When is the True Beginning of the Year?

Transcript of Matthew Janzen's presentation given on 1.31.2012 concerning the beginning of Yahweh's new year and the timing of the equinoxes.

Thank you brother Gary for having me come on and present what I believe to be the correct method for beginning Yahweh's year. I really appreciate everyone who is on this call today. I probably do not personally know all of you, but let me just say that you are to be commended for desiring to know the truth on this Scriptural subject and on all subjects. I'm just a man who wants to know the truth like you, and I can say that I have studied this topic out thoroughly, to the best of my ability. That doesn't make me automatically right, but I ask you to at least listen to what I present, take notes, and go back and search each point out for yourself diligently. Don't take my word for anything, please, that's the worst thing you could do. Also, don't take anyone else's word for anything. **You do the research yourself**.

I want to say at the outset that some of my points will be simple, but some will be technical. I'll try to keep everything as easy as possible, but some points that I will present require technicality. Please don't let this load of information overwhelm you. I personally know how overwhelming new information can be. I was overwhelmed when I started collecting all of this evidence. So, I am recording this teaching myself and Brother Gary is recording the call as well. If there is something I say that you don't quite understand the first time, you can always go back and listen again and at the end I will give my contact info. Feel free to call me if you'd like to discuss this further.

Let me also say that this teaching assumes that you already understand that the spring equinox is a vital point in the path of the sun when it comes to determining the new year. In Genesis 1:14-18 Yahweh teaches us that the lights in the heavens (the sun, moon, and stars) are appointed to tell time, to be a calendar, to let us know when times like days and years begin and end. I believe that the greater light of the sun is the primary light for determining the new year, and I'm assuming that you either agree with this or at least have knowledge that this is how some Torah-keepers determine the new year. If you do not already believe this and rather choose to begin the new year differently, you can contact me for information on why I believe what I believe on this issue.

So, to begin with let me briefly explain how I believe the new year is determined, and in turn explain to you in summary what the spring equinox is. I have always taken the first new moon after the spring equinox as Abib 1. I believe the revolution of a complete year is from spring to spring. Once an old revolution ends, at the spring equinox, a new revolution begins. When a person takes the new moon next after the spring equinox, this is the first new moon of the new revolution.

Now the word equinox is not an ancient Hebrew word. The equivalent and older Hebrew word in view is the word *tekufah*, a word used in direct relation to Yahweh's calendar in the book of Exodus 34:22 (a verse I will center in on in just a little bit). The word *tekufah* is used in Scripture, the Dead Sea Scrolls, and the Apocrypha. This word is used to refer

to natural distinctive points or time intervals associated with the heavenly bodies of the sun and moon. This word does reference times in the suns path or course, namely the two equinoxes (spring and fall) and the two solstices (summer and winter).

In the Works of Philo, a 1st century A.D. Israelite historian, we find that the new year is tied to what he calls the spring equinox, or more anciently - the spring *tekufah*. I believe Philo had the proper understanding of using the equinox as a primary determiner for the beginning of Yahweh's year. Philo understood that the word equinox was a portion of the meaning of the Hebrew word *tekufah*.

So, what do I believe the word equinox refers to? This word is based on the Latin language, stemming from two Latin words; *aequus* meaning equal, and *nox* meaning night. The understanding of this word is that this is the time when the night is equal with the day. All ancient peoples that tracked the path of the sun noticed that the sun always rose in the east, but it did not always rise due east. The sun would go to one extreme in the year and rise far north-east, and also go to the other extreme in the year and rise far south-east. Directly in between these two extremes is due east. The sun rises due east twice a year, and because at these two times there is an equal amount of day and night later peoples used the word equinox to describe these two days. These days fall out on our current Gregorian calendar in the spring on March 20th or 21st, and in the fall on September 22nd or 23rd. Every single ancient civilization or ancient author that I'm aware of believed this very thing. Of course our current Gregorian calendar was not known to them, but the equinoxes that fall at the end of March and September today are the same equinoxes that all ancient peoples used. **To my knowledge there is not one single author in antiquity who dated the equinoxes in February and October**. I believe the teaching that places the equinoxes in February and October is a false teaching that will cause people to keep the Scriptural festivals a month too early in most years.

The ancient Hebrews reckoned equal day and night by the heavenly light of the sun in the sky, as well as the moon and the stars. So long as the sun ruled, it was considered day. Anytime the moon ruled the night, or the stars, it was considered night. This means that day was from sunrise to sunset - as Yahweh tells us in Genesis 1:16, "The greater light to rule the day." He also speaks of this in Psalm 113:3 where it says, "From the rising of the sun to the going down of the same Yahweh's name is to be praised." This speaks of the time period that is opposite of the night, namely the day.

In the Springtime, on the Gregorian March 20th or 21st, you will have an equal amount of day (the time the sun is ruling) and an equal amount of night (the time the sun is not ruling, but the moon and stars rule).

This does mean that both the dusk period (after sunset) and the dawn period (before sunrise) are counted in with the night. Now you might ask why? **The answer is because the sun does not rule during either of these two periods**. For example, let's use the sun and the biggest phase of the moon - the full moon. The full moon always rises opposite from the sun and rises at the same time the sun sets. In other words, just after sunset, at dusk, the full moon rises and is ruling the sky. This lets us know that we are not in the

time period where the sun is ruling, but rather we are in the time period where the moon is ruling, that is, the night. Remember that Scripture teaches the moon and stars rule the night. I'll speak more about this full moon in relation to Philo's writings in a bit.

