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# Comments on Ussher's Date of Creation

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## Abstract

Ussher's date of creation of October 23, 4004 BC appears to rely upon two questionable assumptions. One assumption concerns conformity with an expected 6000 years of history. Because we are now well into the seventh millennium after Ussher's date of creation, this assumption appears to be void. The other assumption concerns the coincidence of the creation with *Rosh Hashanah*, which would require that the moon was at a particular phase on that date. However, there is question as to whether the moon was at the appropriate phase on that date. Furthermore, it would not be possible to ascertain the date from the moon's phase on the calendar that Ussher proposed that the ancient Hebrews used. Absent these two assumptions, there is no compelling reason to insist upon the precise Ussher date of creation, so biblical creationists are free to explore alternate dates of creation, within the limits of biblical chronological information, if determination of the precise date is even possible.

**Keywords:** Ussher, chronology, new moon

## Introduction

Irish archbishop James Ussher published his famous chronology in two parts, one in 1650, and the other in 1654. Originally in Latin, the two parts were combined into a single English edition in 1658. In his heavily researched tome, Ussher dated events from the creation through the destruction of Jerusalem in AD 70 and shortly thereafter. Recently, Pierce and Pierce (2003) produced a revision of the earlier English translation. Contrary to popular misconception, Ussher did not rely solely upon the Bible in his work, nor did he date only biblical events. Rather, he attempted to date all known historical events, both biblical and extra-biblical. For instance, Ussher determined the dates of the deaths of Alexander the Great and Julius Caesar very closely to the modern accepted ones. These events are not mentioned in Scripture. Ussher used all chronologies available to him, and secular chronologies accounted for the bulk of his resources (according to Jones [2005, iii], only about 15% of Ussher's text was from Scripture). However, secular sources dated only to the later stages of antiquity, so all of the earlier dates in Ussher's chronology came from his interpretation of the biblical text.

Ussher probably is best known for his conclusion that the Creation Week began on October 23, 4004 BC.[1] In most people's minds, this is the source of the common belief among biblical creationists that the world is only about 6000 years old. However Ussher was not the first, nor was he the only one, to attempt such a feat, for several contemporaries and near-contemporaries also computed ancient chronologies. Attempts to date creation this way predated Ussher by at least 15 centuries. In the second century AD, Rabbi Jose ben Halafta determined that the date of creation was 3761 BC. Also in the second century AD, Julius Africanus dated the creation to 5501 BC. The large discrepancy between these dates of creation mostly is due to the differences between the Septuagint and the Hebrew text of the Old Testament in the chronologies of Genesis 5 and 11. Africanus used the Septuagint, a decision that influenced many other early church chronologers, who reached similar dates for the creation. Eventually, the Hebrew text of the Old Testament became the preferred source. In AD 723 the Venerable Bede determined that the creation was in 3952 BC. Martin Luther thought that the creation was in 3960 BC, while his collaborator Philip Melanchton dated the creation to 3963 BC. John Lightfoot's chronology often is confused with Ussher's. Lightfoot published his work in 1644, just a few years before Ussher, in which he concluded that the creation was in 3929 BC. At least two astronomers weighed in: Isaac Newton determined that the creation was around 4000 BC, while Johannes Kepler concluded that the creation was in 3992 BC. This is just a small sample of various computations of the date of creation; Sexton (2015) recently has compiled several more sources with their various dates of creation.

Jones (2005, 26) reproduced a table of dates of creation computed by various sources. One worthy of note is Joseph Justus Scaliger, who arrived at a creation date of 3949 BC. Scaliger is important, because he introduced the Julian period, a 7980

[1] The Jews reckon the beginning of the day at sundown, but we start the day at midnight. Therefore, technically on our calendar the creation would have commenced the evening of the day before, Saturday, October 22, 4004 BC.

