The Conjunction Theory and its Erroneous Suppositions

by

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Persons who advocate the Conjunction Theory for determining the scriptural calendar, instead of the new-moon crescent, make several erroneous suppositions. The most obvious is to choose 1 Nisan as the first day of a scriptural year when the moon is at conjunction, thus not visible. Such persons seem to be directly or indirectly from the World Wide Church of God or its spin-offs.

All should read the exhaustively researched document on biblical calendars by Herb Solinsky, titled the: *Treatise on the Biblical Calendar, 2nd ed.* (TCB2), April 3, 2009, 335 pages. It can be downloaded *free* at www.biblicalcalendar.org/tbc2.pdf .

The following draws from that document.

Three Celestial Objects for Four Purposes

In Genesis the Almighty Yahweh gave mankind three celestial objects which they could *see* (the sun, moon, and stars) to be used for four purposes (for signs, seasons, months, and years).

The celestial objects for determining "months and years"are *visible*. The new-moon crescent is distinct and its brief appearance make it the delimiter the Almighty Yahweh surely intended it to be. Virtually any person in ancient times, today, and into the future, can see the first new-moon crescent after the spring equinox and use it to determine the scriptural calendar. Any person can also visually determine the spring (and autumnal) equinox by the straight shadow the sun casts behind a vertical object on those days.

The Motion of the Moon

The conjunction of an astronomical new-moon occurs about twelve to thirteen times a solar year when the center of the moon, earth, and the sun are aligned instantaneously in one plane, as the moon orbits the earth, and while the earth with the moon orbit the sun. For about three nights spanning the conjunction, the moon cannot be seen from earth because of the glare of the sun.

The motion of the moon and earth seen above from space is that of a rotating planet binary. Such occurs when a planet of great mass interacts orbitally with a nearby planet of comparatively small mass. The movement of each is about their combined center of mass. The planet with the small mass, here the moon, has comparatively much greater movement.

The moon in its significantly elliptical orbit around the earth changes velocity as it approaches its orbital perigee or apogee. Its velocity is most affected by the orientation of the major axis of its elliptical orbit with respect to the earth and sun at apogee and perigee. The velocity of the moon is also affected by the precess of its orbit around the earth.

The moon's orbit is at a 5.3° angle to the planetary plane and the orbit's angle precesses with respect to the plane. There are other lesser celestial influences on the moon.

Within a lunation these factors affect the number of days from the instant of conjunction to the instant of a maximum full moon, and the number of days to the next conjunction. Therefore the supposition that mid-lunation is the instant of maximum fullness of the moon, is erroneous.

Non-obvious Details About the Moon's Orbit

The moon's elliptical orbit precesses around the earth once in 8.85 years (3,233 days). The orientation of the major axis of the moon's orbit with respect to the earth and sun, change the moon's velocity and therefore the time the moon travels from the instant of conjunction to the instant of maximum moon fullness.

An ellipse is a geometric shape defined by two foci. The distance which the foci are separated is called 'offset.' Offset is can be stated in miles or kilometers, but is commonly given as a percentage of the length of the major axis of the ellipse measured in the same unit. One foci of the moons's elliptical orbit is located about 4600 kilometers from the center of, and within, the earth. That foci is at the *center of mass* between the earth and the moon.

The moon is closest to the earth at perigee at which point the moon's velocity is greatest, if that were the only factor involved. Conversely, the farthest point is apogee, at which point the moon's velocity is least, if that were the only factor involved.

In fact the mass attraction of the earth and sun, and other factors also affect the moon's velocity. When the moon is at its orbital perigee, and the major axis of its orbit is such that the mass of the earth and sun, etc., are additive, the velocity of the moon is maximized. This can happen during a precession cycle of the moon's elliptical orbit, and when the earth is at its orbital perigee at the Winter Solstice. The opposite occurs when the moon is at apogee, opposite the sun, and the earth is at apogee at the Summer Solstice.

At *apogee*, the time from the instant of conjunction to the instant of *maximum* full moon can be *15.8 days*. At *perigee*, the time from the instant of conjunction to the instant of maximum full moon can be *13.73 days*. The difference is 2.07 days, but the total time to complete an *average* lunation is 29.53 days measured over *centuries*. It can vary about twelve hours within a year.