Now a person may ask this question, "Why would we count the dusk period after sunset or the dawn period before sunrise in with the night when it is not complete darkness?" The reason we would do so and should do so is because at these points darkness is mingled with light. Sometimes these periods are called by the name "twilight" which etymologically means "mingled light." Pure light only exists when there is no darkness at all. For example, First John 1:5 tells us that, "The Almighty is light, and in Him is no darkness at all." There is not even 1% or for that matter .001% of darkness in the Almighty; He is fully light or fully righteous. When you begin to mix any amount of darkness in with light it is no longer grouped with light, but it is grouped with darkness or night. Such is the case with the periods of dusk and dawn which in actuality mirror one another. Both periods contain darkness. One period gently receives darkness (after sunset) while the other period gently dissipates darkness (before sunrise).

Let me go ahead and introduce my first point. **I will be dealing with 10 points in all**. I'll title this first point:

1. The Definition of Day and Night

The Israelite author Philo speaks of day and night like this in his work titled:

On the Creation, Chapter 9 beginning at (33). He says that "Yahweh ...did not only separate light and darkness, but did also place boundaries in the middle of the space between the two, by which he separated the extremities of each." He goes on to say under (34) "[that] these boundaries are evening and morning; the one of which heralds in the good tidings that the sun is about to rise, **gently dissipating** the darkness: and evening comes on as the sun sets, **receiving gently** the collective approach of darkness."

I believe Philo here recognizes the evening and morning mentioned in Genesis 1:5 as boundaries between the extremities of light and darkness. At the same time notice carefully that Philo mentions these boundaries as darkness and not light. Gently dissipating darkness means that darkness gently leaves. Gently receiving darkness means that darkness is gently collected. Therefore Philo here groups these periods in with the night and not with the day. Why are they grouped with the night instead of completely thrown out and not counted at all? It is because darkness has begun to mingle with light. Philo could have said "gently receiving the light" or "gently dissipating the light" but he did not because he considered these periods as night rather than day.

Let me illustrate this to make it simpler. Suppose there were 100 pennies lying on the floor; a dollars worth of pennies. I could gently receive those pennies into my hand one at a time. From the moment the first penny went into my hand I would have 1/100th of the total. With each new penny placed into my hand I would gain more and more of a percentage of the 100 pennies until reaching the last one. Likewise, I could gently

dissipate the pennies from my hand by placing them one by one onto the floor, but as long as I had any pennies at all in my hand, even one, there would still be something in my hand. This helps us see how that once darkness is mingled in with light it is counted as darkness.

Before getting further into the works of Philo, I would like to make the point that we can know this is how day and night were presented in Scripture by recognizing the texts that mention hours within a day. Yeshua the Messiah, in speaking of the time period for work, tells us in John 11:9, "Are there not 12 hours in the day?" Yeshua here speaks of the daylight period as opposed to the night. 12 hours in the day is also seen in the parable of the vineyard laborers in Matthew 20. Here we see that some laborers were hired at the 11th hour (vs. 9) and only worked for 1 hour (vs. 12). Other laborers entered the work place at the 3rd hour and the 6th hour of the day. I want you to think about this for a second. How were these hours measured during the time of Yeshua? For instance, how did Peter know that it was the 3rd hour of the day in Acts 2? Remember when he told those listening to the apostles speak in foreign languages, "These men are not drunk as you suppose, seeing it is only the 3rd hour of the day." How did he know? Did he look at his wristwatch?

Well of course not... he knew by the position of the sun in the sky. Hours were only measured during the daylight period, and since hours were measured by the position of the sun, **hours were only measured from sunrise to sunset**. From the time the sun came up above the Yahweh made horizon to the time the sun went down below the Yahweh made horizon. This aligns perfectly with Genesis 1:14-18 where it tells us that the lights in the heavens are to be for telling time. I have had a tendency in the past to focus only on the moon, and in doing so have not focused enough upon the greater light, the sun. It was by this heavenly body that the day was determined and in turn the various hours within the day such as the 3rd, 6th, or 9th hours of the day.

An ancient Greek historian named Herodotus (485-425 B.C.) stated the following in his work titled *Euterpe.* He states that "The sun-dial... and the gnomon with the division of the day into twelve parts, were received by the Greeks from the Babylonians." We also read of an ancient sun-dial in the Scriptural books of 2 Kings 20:11 and Isaiah 38:8. So this practice of tracking the hours of the day by the sun is very, very old.

Now, don't let the practice of tracking the sun with a sun-dial scare you. Many people hear about us lunar sabbatarians watching the moons phases and think that this constitutes moon worship. There are even fewer believers in Yahweh that study the zodiac, the constellations in the heavens. This is because there is either a large or faint idea in the back of our mind that the zodiac is something that is only pagan. In reality, all of these heavenly bodies and their movements in the sky are placed there by Yahweh for His people. It is not a sin to study the moon and stars for the purpose of telling signs and seasons. Likewise, it is not a sin to track the sun with a sun-dial for the purpose of telling the hour of the day, the month of the year, or for that matter, when Yahweh's year begins. Did pagans use sun-dials? Well sure, but they also used the moon and the zodiac. None of this means we should discard these Yahweh ordained lights for the true calendar.