year cycle that began on January 1, 4713 BC, as an aid in computing chronologies. The Julian period is the product of three shorter cycles, the Roman indiction, the Metonic cycle, and the solar cycle. The Roman indiction period was a 15 year cycle of taxation in ancient Rome. This was useful in treating chronologies from the Roman period and shortly after. The Metonic cycle is a 19 year period over which lunar phases repeat on respective dates on the Julian calendar. This was useful in comparing dates on lunar or lunisolar calendars with dates on solar calendars. The solar cycle is the period of 28 years over which the days of the week repeat on the Julian calendar. This was helpful in determining which day of the week various dates fell upon. The number 19 from the Metonic period is prime, and the other two cycles are multiples of nearly different prime numbers, so the three cycles will repeat only after the product of all three cycles (7980 years). Scaliger arbitrarily selected the date of Sunday, January 1, 4713 BC as the starting point (treating the starting point as day zero, rather than day one), because it pre-dated all historical dates, so all dates in the Julian period would be positive. While intended as a convenient tool in comparing different calendars, the Julian period has other uses. In 1849 the astronomer John Herschel proposed the starting point of the Julian period as a basis of sequential numbering of days. Julian day number permits easy computation of the difference in time between any two dates. Astronomers find this particularly useful, such as in work with variable stars. Ussher expressed years in terms of BC/AD, Julian period (JP), and *anno mundi* (year of the world, AM).

From the range of dates for the creation of the world from various chronologies mentioned above, we can draw two broad conclusions. First, the age of the world, as determined from biblical texts,[2] is approximately 6000 years.[3] Thus, the conclusion that the world is approximately 6000 years old does not rely solely upon Ussher. Second, the range in the dates of creation determined by various authors demonstrates that exact precision in establishing the age of creation is not possible. The people who determined these various dates of creation used much the same data, but they reached different conclusions. This is because of differences in assumptions that they made.[4] The elevated role of Ussher's chronology stems from its inclusion in the King James Version of the Bible by 1701. This, in turn, probably resulted from Ussher's high regard within the Anglican Church. In some respects, the vaulted status of Ussher's chronology is an accident of history—if another chronology had been inserted into the King James Version, the date of creation of that chronology would be foremost in peoples' minds, not Ussher's.

One of the differences between various chronologies is how one handles any particular specified length of time in the biblical chronologies. For instance, in the United States, the age of 21 for all intents and purposes is the age one must attain to be considered fully an adult. A man does not acquire that age until he has reached his twenty-first birthday. However, in some cultures, such as those in biblical times, a man was said to be 21 years old immediately after he reached his twentieth birthday. That is because that culture counted any portion of a year as a full year, as a man was in his twenty-first year as soon as he reached the twentieth anniversary of his birth. This amounts to rounding up. However, in our culture, we do not count a portion of year, so our practice amounts to rounding down, or truncating lengths of time. In other situations today, we tend to round to the nearest integer. For instance, if a man has held a particular job for a little more than nine and a half years, we might round this figure and say that he has worked at his job for ten years. We probably would not say that he has worked for 11 years until he has worked at least more than a half year longer than ten years. One must take this factor into consideration when handling the lengths of time recorded in the Old Testament, such as how long one lived before the birth of a named son, or the calculation of the duration of a king's reign (accession or non-accession reckoning). It is inevitable that something akin to round-off error begins to accumulate. Therefore, it is presumptuous to insist that one can precisely determine the date of creation even to the year, let alone the day, without some additional information or assumptions. This is just one difficulty in assessing biblical dates. There are others.

It is not the purpose this paper to give full discussion of the complex topic of biblical chronology, or even the Ussher chronology. Rather, here I will discuss Ussher's methodology with regards to the

[2] It should be pointed out that it is not possible to produce absolute dates using solely biblical data, because there were four centuries of silence between the last recorded events of the Old Testament and the earliest recorded events in the New Testament. Extra-biblical sources are useful in establishing anchor points, such as the destruction of Solomon's Temple.

[3] This assumes two things. The first assumption is that the chronologies of the Masoretic Text are to be preferred over the Septuagint and the Samaritan Pentateuch. If one were to follow the reading of Septuagint rather than the Masoretic Text in Genesis 5 and 11, there would be an addition of at most 1500 years. The second assumption is that there are no gaps in the Genesis 5 and 11 genealogies. Even if there were modest gaps, they would not add significantly to the 6000 year age.