Again, the facts above show the time for the moon to travel from the instant of conjunction to the instant of the maximum full moon, and back are rarely equal as conjunctioneers erroneously suppose.

Equinoxes, Solstices, and Seasons

The Hebrew word 'tequpha,' has been translated into English as 'equinox' which comes from Latin meaning 'equal nights.' The equinoxes are located at about the intersection of the *minor* axis of the earth's elliptical orbit and the sun.

The Solstices are located at about the intersection of the *major* axis. Each is a delimiter and occur once a solar year.

Scripture shows the equinoxes essentially divide the solar year into *two seasons*; the season of 'plowing and sowing,' and the season of 'harvesting and gathering.' The latter is several days longer than the former because of the offset of the elliptical orbit.

Bible verses show the scriptural year begins in the spring with the first new-moon crescent *after* the sunset of the day of the spring equinox. The brief, *visible*, new-moon crescent is the sign the Almighty Yahweh provided to show when the first *day*, of the first *month,* of a scriptural *new year*, begins.

Can an Ordinary Person Determine the Exact Instant of the Conjunction?

No. An astronomer by himself cannot easily determine the *exact* instant of the conjunction of the moon, and *validate* it actually occurred. It is impossible for a non-astronomer to do so. Today both astronomers and conjunctioneers use data prepared by a few astrophysicists.

In ancient times the conjunction was not determinable even with coarse accuracy before the Athenian astronomer-mathematician Kallippos (BCE 330). Where is hard evidence the High Priests of Israel had mathematical skills which approached that of the Athenians, or the Babylonians?

The Babylonians could calculate the dates of the *triple* planetary conjunction of Venus, Mercury, and Jupiter which were *seen* about when our Savior, Yeshua the Anointed, was born. At conjunction the planets were together, low on the horizon during the early morning, and could hardly be resolved as individual planets due to their adjacency. *Seen* from earth they had apparent movement in the sky as one object and also seemingly stopped in the sky. Their recorded motions explain another of Yahweh's signs, the 'Star of Bethlehem.' Stars do not have discernable movement individually but *whole* constellations appear to slowly arc overhead each night.

Ask the question: Can *anyone* who determines a scriptural calendar today according to the conjunction theory, state the exact *instant* a lunar conjunction will occur, and *prove* it happened? If the answer is: "I don't know of anyone," then consider determining the scriptural calendar by the new-moon crescent as the High Priest did in Jerusalem.

How Can One Know If the New-moon Crescent is Visible in Jerusalem?

Jerusalem is where a scriptural calendar is referenced because it is there the Almighty Yahweh chose to put his name (1 Kings 9:3). The Almighty Yahweh made it so *anyone*, essentially *anywhere*, can know if the new-moon crescent were visible in Jerusalem. If one extends ones hand horizontally out, aligns the bottom side of ones thumb to the horizon, looks above the top side, and can see the new-moon crescent, it is at an altitude high enough to be visible in Jerusalem.

Using the new-moon crescent as a delimiter for a month and year eliminates dependency upon charts, tables, calculations, etc., prepared by others. The Almighty Yahweh made the new-moon crescent available to *everyone*, *everywhere*.

The Fictitious Marker and The Non-existent Season Category

Conjunctioneers support their theory with a fictitious 'marker' and *non-existent* season category supposition.

The 'marker' they suppose is that in CE 30, the day of the Spring Equinox and the calculated instant of the conjunction, occurred on the "same 24 hour day." They designate that day 1 Nisan, the first day of the scriptural calendar determined by the conjunction theory. But the so-called 'marker' is *fictitious*.

The 'marker' in CE 30 seems to have been drawn from the verse of scripture which says our Savior was "*about* thirty years old when he began his ministry." This would mean his birth would have occurred near 1 BCE (there being no year zero). E. L. Martin in his book: *The Star That Astonished the World*, shows the birth occurred in the autumn, on September 11, 3-2 BCE Julian, near the Day of Trumpets.

