:20), which means her husband Amram was her nephew. Presumably she was younger than Amram's 69 (+ or -) years when Moses was born. That would make Levi an advanced senior citizen when he begat her. For instance, if she was 46 at Moses birth, Levi would have been 135 at her birth, which would have been 135 years after the move to Egypt (135 + or -46). Abraham was at least 137 when he began to beget six sons with Keturah, whom he took as a wife sometime after Sara died at age 127 (Gen. 23:1; 25:1-2), he being 10 years older (Gen. 17:17).

And so Hill's gaps of 70 and 300 years disappear. The next problem she mentions about "begat" (p. 248) also disappears on scrutiny. In arguing that "begat" may not indicate descent from father to son, she cites as an example Kohath's sons: "the third, fourth, and fifth names represent brothers, not sons, as shown by comparing Exod. 6:24 with 1 Chron. 6:36-37" (p. 248). These verses do not relate to Kohath's sons or brothers. Exodus 6:24 lists three sons of Koreth, who was a grandson of Kohath. Kohath's four sons are listed in Exod. 6:18 as Amram, Izhar, Hebron, and Uzziel. This information is repeated in 1 Chron. 6:2 and again in 6:18; it is not contradicted in 1 Chron. 6:36-37, which deals with Kohath's descendants thru Izhar.

Hill uses this mistaken example involving Kohath to support her contention that "When it is said (Gen. 5:9) 'and Enosh lived ninety years, and begat Kenan' ... perhaps Enosh was ninety ... when his grandson or great-grandson Kenan was born ... how do we know that Kenan was the immediate son?" (p. 248). Well, we know because Gen. 5:9 says so, quite clearly by giving Enosh's age when he begat Kenan. But even if there were a gap of a name or two in between Enosh and Kenan, there is still a period of 90 years between them, and not a gap in time that could "push biblical chronology back several hundred years ..." (p. 249).

Hill not only challenges (unsuccessfully) the age at, and sequence of begetting by patriarchs but also their longevities as recorded in Genesis. She cites as evidence against Shem's great longevity that he "would have survived Abraham by 35 years, but where does the Bible indicate ... these men were coeval?" (p. 244). The answer is simple: In Genesis, in the very verses that Hill used to calculate that they were coeval! Perhaps Hill requires a Bible story about Abraham visiting Shem. Maybe a visit did occur. The absence of evidence (of a visit) is not necessarily evidence of absence.

There is an absence of convincing evidence for inconsistencies in the Bible concerning the patriarchal ages and begetting sequence in Hill's article. However, Hill does point out that all of these ages appear to be based on multiples of 60, which underlies the "sacred" sexagesimal system used in Mesopotamia. A major point of her article is that none of these ages end in 1 or 6, a highly significant departure from expectation by chance alone. This is as amazing, statistically, as the ages themselves (compared to nonpatriarchs).

One hypothesis to explain this phenomenon is that somebody slightly modified each age by + or -1 or a few years so that they became sexagesimal multiples, and not ending in 1 or 6. Hill's hypothesis is that much more extensive changes were made, extending the ages by decades or centuries, which is why she devotes much of the article in trying to show inconsistencies in the Bible relative to these names. She puts it this way:

Whatever the ... intent of the biblical writer for each of the patriarchal ages ... the overall purpose ... was to preserve the harmony of numbers ... the patriarchal ages in Genesis are not real numbers ... Were these numbers "assigned" to the patriarchs on the basis of their ... relationship with God?" (p. 244).

The above quote suggests, but passes by an alternative hypothesis, that God assigned the patriarchal ages. Psalm 139:16 puts it this way: "All the days ordained for me were written in your book before one of them came to be," and I trust that applies to the patriarchs as well.

Those interested in a detailed treatment of biblical numbers may want to examine a recent book not included in "Notes" at the end of Hill's article. *Genesis Numerology* 2d ed. (2003, ISBN 965 90620-0-1), by Meir Bar-Ilan has the title and brief chapter summaries translated into English but it is written in Hebrew.

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Apparent Age

Dick Fischer, in "Young-Earth Creationism: A Literal Mistake" (*PSCF* 55, no. 4 [December 2003]: 222-31), rejects the Young-Earth Creationists (YEC) "appearance of age" argument as "flawed" mainly on the grounds that it makes God a liar. Although I am not a YEC, I propose that Fischer's total rejection of the concept of apparent age may

ultimately entail rejection of any supernatural creation regardless of when or in what form.