[4] An excellent example of the required assumptions is how one deals with the duration of the sojourn in Egypt, as given in Genesis 5:13, Exodus 12:40, Acts 7:6, and Galatians 3:17.

date of creation, and especially what appears to be key assumptions that Ussher made in determining the date of creation.

### Ussher's Assumptions

Though Ussher did not explicitly state them in his book on chronology, there appear to be two assumptions that persuaded Ussher that he could determine the beginning of creation to the day. One assumption was that there were exactly 3000 years between the creation and the dedication of Solomon's Temple and another thousand years from the dedication of the Temple to the birth of Christ (Barr 1985). Ussher dated the birth of Jesus in 4 BC and the Temple's dedication to 1004 BC, so with this assumption, the creation must have been in 4004 BC. There is no biblical statement that requires this. Rather, this assumption probably stemmed from a common belief, dating to at least the early Middle Ages and the early Church, that there would be 6000 years of human history, in parallel with the Creation Week in light of 2 Peter 3:8 (which is an allusion to Psalm 90:4).[5] Ussher determined that Herod died in 4 BC, a date affirmed by the vast majority of historians today.[6] Jesus' birth must have been shortly prior to Herod's death, likely in 5 BC. More specifically, Ussher dated the birth of Jesus to late 5 BC, and the circumcision of Jesus early in 4 BC (Pierce and Pierce 2003, 779). Since these events were only eight days apart (as required by the Law; Leviticus 12:1–3; Luke 2:21), Ussher apparently endorsed the traditional December 25 date of Jesus' birth. However, few scholars today believe that this was the date of Jesus' birth. According to 1 Kings 8:2 and 2 Chronicles 5:3, Solomon dedicated the Temple at the time of the feast during the month of *Ethanim*, the seventh month on the Hebrew ceremonial calendar (September or October on the Gregorian calendar). Ussher fixed the year of the dedication as 1004 BC (Pierce and Pierce 2013, 68). This means that the length of time between Solomon's dedication of the Temple and the birth of Jesus was nine months short of being exactly 1000 years.[7] It seemed fitting to Ussher that the creation was exactly 3000 years prior to the Temple's construction, and exactly 4000 years prior to the Messiah's birth. Of course, that would anticipate the end of the age in AD 1997,[8] exactly 2000 years after Jesus' birth and 6000 years after the creation. Since two decades have elapsed since 1997, enthusiasm for this belief has waned considerably in recent years. Yet, steadfast belief in the earlier 3000 year and 1000 year increments remains.

Incidentally, during exactly which feast in the month of *Ethanim* was the Temple dedicated? There were three observances during *Ethanim*. The first day of the month was the Feast of Trumpets (Leviticus 23:23–25). The tenth day of the month was the Day of Atonement (*Yom Kippur*) (Leviticus 23:26–32). The fifteenth day of the month began the eight-day Feast of Booths (*sukkot*) (Leviticus 23:33–43). Though Ussher did not clearly identify which feast it was, most Bible scholars seem to think that the latter was the intended feast.

The second assumption that Ussher made derived from Jewish tradition. The Feast of Trumpets also is called *Rosh Hashanah*. *Tishri*, the Babylonian name by which the month of *Ethanim* is now commonly known, is the first month on the Hebrew civil calendar. *Rosh Hashanah*, which means "head of the year," is the first day of *Ethanim*, and it amounts to the Hebrew New Year. According to Jewish tradition, *Rosh Hashanah* was the date of the first day of the Creation Week. For instance, in 2015 *Rosh Hashanah* was on September 14, ushering in year 5776 since the creation of the world (Jewish tradition places the creation in the year 3761 BC). This tradition of dating the age of the world allegedly goes back to Hillel II in the late fourth century. In the year 4004 BC, *Rosh Hashanah* fell on or close to October 23, Ussher's chosen date for the beginning of creation, strongly suggesting that Ussher chose this date because of Jewish tradition. Notice that the Jewish reckoning of the date of creation is at variance with Ussher by 243 years. While Ussher apparently accepted the Hebrew tradition of the particular day of the commencement of creation was correct, he rejected the particular