Getting back a moment to the works of Philo. Philo recognized that the daylight portion of the day was the time when the sun was above the horizon. Listen as I quote from his work titled QA on Genesis 1 where he says under (84) that "...the sun is the cause of day and night, performing his revolutions by day above the hemisphere of the earth, and his course by night under the earth..." Notice again carefully that Philo described the day and the night in this place. He said that the sun was above the hemisphere by day and below the hemisphere by night. This means he counted the dusky or mingled portions of evening and morning in with the night.

Philo also talks about day and night at the time of the full moon in The Special Laws 2, 33 under (210) where he says that "...the beginning of [the Feast of Tabernacles] is appointed for the fifteenth day of the month... [so] that the glorious light which nature gives should fill the universe, not only by day but also by night, because on that day the sun and moon rise in succession to each other with not interval between their shining."

Philo speaks of this 15th day of the month as being full of beautiful light, not only by DAY but also by NIGHT. He explains how this could be, by recognizing that the SUN and the MOON rise opposite to one another on this 15th day of the month. This shows that Philo believed the NIGHT began at sunset and the DAY began at sunrise. This is because (as we can still observe today) on the day of the full moon the moon rises above the horizon just as the sun sets below the horizon. Likewise, after the moon rules all night in the sky it sets below the horizon and the sun rises above the horizon.

Here we recognize that Philo had to have counted the "dusky" periods of evening and morning in with the NIGHT when the moon ruled, specifically the full moon.

Ask yourself this question: when the sun sets below the horizon (and is no longer ruling) and the beautiful full moon comes up at the same time above the horizon, what heavenly body is ruling? Surely it is not the sun; the sun can't even be seen, while the moon is in full brilliancy. **The moon is doing the ruling here and thus it is night time because the moon rules at night, and not during the day** (Psalm 136:7-9; Jer. 31:35-36).

It's important to understand that equal day and night at the Spring and Fall Equinox was always measured by sunrise and sunset in ancient times. It was never measured any other way. If you do not measure it the correct way, you may end up with a bogus so-called spring equinox in February.

Philo explains this elsewhere when he describes a very strict group of people that lived during his time. In his work titled On the Contemplative Life 11 (83) he writes that these people "...celebrate a sacred festival during the whole night... (with a) ...chorus of male and female worshippers being formed..." He goes on to say that they "[stood] there till morning, [and] **when they saw the sun rising they raised their hands to heaven**..."

Sometimes verses like Genesis 15:17; Amos 8:9; and Micah 3:6 are used to prove that sunset is complete darkness, but they do not prove that at all. These Scriptures actually prove that sunset is the beginning of darkness. Biblically, sunset was considered the time

when the sun ceased to rule in the sky and night began. It didn't work like a light switch with just an on and off position. *Ereb*, the Hebrew word for evening, is a word with more than one solid meaning that can describe dusk, night, and dark night. Strong's defines the word as "dusk" and Brown, Drivers, Briggs defines it as "evening, night, sunset."

Now I want you to also notice that the common word for evening in the Tanak is #6153 in Strong's. There are other words that are closely related to this common word, containing the same consonants in Hebrew. The only difference is the vowel pointing.

#6154 - "the web, also a mixture or mongrel"

#6151 - "to commingle"

#6150 - "covering with a texture, to grow dusky at sundown"

The idea here is that evening begins at dusk, when there is a MIXTURE or GREY color over the land. Darkness has begun, but it will not be complete darkness until midnight. The same mixture is seen on the opposite end of the spectrum with the period know as dawn before sunrise. Dawn is actually a mirror image of dusk. It contains the same mixture or grey color, but goes from dark to light instead of light to dark.

This is made plain by correctly reading the Scripture in Nehemiah 13:19. This text shows that sunset begins the period of evening, but this verse has been badly misunderstood by many who claim that the day ends at the time of total darkness.

The "total darkness" position is extremely problematic because once sunset takes place the sky grows darker and darker until the sun is about 18 degrees below the horizon. This takes place roughly 90 minutes after sunset. One man might say that we should start counting 30 minutes after sunset as complete darkness. Another man may say 60 minutes, while yet another may say 90 minutes. Still another may say 45 minutes, and yet someone else 75 minutes. See, there is no conjunction point, so it is completely subjective. When you use the actual sunset (the time the sun ceases to rule) you have a conjunction point where you can definitively say that evening has begun.

At any rate, what is getting "dark" in Nehemiah 13:19? I've heard this verse incorrectly quoted so many times, and I have misquoted myself in the past before I took the time to study the text. I hear so many people quote this as saying, "As it began to be dark before the Sabbath," but this is not what the verse says at all. It is not the DAY that is getting dark, but the GATES. Even in the KJV we see this when it says, "As the GATES of Jerusalem began to be dark..." The KJV however misses the most proper translation. Notice a few other translations.

HCSB - "When shadows began to fall on the gates of Jerusalem just before the Sabbath."

NIV - "When the evening shadows fell on the gates of Jerusalem before the Sabbath."

NWT - "As the gates of Jerusalem had grown shadowy before the Sabbath."

The word "dark" in the KJV here is the Hebrew word *tsalal* and is defined by Strong's as "hovering over, or to shade." It is only used one other time in the entire Tanak and that's in Ezekiel 31:3 where it is translated as a "shadowing shroud." This verse refers to the shade that leafy trees give.