In fact in CE 30 the invisible conjunction of that moon occurred about four hours *before* the instant of the spring equinox. Conjunctioneers admit same *if* it is pointed out, but hastily add: "but *on* the same day!" But that 'day' is not valid.

Postponing to the next conjunction puts the 'first day' of their calendar in the spring, but in that lunation Passover would *not* occur on a Wednesday. Therefore our Savior would not have died and his ministry would not have ended in 'the midst of the week,' as from Daniel 9. Further, he would not have spent "three days and three nights in the heart of the earth"according to his own prophecy about himself, and arose seventy-two hours later near the end of the weekly Sabbath.

As regards the *non-existent* season category of 'on or after' the spring equinox, a 24 hour solar day, whether reckoned midnight-to-midnight or sunset-to-sunset, which begins *before* the instant of the spring equinox, begins within the season *ending*, so remains a day of that season until, by the same reckoning, that 24 hour solar day *ends*.

Accordingly, the day which conjunctioneers chose as 1 Nisan is a day which began in the *Winter*, therefore remained a day of winter until it ended. But that day cannot be designated 1 Nisan because the scriptural calendar can *only* begin *wholly* in the spring.

The day of the Spring Equinox itself, is the last day of *winter*. The same last-day relationship exists for the Autumnal Equinox as regards summer, and also the Solstices. It is easy to prove the supposed '*on or after*' seasonal category does *not* exist.

The U. S. Naval Observatory's Internet page titled: *Spring Phenomena, 25 BCE to 38 CE*, categorizes dates with respect to the spring equinox *only* two ways: "*On or preceding the date of the equinox*" or "*Following the equinox.*"

Further, the book: *Babylonian Chronology 626 BC to AD 70* by Parker and Dubberstein shows a translation of cuneiform characters on clay tablets found in Iraq, into English.

The book shows an *unbroken* record of about 8900 *new-moon crescents*, with the date, and the name of the king reigning at the time. The names of some kings are mentioned in the bible. The tablets clearly designate 1 Nisanu as the first day of the first month of the Babylonian new year. The new-moons dates recorded are only *after* the Spring Equinox.

The cuneiform records show the Babylonians determined start of the new year virtually identical as the High Priest had in the first Temple. No conflict with the Babylonian calendar has been found in Israelite history for when the latter were in captivity seventy years. After the captivity, the prophet Ezra adapted the now familiar name of the Babylonian months for the Scriptural Calendar (example: Nisanu became Nisan, etc.). The adapted names are seen on Jewish calendars today.

The delimiter of the new-moon crescent for months, and years, was in widespread use by several ancient nations. Conversely, there is *no* evidence the Babylonians ever used the conjunction of the moon to reckon their calendar. Neither is there evidence the Babylonians used a calculated calendar, although they surely knew how. The Jewish religious establishment certainly learned to do so during the Babylonian Captivity. The 'Jewish' calendar produced by calculation was later used by the Jews in diaspora, and after the destruction of the Temple in CE 70.

Plain common sense begs the question - Where is: (a) hard evidence the conjunction *theory* was used by the High Priest during the Temple eras, (b) hard evidence a High Priest began the scriptural calendar in the *Winter*, (c) hard evidence the Babylonians began their year in the Winter? There is *none*! Their calendars commonly began in the spring as did other nations on distant continents. The Romans initially began their calendar in the spring. Julius Caesar changed new year's date to 1 January, which followed the winter solstice and pagan observance of Saturnalia. He did so in deference to the Roman Senate who went into session on that date.

Moshe designated Aaron as High Priest and his sons as Priests. Only they could succeed Aaron, a succession which continued about to the end of the second Temple era. There is hard evidence the High Priests used the new-moon crescent to determine the scriptural calendar.

Don Esposito, Yahwist missionary in Israel, relates that at the temple mount there is a room with various images of a new-moon crescent on the walls. When it was cloudy over Jerusalem, the High Priest sent runners to mountain tops to look for the crescent. If successful, a sighting was relayed with fires. Upon their return, the messengers were debriefed, which included identifying the image they *saw*. Two witnesses had to agree, and the image had to be correct before their testimony was accepted. Mr. Esposito mentioned the room was made unsafe by the earthquake which occurred at our Savior's death, and not used thereafter.