Scientific estimates of age are based on the backward projection of natural changes whose rates are known. Consider that a gray-headed person is observed to have a somewhat wrinkled face and a hesitant gait. One might guess the person's age to be perhaps eighty years. We do this by knowing something about the rate of the aging process and judge that it would require about eighty years for a normal person to reach this condition. Similarly, knowing the rate for formation of tree rings, we project backward to estimate the age of a tree. Knowing the C14 content of an object and the rate of decay to C12 we can estimate the age of certain organic artifacts. The assumption underlying this procedure is that an unbroken chain of natural events lies back of whatever entities we observe.

In the case of a supernaturally created entity, there is not an unbroken line of natural events leading to its present state. Applying otherwise valid scientific methods, the determination of age will inevitably lead to a false conclusion. Thus when Jesus turned water into wine, the guests considered it the best wine served at the party. They made the natural assumption that the usual series of fermentation events had taken place, a process requiring time. However, Jesus had performed a supernatural act, which bypassed the usual sequence of events and produced good wine within the hour. Without the testimony of witnesses about what had been done, the guests would have been "deceived."

If the heavens and earth were ever created at any time or in any stage, there is no way in which scientific methods could arrive at the conclusion that they came into existence by a supernatural act outside the scope of science. The scientist will always assume that a series of natural events produced whatever entity is being evaluated for its age. Therefore unless the concept of supernatural creation is abandoned there will inevitably be the "appearance of age" for whatever was created. If the act of creation is pushed back to the "Big Bang" the scientific approach will assume there were as yet unknown precursors. Modern science is unwilling to assume a creative act that is forever beyond understanding.

Given the inevitability of a conflict between scientific estimates of age and the "true" age of created entities, it is improper to accuse God of lying since the problem lies in the inherent limitation of scientific methods applied to supernatural events. God has told us that he is the Creator of all things. Jesus was not a deceiver when the wedding guests believed they were enjoying normally aged wine since the witnesses could testify about what happened. I do not know the solution to the problem, but to reject apparent age out of hand is to leave the door open to the abandonment of the concept of supernatural creation.

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Mature Creation

One way of trying to reconcile Genesis and modern science employs the idea that when God created the universe

it had the appearance of age (trees had rings, pebbles were smooth, stars shone, and so forth).¹ In his recent paper on young-earth creation, Dick Fischer criticizes this idea on the ground that it makes God dishonest.² Many others have taken the same view.³ This criticism, however, presupposes that God could have made a young universe without the appearance of age.

Let us suppose that the universe is a completely determined dynamical system, such that its state at noon GMT tomorrow can, in principle, be predicted from its state at noon today. Then its state (as represented by the positions of its elementary components) can be expressed as a continuous function of time, $f(t)$, where $t = 0$ is the time of creation. Now since f is a continuous function, states can be calculated from f for $t < 0$. Thus, when, at $t = 0$, the system is created, it inevitably appears to have had a previous history. Not even God can create it without it having this appearance. The only exception is if f has a singularity at $t = 0$, as on the big bang model.

A simple example is a pendulum. When a pendulum is made and set in motion, it immediately appears to have been in motion before this. There is nothing its maker can do to prevent this, short of attaching a label stating the time at which he or she set the pendulum going.

If the universe is not a completely determined system (as Bohr understood the quantum theory to imply, but Einstein resisted), the picture is more complicated. A system can now have more than one possible history. Consider, for example, a uranium mineral in a rock. This can have an infinite number of possible histories, depending on which atoms have disintegrated, and when. For many systems, however, there still can be only one macroscopic history. This is the case for a uranium mineral. This has a history in which atoms, collectively, have disintegrated at a constant rate. The universe at $t = 0$, therefore, will appear to have an infinite number of quantum histories, but a smaller number of macroscopic ones.

Here I have interpreted the quantum theory pragmatically. There are other, more radical interpretations. According to one, even recent history is only apparent.⁴

That a mature creation does not make God dishonest was argued by the late Donald M. MacKay in reply to Charles Kingsley. He wrote:

... whatever the peculiarities of Gosse's view, the point apparently missed by Kingsley is that some kind of inferable past is inevitably implicit in any ongoing system, whether with fossils or without, so that to speak of falsehood here is to suggest a non-existent option ... If the creator in the Genesis narrative were supposed to make the rocks without fossils, this would not have helped, for nothing could have prevented the rocks from having some physically inferable past; their past simply would have been different and moreover inconsistent with the rest of the created natural history. On Kingsley's argument, pressed to its logical conclusion, God ought not to have created any matter at all, since even molecules cannot help having some inferable past history.⁵

MacKay himself went further than Gosse and suggested that creation is the bringing into being of the *whole* of our space-time: past, present, and future.