The point in Nehemiah 13:19 is that as the sun was setting it casted a shadow on the gates of Jerusalem before the Sabbath. This shows that at sunset (the time when the sun went below the Yahweh made horizon, and casted no more shadows) the Sabbath would begin. Sunset is a word that refers to the position of the sun, and not so much the color of the sky.

This is significant because it shows sunset begins the evening or night period of a 24 hour day. **Consistency demands that sunrise begins the light period of the 24 hour day.** At the time when these two are of equal length is how what we call the equinox was measured anciently.

As I said before, people sometimes give Scriptures that talk about "sundown" and "dark," and I believe all of them. To me it shows that sunset was considered to be darkness. It wasn't complete darkness, but it was the time that darkness **began** because the sun had ceased to rule in the sky. This makes for varying degrees of darkness during the night time.

In Genesis 1 the Almighty divided the light from the darkness and thus we have both light and darkness. Never forget though that he did this in the context of evening, the time after sunset, and morning, the time before sun rise. The chronology here is (1) darkness over the face of the deep, (2) the Almighty speaks light into existence, (3) He divided the light from the darkness, (4) it then became evening, and (5) it then became morning, day one.

In neither of these two dusky times is the sun ruling in the sky. When there is an equal amount of the sun being below the hemisphere as when it is above the hemisphere, we have what is called in Hebrew a *tekufah*, or in English, an equinox. Every ancient civilization known to man calculated it in this fashion.

This brings me to a scientific point, my second point. I will title this:

2. Sunrise and Sunset and the North and South Pole

What we experience every single day is experienced only twice a year at these poles. Here is what takes place at the North Pole on the days of the equinoxes and solstices. The sun actually rises at the North Pole on March 20th or 21st (the spring equinox) and stays in the sky all spring and all summer; it never sets. From spring equinox to summer solstice it gets higher and higher in the sky every day. After the summer solstice it begins to descend, and continues its descent until September 22nd (the fall equinox). It then

drops below the horizon and stays below the horizon all fall and winter. It does not come back up until the next spring equinox. The brightest day of the year at the North Pole is June 21st (summer solstice) and the darkest day of the year at the North Pole is December 21st (winter solstice).

Here is how it takes place at the South Pole where the seasons are reversed. At the South Pole spring begins at what we call the fall equinox (around September 21). **The penguins at this point in time are very excited to see the sun peak above the horizon in Antarctica on this date. Thousands of penguins rejoice because they have not seen the sun for the past 6 months.**

While sunrise and sunset at the poles happens once a year, it happens for us every single day. Just remember, sunrise and sunset at the poles are always, without exception, at the end of March and September.

Now let me go to my third point that I will title:

3. Aries and the New Year

Many people, including myself in the past, have not given the stars their due credit in Yahweh's calendar. Yahweh says so much about the stars. To overlook them is to push away a vital piece to the calendar puzzle. The stars are mentioned in Genesis 1:14-18, as well as in the parallel passages of Psalm 136:7-9 and Jeremiah 31:34-35. In Psalm 8:1-3 the stars are mentioned along with the moon as being ordained, and in Psalm 147:4-5 we are told that Yahweh has given names to all of the stars. The book of Job in both chapter 9 and chapter 38 speaks of the names of various constellations in the sky such as Orion, the Pleiades and the Bear and her cubs.

The Judahite historian Josephus states in his Antiquities (1.3.9) that he believed one of the reasons the Almighty gave the pre-flood peoples a longer life was so that they could have enough time in their life to perfect astronomy, particularly the periods of the stars.

Now, both Josephus and Philo mention the constellation named Aries, which is Latin for Ram, as being directly tied in with the celebration of Passover/Feast of Unleavened Bread. Josephus states in his Antiquities 3.10.5 that the month Nisan (the Babylonian name for the month Abib) was the beginning of his people's new year. He then speaks of the 14th day of this lunar month and states that this is the time when the sun is in Aries. Notice that Josephus mentions the sun being in Aries at the time of the Passover.

Philo may even be more plain when he states in his work On the Creation 39 (116) that the spring equinox is in the constellation of Aries and the autumnal one in the constellation of Libra (which is Latin for measuring scales). Philo also states in his work QA on Exodus (1.1) that scripture thinks it proper to reckon the cycle of months from the vernal equinox. He also mentions that the Ram (Aries) is the head of the zodiac and in it the sun appears to produce the vernal (spring) equinox.

So, Josephus states that in his day the Passover was kept when the sun was in Aries, and Philo states that the spring equinox was in the constellation of Aries and in this sign the sun appears to produce the vernal equinox. The question we have to ask our self is, "When did the sun enter the sign of Aries in the 1st century A.D.?" Let me present to you what I have found in my research.

First off let me say that the zodiac is the division of the annual path in the sky near the path of the sun called the ecliptic, into 12 equal parts. Each of these parts is called a sign of the zodiac. For this purpose the "year" is the solar year, that is, the average time from one vernal equinox to the next vernal equinox. Each sign has a name, which is also the name of a constellation of stars in the sky. The zodiac is divided up into 360 equal parts, each of which is called a degree. This shows that each degree is slightly longer than one day because there are about 365.2422 days per year. Each of the 12 signs is 30 degrees, so that each sign is almost 30.5 days.

Here are some ancient authors around the time period that both Josephus and Philo wrote. They date the beginning of Aries to be 8 days before the spring equinox, around March 17th of the Julian calendar.

