

[C-5] How Long Was A Day In Genesis?

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Whatever a person wants to believe about how long a day was in the first chapter of Genesis, it is a Biblical fact that nowhere in the Old Testament does the Hebrew word for "day" {yom [יום]} ever refer to anything other than a normal, approximately 24 hour, day when a **number** is attached to the word. **To say that the word had a different meaning in the first chapter of Genesis than it has in the rest of Scripture cannot be supported Biblically.** **The fourth commandment to observe the sabbath {Ex. 20:11} eliminates any question as to the fact that first chapter refers to literal days.**

By reviewing the book of Genesis concerning the Great Flood of Noah, some interesting calendar information can be determined as factual concerning the original calendar, and other things which we may not be able to prove Biblically with absolute certainty about the calendar may be mathematically and scientifically supported.

We know from the Genesis account of the Great Flood that the months mentioned had to be **30 days** in length (Gen. 7:11,24; 8:3-4). The account given indicates that there were 150 days in five months.

Gen 7:11 In the six hundredth year of Noah's life, in the second month, the seventeenth day of the month, the same day were all the fountains of the great deep broken up, and the windows of heaven were opened.

Gen 8:3-4 (3) And the waters returned from off the earth continually: and after the end of the hundred and fifty days the waters were abated. **(4)** And the ark rested in the seventh month, on the seventeenth day of the month, upon the mountains of Ararat.

Our own calendar for the five months from February 1 to June 30 totals 150 days on a normal year – but not on a leap year! We also know that according to the law of Moses given by the Lord, that the Jews were to mark off the months by the new moon and that there were 12 months in a year. The thought occurred to me that perhaps the earth originally had exactly 12 lunar months in a year, but that this was changed either at the time of the Flood or some other early historical event. The following calculations imply that this hypothesis has mathematical support.

(Astronomical data comes from: Astronomy, ninth edition, by Baker and Fredrich, copyright 1971.)

Earth's revolution about the sun (Tropical Year)[time from vernal {spring} equinox to vernal equinox]: 365.24220 days

Synodic Month (time from new moon to new moon): 29.53059 days

{Astronomical note: the calendar is based on the Tropical Year [time from vernal equinox to vernal equinox, not the Sidereal Year [time to return to the same location in relation to the constellations.] For a more technical explanation on these differences see the above mentioned book or others on Astronomy.}

Suppose that the earth's rotation on its own axis originally was faster so that the Synodic Month was originally exactly 30.0 days, but by some force the earth's rotation was slowed down to the present Synodic Month. Assume also that the earth's period of revolution about the sun remains constant. The result would be approximately a 371 day Tropical Year. This is because the earth would rotate 371 times on its axis during one complete orbit of the sun due to its faster rotational speed.{See the calculations below.} **The earth is now rotating slower**, because it doesn't make **30** complete rotations during the passage of a lunar cycle. It only makes **29.53059** rotations during the lunar cycle. The fact that the earth is presently rotating slower than it did even a hundred years ago is well documented. {This past December 31, 2005, atomic clocks all over the world were adjusted for the slow down that is presently still in progress.} The slow down of the earth's rotation is caused by a number of factors. One cause is the fact that the mass of water on the surface of the earth increased during the time of Noah. Another reason is the fact that the earth's radius is slightly larger today than it was in the time of Noah. Still another cause is "tidal friction" caused by the motion of the tides. All of these factors would cause the earth's rotational speed to decrease, the first two would cause the rotation to slow down in order to conserve angular momentum. [Similar to an ice skater who slows down in rotational speed when he/she extends his/her arms.] [By the way, the increase in the earth's radius would also result in a lower atmospheric pressure today as compared to years past and experiments with the isobaric chamber at Glen Rose, Texas supports a wide range of scientific results of that increased atmospheric pressure.]

If this slow down did in fact occur, we can calculate the actual length of a day at the time of Noah and prior to the flood by a simple inverse proportion. {It is an inverse proportion because as we speed up the earth's rotation on its own axis, the amount of time it takes to complete one full day cycle - day-night decreases.}

$$\frac{29.53059}{30.00000} = \frac{x}{24.0}$$

$$x = 23.62447 \text{ hours / day}$$

The actual slow down would amount to 22.5 minutes per day. Thus the original day length would have been **23 hours, 37.5 minutes** long by our present time keeping methods.

To find the actual number of rotations of the earth on its own axis during one year using this faster rotational speed, we can use another direct proportion: {It is a direct proportion because as we speed up the earth's rotation on its own axis, the number of days from vernal equinox to vernal equinox increases.}

$$\frac{29.53059}{30.00000} = \frac{365.24220}{x}$$

$$x = 371.04799 \text{ days in a single tropical year.}$$

According to Kepler's laws, the square of the time period of a planet's revolution around the sun is directly proportional to the cube of its average distance from the sun. The earth's mean {average} distance from the sun is: 149,598 kilometers {approximately 93 million miles} It's actual distance from the sun is 1.7% less at its closest point {perihelion} and 1.7% more at its maximum distance {aphelion}.

By using Kepler's laws, we can determine the average distance from the sun the earth would have to be in order to have a 360 day year using the faster rotation of the earth upon its axis:

$$\left| \frac{x}{149598 \text{ km}} \right|^3 = \left| \frac{360}{371.04799} \right|^2 \quad \text{----> } x = 146,614 \text{ km}$$

This is 1.995% less than the earth's present mean distance from the sun. or 0.2995% less than its present closest approach to the sun {perihelion}.

This means that the earth would receive slightly more solar heating than it would at the present distance from the sun. It also means there would be a greater evaporation of moisture from the surface of the earth into the earth's atmosphere. In *The Genesis Flood*, by J.C. Whitcomb, Jr. and H.M. Morris, it is proposed that at one time, namely before the Flood, the earth was enveloped by a vapor barrier which was largely dissipated at the time of the Flood. The

increase in the earth's mass at the crust caused by the increased water on the surface of the earth may have caused the earth's rotation to slow down due to the laws of conservation of angular momentum. These calculations support that theory.

If the earth were pulled into its present elliptical orbit by a passing mass in the solar system, the cool down, however slight, may have precipitated the rain during the Great Flood.

Based on the above calculations we can conclude that the original year could have in fact consisted of 12 - 30 day lunar months totaling 360 days. With the dissipation of the earth's vapor barrier the earth's rotation was slowed down due to conservation of angular momentum and instant climatic changes occurred freezing the polar caps and creating a mass of ice over a large portion of the earth. {This mass of ice covered a large portion of North America.} See the section entitled: When Was The Ice Age?

Scriptural references: Earth's rotation stopped-- Josh. 10:12-14
Earth's rotation reversed-- Is. 38:4-8; II Ki. 20:8-11