[5] The belief of the seven days of the Creation Week being played out in 7000 years of the world, with 6000 years of human history in parallel with the six days of creation and the Millennium in parallel with the seventh day of rest appeared relatively early in the church. It is ironic that this motif was spawned by allegorists who eventually abandoned a literal millennium, which would seem to eliminate the basis for the motif. Adding to the irony is that later, some who interpret Scripture more literally, and hence believe in a literal Millennium, adopted this motif, even though the motif relies upon an allegorical understanding of 2 Peter 3:8.

[6] However, some recent research has challenged this. As an example, see Steinmann (2009).

[7] It is interesting to note that some Christians today want to date the birth of Jesus early in the month of *Ethanim*, perhaps even on the day of the Feast of Trumpets. This appears to be more related to eschatological matters, so it is not clear if they wish to make an exact thousand year difference between Solomon's dedication of the Temple and the birth of Jesus. Many of these people would date the birth of Jesus to 2 BC, which would require adjustment to Ussher's date of the Temple's dedication, assuming an exact thousand years between the two events. Most of the proponents of this sort of idea have promoted it via internet videos.

[8] There was no year zero—the year 1 BC was immediately followed by the year AD 1. For computational purposes, it is convenient to abandon the use of BC and use negative numbers, as well as zero. That is, 1 BC becomes year 0, 2 BC becomes year –1, 3 BC becomes year –2, and so forth. Therefore, 4004 BC becomes year –4003. This usually is called the astronomical date, to distinguish it from BC.

year, since it did not coincide with his computation from biblical records.[9] Ussher further reasoned that Day One of the Creation Week ought to coincide with the first day of *Ethanim*, though God did not make the moon, upon which the month was to be based, until Day Four (Pierce and Pierce, 2003, 17). With this assumption, along with the assumption that there were 3000 years between the creation of the world and the dedication of the Temple, Ussher arrived at the year of creation being 4004 BC. Note that if Day One of the Creation Week is commemorated with *Rosh Hashanah* and the Temple's dedication was at the Feast the Booths, then there were not exactly 3000 years, to the day, between the two events. However, Ussher recognized that there were not exactly 1000 years to the day between the Temple's dedication and the birth of Christ. In his preface, Ussher (Pierce and Pierce 2003, 9) commented that the Temple was completed (the year before the Temple's dedication) in the three thousandth year of the world and that Jesus was born in the four thousandth year of the world. This is an explicit acknowledgment that Ussher did not think that the correspondence needed be to the exact day.

There is one biblical constraint as to the first day of creation—according to Genesis 1, Day One of the Creation Week was the first day of the week, a Sunday. This automatically eliminates six-sevenths of all dates of creation in the ancient past that otherwise would be within the proper range of possible dates required by biblical genealogies and other historic clues. Indeed, Ussher's chosen day for the beginning of creation, October 23, 4004 BC, was a Sunday. If one makes any other assumptions, then those assumptions introduce additional constraints. For instance, it is commonly believed that Ussher chose the October 23, 4004 BC date for the beginning of creation, because that date fell either on or close to the autumnal equinox. In an editorial note, Pierce and Pierce (2003, 17) stated Ussher's date for the first day of creation was the first Sunday after the autumnal equinox that year. However, using the most precise length of the tropical year, I compute that the autumnal equinox was October 26 that year, three days after Ussher's date for the beginning of creation. Therefore, it appears that Ussher's date of the beginning of creation neither coincided with nor shortly followed the autumnal equinox. Again, it is generally believed that Ussher assumed the coincidence of the autumnal equinox and the first day of creation, though Ussher did not explicitly state that.