Columella (who lived from 4 B.C to 65 A.D.) says in his work titled On Agriculture that "the first equinox... which happens about the 24th of March, [is] in the 8th part of Aries..." and he says elsewhere "[that on] the 17th of March the sun passes into Aries."

Vitrivius, a Roman architect (who lived from 80 B.C. to 15 B.C.) says that, "When the sun has entered the sign of Aries, and run through about an eighth part of it, it is the vernal equinox."

Another man, known as Pliny the Elder (who lived from 23 A.D. to 79 A.D.) says that the "...vernal equinox [is] at the eighth degree of Aries... and the autumnal equinox at the eighth degree of Libra..." He also says elsewhere in his work that, "The Sun himself is in four different states; twice the night is equal to the day, in the Spring and in the Autumn, when he is opposed to the centre of the earth, in the 8th degree of Aries and Libra."

I must note here that not everyone believed that the vernal equinox was in the 8th degree or part of Aries. Some held to the view that the first of Aries and the day of the equinox were equivalent. Columella writes that he is not ignorant of Hipparchus's computation, which teaches that the solstices and the equinoxes do not happen in the 8th, but in the 1st parts of the signs. So Columella is aware that Hipparchus (the B.C. astronomer that discovered what is known as the precession of the equinoxes) believed that the solstices and equinoxes happened in the 1st part of the zodiac signs rather than the 8th.

On page 600 of a book titled, "*A History of Ancient Mathematical Astronomy*" Volume 2, author Otto Neugebauer explains that not only Hipparchus (140 B.C.) but also a follower of Hipparchus named Ptolemy (around 150 A.D.) dated the vernal equinox as the first degree of Aries.

Another work by a Greek astronomer named Geminos (who lived from 90 - 35 B.C.) wrote about this on page 114-117 of his work titled, "*An Introduction to Phenomena*." In this writing he stated that the spring equinox happens in the 1st degree of Aries rather than the 8th degree. **He also states that the spring equinox occurs when the sun, in the course of its climb from south to north, is on the equatorial circle and at this time the day becomes equal to the night.** Geminos also speaks of there being an average of about 91 days for each of the four seasons, with 3 signs of the zodiac being allotted to each season. He says the sun went through Aries, Taurus, and Gemini in the spring; Cancer, Leo, and Virgo in the summer; Libra, Scorpio, and Sagittarius in the autumn, and Capricorn, Aquarius, and Pisces in the winter.

So Geminos agrees with Hipparchus and Ptolemy that the spring equinox is in the first degree of Aries, while the Romans - Vitruvius, Pliny, and Columella state the equinox to take place in the 8th degree of Aries.

It appears from the writings of Philo that he believed the equinox happened in the first degree of Aries, but of this I am not completely certain. We do find an interesting parallel in Philo to what we just covered in the writings of Geminos about the signs of the zodiac. In Philo - QA on Exodus page 125 he writes that "At each season of the year the sun completes (its course) through three zodiacal signs... the spring (consists of) Aries, Taurus, Gemini; and again, in the summer (we have) Cancer, Leo, Virgo; and in the autumn, Libra, Scorpio, Sagittarius; and in the winter, Capricorn, Aquarius, Pisces."

So, both Geminos (a B.C. astronomer) and Philo speak of the exact same signs of the zodiac for the seasons of spring, summer, fall, and winter.

Looking at what Geminos and Philo said concerning the signs of the zodiac shows us that there are about 30 days *roughly* assigned to each sign of the zodiac. In other words Aries lasts 30 days, Taurus last 30 days, Gemini lasts 30 days, and so on.

The Roman poet Ovid, writing in the 1st century A.D. tracks for us what day the sign of Aries was *over with* on the Julian calendar. In his Book 4 under the heading April 20th he states that the sun leaves the Ram Aries. So Aries lasted for 30 days and the sun left Aries according to Ovid on April 20 this means that the sun entered Aries on March 22. It appears from this that Ovid dated Aries to begin around March 22nd. This is not far away from when Columella dated Aries to begin on the Julian Calendar, March 17th.

All of this information about the stars in relation to the Scriptural year leads us in the direction of recognizing the end of March to the end of April as the first moon of the year. **From the end of February to the end of March (in the days of Josephus and Philo) the sun would have been in the constellation of Pisces and not in Aries.**

Furthermore, Philo's mentioning of the spring equinox in Aries and the fall equinox in Libra only aligns with the understanding of the equinoxes falling at the end of our current March and September. This is because Aries is the 1st sign and Libra is the 7th sign, making the 1st degree of Aries and the 1st degree of Libra 6 months apart. **With this new**

found method of determining the equinoxes in mid February and at the end of October, you have a span of the equinoxes being 8 months apart, and it would have been utterly impossible for Aries to be at the spring equinox and Libra to be at the fall equinox. Using this false method, it would have rather been Pisces at the spring equinox and Scorpio at the fall equinox in the days of Josephus and Philo.

Philo mentions in his writings titled the Special Laws 1 (172) that the loaves of the shewbread were equal in number to the months of the year, and were set in two layers of six each, each layer corresponding to the equinoxes. He goes on to say that there are two equinoxes in each year with intervals of six months allotted to each equinox.

Once again, let me emphasize that this is an impossibility if the spring equinox is in the middle of February and the fall equinox is at the end of October. With this new found method you would have 8 months allotted to the spring equinox and 4 months allotted to the fall equinox; not 6 and 6 as Philo points out in his work.