Full Moon, Barley are Not Determinates of a Scriptural Calendar

Leviticus 23 does *not* mention a 'full moon' as the time when to observe a holy convocation. The phrase 'full moon' is not used as a reference by those knowledgeable in scriptural calendar matters.

Neither is there a verse of scripture which says the presence of barley *is* a determinate for beginning the scriptural year. Barley was necessary for the first-fruit Wave Offering which occurred on the day after the weekly Sabbath within the seven day Feast of Unleavened Bread.

Barley was available because the date when it was *sown* was linked to the date of Passover. Hard evidence of this is in the Mishna, Menachot, viii, 1., 2., which says: "...The field was to be plowed in the autumn, and sowed seventy days *before* the Passover."

Two-row barley there matures in eighty-nine days, so subtracting seventy days, gives a nineteen day margin to maturity to allow for weather conditions. The barley sheaf was cut at the beginning of 15 Nisan. Barley kernels in the Abib stage of growth (pasty-firm to dry), could, if necessary, be parched to dry them for flailing, grinding, and sifting into flour before the Elevated (Wave Sheaf) Offering occurred in the morning of the same day.

Advocating that the full moon and barley are scriptural calendar determinates misleads those who have not done a critical analysis of Leviticus 23 and Deuteronomy 15:3. It is highly likely the Almighty Yahweh optimized the orbital alignment of the moon and earth to facilitate illumination for the Israelite exodus out of Egypt. They "departed by night" just after the sunset of Passover day, which began 15 Nisan.

Scripture says to blow the shofar at the full moon, and on the feast day, etc. Taken literally, the shofar would have been blown when it was *thought* the moon was full. But, the moon is nearly full, to full, to less so, over a period of about three nights. The shofar was to be blown when the full moon was *seen*, same as with the new-moon crescent. This is in contradiction to the conjunction theory of starting the scriptural year when the moon *cannot* be seen.

A Recap of Some Erroneous Suppositions of the Conjunction Theory

Those who advocate the conjunction **theory** make suppositions which are in error:

(a) The start of the scriptural year begins with a moon that is *not* visible.

This supposition is claimed even though the Almighty Yahweh gave mankind three ***visible*** celestial objects to use "for signs, seasons, months, and years" and centuries before such a thing as a 'conjunction' was imagined.

(b) Reckoning the scriptural calendar in CE 30 to an *invisible* moon at conjunction, in the *winter*, about four hours *before* the instant of the Spring Equinox.

This disqualifies CE 30 as a "marker." The year of our Savior's death was in CE 31, obtained by reckoning to the new-moon crescent ***after*** the spring equinox; Passover *was* on Wednesday. What specific hard evidence is there the High Priests ever declared the start of Scriptural New Year *before* the Spring Equinox? None!

(c) The moon's orbit is *circular*.

The orbit of the moon is significantly ***elliptical*** as compared to earth's, and the velocity of the moon ***varies*** due to several celestial influences.

(d) The number of days from the instant of conjunction, to the instant of maximum full moon, and back, are *equal***.**

In fact, the time can ***differ*** by ***2.07 days*** even though the *average* lunation is 29.53 days.

(e) The full moon and barley *are* determinates for starting the scriptural year.

Nowhere in scripture is either mentioned as being a scriptural calendar determinate.

Conclusion

Plain common sense calls for conjunction theory advocates to read Genesis 1:14-18 carefully, and the *Treatise on the Biblical Calendar, 2nd* ed. by Herb Sloinsky.

The Almighty Yahweh gave mankind *three* VISIBLE celestial objects: the *sun, moon, and stars*, and *four* purposes for which they are to be used: *signs, seasons, days, and years*.

Reckoning to an INVISIBLE moon at conjunction, in the winter, is of *man*, *not* of the Almighty Yahweh.

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Other recommended references:

The Observed Calendar of the Second Temple by Wayne Atchison

The Observed Calendar of the Second Temple Presenting the Preponderance of Truth by Wayne Atchison

The Hail Plague and the First Biblical Month by Herb Solinsky