As mentioned above, it is commonly believed that Ussher further assumed, in line with Jewish tradition, that the first day of creation also was *Rosh Hashanah*, that is, it must have coincided with the first day of *Ethanim*. However, Ussher did not state this. The Jewish calendar is a lunisolar calendar, which is very different from our modern solar calendar. On a lunar calendar, the months are synchronized to the moon's phases. Because the synodic month, the period over which lunar phases repeat, is approximately 29½ days, months on a lunar calendar normally alternate between 29 and 30 days. Twelve lunar months are about ten days short of a year, so a lunar calendar drifts roughly ten days earlier with respect to the seasons each year. A lunisolar calendar fixes this problem by inserting an intercalary month approximately every third year to bring the calendar back into alignment with the seasons. As with a lunar calendar, the months on a lunisolar calendar typically alternated between 29 and 30 days. For more discussion of calendars, see Faulkner (2012). Because the months on the Jewish calendar average about 29½ days, within a particular year, there is about a 3% chance of coincidence of the autumnal equinox and *Rosh Hashanah*. When one further adds the biblical constraint of Day One being a Sunday, the constraint is rather tight. In an editorial note, Pierce and Pierce (2003, 17) stated that if the moon had existed at the beginning of creation on October 23, 4004, it must have been a new moon, underscoring that this was Ussher's assumption. Let us check this determination of new moon.

## When Was New Moon Near the Time of the Autumnal Equinox in 4004 BC?

Astronomical new moon is defined as the moment when the moon and sun have the same ecliptic longitude.[10] However, the moon is not visible at astronomical new moon, and generally it is not visible for a day or more on either side of astronomical new moon. For calendric use, as with a lunar or lunisolar calendar, astronomical new moon is worthless, because it is not visible (even today we generally cannot observe the time of new moon, but rather we compute it). Instead, in ancient calendars new moon generally was established by the last visible waning crescent moon in the morning or the first visible waxing crescent in the evening. The latter was by far the more common practice, and is the basis for the start of the month on the Jewish calendar. This is particularly useful when one considers that in Hebrew

[9] Note, however, that the Jewish reckoning of the date of creation relies upon the same Old Testament passages. The difference between Ussher and the traditional Jewish dates of creation results from different assumptions.

[10] The ecliptic is the plane of the earth's orbit around the sun, so the sun's position as seen from the earth always is precisely on the ecliptic. Due to the tilt of the moon's orbit around the earth (a little more than 5°), the moon normally does not pass directly in front the sun when it is new. Ecliptic longitude is measured along the ecliptic, so when the moon has the same ecliptic longitude of the sun, it is within minutes of time of being as close as possible to the sun as seen from earth.

reckoning, the day begins at sunset, just minutes before the thin crescent first would be visible. Thus, one could determine in a matter of minutes whether the day that had just begun was the first day of the new month. The first of the month was observed as a holy day (Numbers 10:10; 28:11–15). Some people, including Ussher, suggest that the ancient Hebrews observed a solar calendar with months that did not coincide with the moon's phases, but this does not appear to be the case. Lest there be any doubt, where the first of the month sacrifice observance is mentioned elsewhere (1 Samuel 20:5; 1 Chronicles 23:31; 2 Chronicles 2:4; Ezra 3:5; Psalm 81:3; Isaiah 1:13–14; Ezekiel 45:17; 46:6; Hosea 2:11), the term used literally means new moon.[11] This does not make sense if any other sort of month were used so that the new moon and the first of the month did not coincide.

We can determine with some degree of accuracy when astronomical new moon occurred in the ancient past. From the time of astronomical new moon, one may estimate the likely day when the thin crescent moon first would have been visible, marking the beginning of the month on the Jewish calendar. The moon's revolution and the earth's rotation are reasonably constant over the short term, but over the long term, several long-term trends must be accounted for. Sophisticated algorithms exist to do this, but they are not readily available, particularly at the early epochs, such as the year 4004 BC. This is because this is long before any written records generally are thought to exist, so there would be no point to computation of lunar positions then. To do this, I did a short-term extrapolation from a date of new moon from the Ten Millennium Canon of Eclipses http://eclipse.gsfc.nasa.gov/SEcatmax/SEcatmax.html. The earliest eclipse listed in this canon is the total solar eclipse of June 14, 4000 BC. The time of mid-eclipse was 1:59:34 Universal Time (UT). For purposes here, UT and Greenwich Mean Time (GMT) are the same. This corresponds to Julian date 260,587.583. Being the time of mid-eclipse of a total solar eclipse, this clearly was the time of astronomical new moon.