This brings me to my next point, point 4:

4. The Equal Seasons of the Year

We find this next bit of information in Philo's writing titled On the Life of Moses 2 (123) where he writes that the 12 stones on the breast plate of the high priest are divided into four rows of three stones each. He says that this is an emblem of the zodiac, seeing that the zodiac is divided into 4 parts, each consisting of 3 signs of the zodiac. Philo says that these "...divisions... make up the seasons of the year, spring, summer, autumn, and winter, distinguishing **the four changes, the two solstices, and the two equinoxes, each of which has its limit of three signs of this zodiac, by the revolutions of the sun...**"

With this new found method of determining the equinoxes in February and October you have the seasons of the year being out of kilter **and not at a limit of 3 signs of the zodiac**. In other words you have four months of spring and four months of summer, but only 2 months of fall and 2 months of winter. This makes 8 and 4, or (counting from Spring) it makes 4-4-2-2.

Philo makes it more plain in his work titled The Special Laws 4, 42 (235) where he says that "the year is portioned out into four divisions... divided by an equal number of months into winter, and spring, and summer, and autumn, it completes the whole year by allotting three months to each season..."

There is no possible way that Philo could have believed the spring equinox took place in mid February and the fall equinox took place at the end of October. That would not give 3 months or signs of the zodiac to each season.

This brings me to point #5 which is tied to the Feast of Tabernacles:

5. The Feast of Tabernacles

With this point we have another proof that this new found method concerning when the two equinox's occur is just not accurate. The reason being is because with this method **you will always keep the Feast of Tabernacles before the Autumnal Equinox even takes place**. If you start your year with the first new moon after February 16 this means that Passover can take place any time from early March to early April. This in turn means that Tabernacles will take place anywhere from late August to late September. Why is this problematic? It is because this new found method places the fall equinox at the end of October, **long after the Feast of Tabernacles is kept**. This places the Feast of Tabernacles as a summer feast rather than a fall feast. This means you have Passover in spring, but Pentecost and Tabernacles both in the summer. In other words your feasts are spring, summer, and then summer again instead of spring, summer, and fall.

In Exodus 34:22 where we are told that the Feast of Ingathering (another name for Tabernacles) is celebrated at the "turn (or *tekufah*) of the year." We know for certain that the Feast of Unleavened Bread is celebrated in the first month of the year, which we all agree to be in the spring season. This lets us know that the *tekufah* spoken of in Exodus 34:22 is not the spring equinox, the turning of the sun in the spring. Likewise, the Feast of Ingathering would not be tied to the summer solstice *tekufah*, seeing that Scripture states Tabernacles to take place in the seventh month. The summer solstice is too close in proximity to the spring to be in the seventh month. The logical conclusion is that Exodus 34:22 is speaking of the autumnal or fall equinox. This is the "turn of the year" that Moses wrote of in Exodus 34:22.

This is important information to understand because it lets us know that the first new moon of the year (Abib; Exodus 12:1; 13:4) should be determined in such a way as to allow the Feast of Tabernacles or Ingathering to take place in the autumn season which begins at the turning of the year called the fall equinox (or *tekufah*).

It is interesting to note how the Greek Septuagint translates the text of Exodus 34:22. The Torah section of the Septuagint dates back to around the middle of the 3rd century B.C. It says that the feast of ingathering (Tabernacles) is to be kept **in the middle of the year**.

While the Hebrew Scriptures inform us that the Feast of Ingathering is to be celebrated at the "turn of the year" (the fall equinox or fall *tekufah*), the Septuagint calls this the middle of the year, that is, the time of the year when the first 6 signs of the zodiac are complete.

From this we learn that the translation of "end of the year," Exodus 34:22) in the KJV, is not to be understood as the end of the year in the sense that one year is ending and another is beginning. The translation "turn of the year" is more accurate; it harmonizes with the "middle of the year" in the Septuagint. Both texts are correct. The Hebrew text centers in on the turning point of the sun in the fall, while the Greek text centers in on what time of the year it is. From spring equinox to fall equinox is about 182 days. From

fall equinox back to spring equinox is about the same length. Thus the fall equinox is rightly said in the Septuagint translation to be in the middle of the year.

Philo also places the Feast of Tabernacles in the autumnal season. He writes in The Special Laws 2, 33 (204) that, "The last of all the annual festivals is that which is called the Feast of Tabernacles, which is fixed for the season of the autumnal equinox."

You cannot have a festival in the autumn season until the marker for that season takes place. We have seen throughout Philo's writings that Philo believed the autumnal equinox marked the season of autumn. This is the same as when Philo places Passover in the spring season, at the spring equinox. Just as you can't celebrate Passover before the spring equinox you cannot celebrate Tabernacles before the fall equinox. **This new found method of determining the equinoxes always places Passover/Unleavened Bread AFTER the spring equinox, but always places Tabernacles at least a month or more BEFORE the fall equinox.**

I would like to move now to my point #6:

6. Ancient Authors Date the Equinox

Every ancient author that I am aware of that speaks of or dates the equinoxes, dates them as having an equal amount of days allotted to them or either specifically dates them at the end of March and September. Let me just mention a few.