The perspective of the Creation account of Genesis 1–2 appears to be the Garden of Eden. Based upon the Genesis 2:10–14 description of the four rivers that proceeded out of Eden, at the time of Ussher, nearly everyone thought that the location of the Garden of Eden was either in Israel or nearby.[12] Because Ussher probably used Israel as his reference, it is important to express the time in terms of Israel's location. Israel Standard Time (IST) is two hours later than UT. That is, IST=UT + 2 hours. The exact correction for local time is a matter of minutes; for purposes here, consideration of local time is not necessary. For computations at the time of the autumnal equinox, the sun sets at 6:00 p.m. (18:00 hours) IST, or 4:00 p.m. (16:00 hours) UT. Shortly after sunset would be the appropriate time to ascertain whether the thin crescent moon would have been visible, and hence defined the first day of the month on the Jewish calendar. The moon is extremely difficult to see if the time is less than 18 hours after astronomical new moon.[13] If the time since astronomical new moon is more than 24 hours, the moon is relatively easy to see, under good conditions. Julian day numbers begin at noon UT, so the appropriate fraction of a day at 4:00 p.m. UTC is 0.1667. If the creation began at the previous sunset, the beginning of Sunday, October 23, 4004 BC (–4003) as Ussher maintained, then the Julian date was 259,257.1667 (October 22 16:00 UT). This Julian date is about 45 synodic months earlier than the time of new moon gleaned from the solar eclipse discussed above. Hence, subtraction of 45 synodic months from the Julian date of that solar eclipse (260,587.583) ought to produce the time of astronomical new moon in October, 4004 BC. This results in a new moon on Julian date 259,258.71, which is more than a day and a half later than the target of Ussher's time of creation. However, a correction for the secular change in the earth's rotation must be applied. According to the canon of eclipses website, the secular correction in 4004 BC was 86,400 seconds, which is one full day. This correction must be applied to the Julian day tabulated in the canon to determine the corresponding date on the Julian calendar. However, the correction over the four years between Ussher's date of creation and the earliest tabulated solar eclipse is miniscule (and far less than the precision of the correction anyway) Therefore, the time of astronomical new moon was 13 hours after Ussher's time of creation. Does this vindicate Ussher's date of creation?

The answer to that question comes down to what kind of calendar that one thinks that the ancient Hebrews used. If the ancient Hebrews used a lunisolar calendar as the Jews definitely have used for nearly 2000 years, then there is a problem. The beginning of Day Two on Ussher's chronology would have been only 11 hours after computed astronomical new moon, far too young to be visible (if the moon had existed on Day Two). Hence, if the moon had existed at the beginning of creation on October 23,

[11] For that matter, the Hebrew word for month means new moon (Koehler and Baumgartner 2001, 294).

[12] This is a common belief even today, though with the upheaval of the Flood, locating the position of anything in the antediluvian world today probably is not possible. The names of two of the four rivers are unknown, but the other two are known. However, they probably are namesakes from the pre-Flood world and not the same rivers. This likely was not a concern to Ussher.

[13] The current record for seeing a young crescent moon with the unaided eye is 15 hours, 32 minutes, by Stephen James O'Meara on May 24, 1990.

4004 BC, then it would not have been visible before the beginning of Day Three. Therefore, the beginning of creation would not have coincided with the first of the month of *Ethanim*. Of course, since the moon did not exist until Day Four, the moon would not actually have been visible from earth before Day Four, assuming that God made the moon early on Day Four. Keep in mind that there were no creatures that could have even seen the moon until Day Five, but for the purposes of our discussion, it is necessary to extrapolate the moon's motion and visibility backward in time in a manner consistent with the calendar. That is, the calendar would have been operable, even if the astronomical bodies on which it is based did not yet exist.