Pliny the Elder, writing in the 1st century A.D. says that, "The year is divided into four periods or seasons... **Immediately after the winter solstice the days begin to increase, and by the time of the vernal equinox, or in other words, in ninety days and three hours, the day is equal in length to the night.** After this, for ninety-four days and twelve hours, the days continue to increase, and the nights to diminish in proportion, up to the summer solstice; and from that point the days, though gradually decreasing, are still in excess of the nights for ninety-two days, twelve hours, until the autumnal equinox. At this period the days are of equal length with the nights, and after it they continue to decrease inversely to the nights until the winter solstice, a period of eighty-eight days and three hours."

Notice how Pliny speaks of an equal amount of days for each season. This is only possible when the equinoxes are allotted 6 months a piece, or 6 signs of the zodiac a piece (just as Philo explained earlier); this is an impossibility with this new found false method of determining the equinoxes in February and October.

Another 1st century A.D. author name Columella (a Roman agragrian) specifically gives March 24th on the Julian calendar as the date for the spring equinox. He goes on to speak of the fall equinox taking place on September 24th.

We also have the testimony of a Roman architect (Vitruvius) in the 1st century B.C. stating that the spring equinox is in the 8th part of Aries. Seeing that the sun was not in

Aries until the end of March, this would likewise place the spring equinox at the end of March.

I will mention one other author by the name of Ovid, a Roman poet who's life spanned the 1st century B.C. as well as the 1st century A.D. Ovid states in his work titled *Fasti* ("festival days") in Book 3 under the heading of March 26 that this is the time when the days and nights are of equal length.

Let's go from here right into point #7 that I will title:

7. Did Ovid Speak of an Equinox in February?

The February equinox teaching promotes the Roman poet Ovid as evidence that anciently the equinox was in February rather than March. However, as I just pointed out Ovid says specifically under his heading of March 26, in his word titled *Fasti*, that, "You'll find the daylight hours are equal to those of night."

What is usually quoted by the February equinox proponents is Ovid's mentioning of springtime beginning in February. For example, Ovid does say under the heading of February 24 "**Am I wrong, or has the swallow come, herald of the Spring**: Does she not fear lest winter should turn back, return again?" He also states under the heading of February 9 that "**...these are the first days of spring, but don't be misled: cold days are still in wait for you**, departing winter leaves sharp traces behind." Is Ovid teaching a February equinox?

Well off course not. He plainly says that that the day is equal to the night under the heading of March 26th. What Ovid is speaking of here is the gradual change from winter to spring. Winter does not change into spring in a one day period. You don't have a 32 degree night followed by a 62 degree night; the change is gradual. You begin to see winter leave and spring arrive at the end of February, but that doesn't mean the equinox happens at the end of February.

Consider Ovid's mention of the swallow. A swallow is a kind of bird, and this bird migrates in the winter due to cold climate. In researching the swallow I've found that there is a little village in southern California named San Juan Capistrano that is known for the multitude of swallows that return there every year for Spring after spending the winter in Argentina South American some 6,000 miles away. Many people flock to the village to witness the return of the swallows, and there is even a parade held annually in the village at this time. When do these swallows return to their home? They arrive at San Juan on March 19. It is true that they leave Argentina in late February, but this is only so they will get to their home for spring time, March 19. This is similar to how they leave San Juan for the winter on October 23. This doesn't mean winter begins on October 23rd, they begin their migration before winter arrives.

http://topics.info.com/Nature-and-Environment/When-do-the-swallows-come-back-to-Capistrano-in-California_632

Let's get back to Ovid just a bit more. When you study the poet Ovid you will find that during his life he was banished from Rome. It has been suggested that he was banished by Julius Caesar because of rebuking him for changing the calendar, but this is not factual. Julius Caesar was actually assassinated one year before Ovid was even born. Ovid never met Julius Caesar. Julius Caesar was assassinated in 44 B.C. and one year later in 43 B.C. Ovid was born. It wasn't until 8 A.D. that Ovid was banished, and he was banished by Caesar Augustus. No one knows for certain why Augustus banished Ovid, but some scholars believe it was because Ovid mentioned an incestuous or adulterous affair that Augustus was involved in. Others believe it may have been because Ovid himself had an affair with Augustus' daughter.

When all the smoke settles, Ovid is actually ancient evidence for the spring equinox occurring at the end of March on the Julian calendar.

Let's move on from here to my next point, point #8 that I will title:

8. What about Hesiod?

Hesiod lived around 700 B.C. and worked as a shepherd in the mountains and also wrote poetry. It has been suggested that Hesiod, in his writing titled "Works and Days," wrote of the Spring Equinox taking place in the end of our current Gregorian month of February, but such is not the case at all. Hesiod did not say that the day and night were of equal length 60 days after the winter solstice. Hesiod speaks of a time during the winter. He talks of how that during the winter, it is hard for animals and men as well as a time of long nights. He then mentions to observe all of this until the year is ended and you have nights and days of equal length. **Hesiod does not give a date for the nights and days of equal length, he simply mentions it in passing**.

Hesiod does go on after this to speak of the star Arcturus rising 60 days after the winter solstice, but he does not equate this with the nights and days of equal length, rather, only with the rising of Arcturus. Anyone can look up the quotes from Hesiod them self and see this, it's not difficult. Let me also make note that when Hesiod speaks of the equal length in passing he uses the plural of "night**s** and day**s** of equal length." Even if Hesiod was mentioning this taking place 60 days after the winter solstice we should understand his statement to mean that the nights (plural) and days (plural) are becoming more and more equal at this time of the year.