However, Ussher believed that the ancient Hebrews did not observe a lunisolar calendar but a solar calendar (Pierce and Pierce, 2003, 9). There is no evidence that the ancient Hebrews used a solar calendar and then switched to a lunisolar calendar, so why does this belief persist? Some see subtle clues for a solar calendar in the Flood account; for a rebuttal of that position, see Faulkner (2013). On a solar calendar, months are not synchronized with the phases of the moon. Indeed, it is not clear what the point of a month is with a solar calendar. Our modern Gregorian (solar) calendar derived from the Julian calendar, which in turn derived from the Roman lunisolar calendar. Hence, the month is a vestige of a lunisolar or even earlier lunar calendar. However, the adoption of the month makes no sense if the primordial calendar was a solar one, as Ussher maintained. Furthermore, if the primordial calendar was solar, why would one expect it to have started with an astronomical new moon, or any other particular phase?

The Jewish tradition of *Rosh Hashanah* being the anniversary of creation relies upon the assumption of a lunisolar calendar. But if the ancient Hebrews did not observe a lunisolar calendar but a solar calendar, then this Jewish tradition becomes meaningless for the purposes of establishing the date of creation, because we do not know the structure of the hypothetical calendar that the ancient Hebrews used, such as what its starting points were. We know that the trend of other ancient cultures was to move from lunar or lunisolar calendars to solar calendars, so why would the Hebrews have developed their calendar in the opposite direction? The Jews are fastidious about rules. Had the Jews made any serious calendar changes, such as those between a solar and lunisolar calendar, it would have resulted in protracted debate, because it would have required a tremendous change in the dates when the feasts were observed. There is no evidence of this debate ever having occurred.

Some people who adhere to Noah's use of a solar calendar also believe in a catastrophic change in the lengths of the day, month, and year at the time of the Flood. However, if the basis of time measurement so changed at the time of the Flood, the coincidence of astronomical new moon with Ussher's date of creation cannot be established. Hence, a catastrophic change in the calendar at the time of the Flood is incompatible with the October 23, 4004 BC creation date. See Faulkner (2012) for further discussion of the thesis that the year originally was 360 days long, with 30 day months.

## Conclusion

Ussher's date for creation appears strongly to rest upon two assumptions. The first assumption of 6000 years of history in parallel to the first six days of the Creation Week is no longer tenable, because we currently are two decades past 6000 years since Ussher's date of creation. Though Ussher did not explicitly state a second assumption that the first day of creation coincided with *Rosh Hashanah*, most sources suggest that Ussher indeed made this assumption, as do the precision of his date and its near coincidence with *Rosh Hashanah* that year. It may be that Ussher addressed these assumptions elsewhere in his many writings.

Other dates from later time periods that Ussher determined have been shown to be incorrect. An example of this is the destruction of the Temple. According to Ussher, this happened in 588 BC, but modern scholarship places this at 586 BC (or perhaps 587 BC). Even many of Ussher's supporters today, such as Jones (2005), agree with this correction. However, Jones managed to make up those two years in the four centuries prior to the Temple's destruction, thus arriving at the same date of the Temple's dedication that Ussher concluded. This flexibility ought to further underscore that point that such precision is not possible.

There is much greater uncertainty in the earlier dates, such as the creation (which is the earliest date of all). Given the questionable status of Ussher's assumption about the significance of the October 23, 4004 BC date, it is unlikely that this is the correct date of creation. If one is freed of these two assumptions, Ussher's approximate date of creation still is 4000 BC. Given the likelihood of sources of error, such as round-off error, this date could be off by a couple of decades either way. This is of no concern to those committed to biblical authority, because Ussher's chronology is the result of this man's work, and is not part of Scripture. Trust in the authority of Scripture is not undermined by the failure of any extra-biblical text, such as Ussher's chronology.

There are other possible creation dates that are tenable and consistent with biblical data. I encourage biblical creationists to explore these other options. Two obvious considerations are regnal dating of monarchs and the possibility of a longer sojourn in Egypt (430 years as opposed to 215 years, as Ussher supposed). This could move the creation date back to 4200 BC. Less promising, but worthy of discussion, is comparison of Genesis 5 and 11 genealogies in the Masoretic text and the Septuagint (see Sexton 2015).

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