Also, if there is anyone who would like to read a detailed paper on the star named Arcturus, which I do not believe has anything to do with determining the new year, I can send it to you. It is too technical to get into here.

Let me now move to point #9 titled:

9. Did Julius Caesar change the equinox?

Well, the short answer is no, but I would like to delve into this point more thoroughly. The spring and fall equinoxes that I am presenting take place in the heavens, they are not man-made. They are easily observed by simply tracking the path the sun, the greater light that Yahweh appointed as part of His calendar. Julius Caesar, nor any other person for that matter, can manipulate what exists in the heavens.

What did Julius Caesar do? Well, it is true that Julius Caesar made two primary calendar changes around 46 B.C. He took the advice of an astronomer named Sosigenes and discarded the moon from the Roman calendar. He also appointed January 1st as the date for the new year rather than the original Roman calendar date of March 1st.

Now, it is a mistake for us to think that our March 1st is equivalent to the pre-Julian March 1st. Why? The Julian March 1st was not tied to the moon, however the pre-Julian March 1st was always on a new moon, because prior to 46 B.C. Roman months were from one new moon to the next. This makes sense. If Julius Caesar removed the moon from the Roman calendar in 46 B.C. this would mean that the moon was used in the Roman calendar before 46 B.C.

So, yes, originally the Roman calendar began on March 1st, but at that time March 1st was always a new moon. This means that the Romans would have to decide which new moon they would take as the first new moon of the year. My studies have led me to conclude that the Roman calendar took the new moon closest to the spring equinox, and yes, the spring equinox they used before 46 B.C. is the one where you have an equal amount of time from sunset to sunrise as you do from sunrise to sunset. This pre-Julian spring equinox is what we now call March 20 or 21 on our Gregorian calendar.

The Roman calendar pre-46 B.C. was basically a lunar calendar and short by 10¼ days of a 365¼ -day tropical year. In order to prevent it from becoming too far out of step with the seasons, an intercalary month, named Intercalans, or Mercedonius was inserted between February 23 and 24. It consisted of 27 or 28 days, added once every two years, and in historical times at least, the remaining five days of February were omitted. The intercalation was therefore equivalent to an additional 22 or 23 days.

So we see here that March 1st (which was a new moon pre 46 B.C.) was preceded by either the moon of February or the intercalary moon/month of Mercedonius in order to keep March 1 new moon in the spring season.

Julius Caesar did not change the spring equinox at all. He only removed the moon from the Roman calendar and moved the beginning of the Roman year to January 1st. The equinox that takes place on March 20 is not man-made; it is not "Caesar's Equinox." It is fixed by Yahweh with the heavenly lights; it is found in nature.

This moves us into my last point, point #10. which I'll title:

10. Ancient Evidence for the Timing of the Equinox

It has been suggested that Julius Caesar changed the equinox to the one that is recognized today by the Farmer's Almanac, Nasa, and the US Naval Observatory. There has been no evidence to support this hypothesis, and it is not wise to accept something just because you hear or read someone say it. It doesn't matter how many times it is said or how loud it is spoken, there must be evidence given, and there has been none given whatsoever. Julius Caesar doesn't have anything to do with what is regarded as the equinox today.

One primary reason we can know that Julius Caesar did not change the equinox from the supposed date of February 20 to the current date of March 20, is because **there have been peoples marking the date we now call March 20 / 21 as well as what we now call September 22 / 23, for literally thousands of years.** Many of them marked these dates 2 to 3 thousand years before Julius Caesar was ever born. Therefore to make a claim that he somehow is to blame for changing the equinox to the date it occurs on today is entirely wrong.

Throughout the world there exists many hand-built monuments that are constructed in such a way as to highlight the equinoxes (both spring and fall) as well as the solstices. Almost all peoples, if not all peoples, in the B.C. era observed the path and positions of the sun as well as the revolutions of the moon. This is just simply the way ancient civilizations told time. We know this is the way the ancient Hebrews told time based upon Genesis 1:14-18. One of the Aramaic Targums of Genesis 1:14 (*Targum of Jonathan Ben Uzziel*) states it like this: "...Let there be lights in the expanse of the heavens, to distinguish between the day and the night; and let them be for signs and for festival times, and for the numbering by them the account of days, and for the sanctifying of the beginning of months, and the beginning of years, the passing away of months, and the passing away of years, the revolutions of the sun, the birth of the moon, and the revolvings (of seasons)."

The text of Genesis 1:14-18, and many other texts in Scripture reveal the sun and moon as time-keepers for the true calendar (Psalm 8:3; 19:1-6; 104:19; 136:7-9; Jeremiah 31:35-36; etc.). We have also seen how Philo recognized the heavenly light calendar. He simply recorded how the many Israelites of his day worshiped, and in doing so made multiple mentions of how the sun, moon, and stars were used in calculating the calendar.

We learn the following about the Israelites of Philo's day from reading his writings:

(1) The vernal (spring) equinox was used to determine the first month of the year.

(2) The vernal (spring) equinox was called the first season of the year.

(3) The autumnal (fall) equinox was called the third season of the year.

(4) The two greatest festivals in Israel (Unleavened Bread and Tabernacles) were tied to the seasons of the vernal and autumnal equinoxes.

My wife and I have personally researched many of the monuments built thousands of years ago that still to this day mark the equinoxes and the solstices throughout the year. The equinoxes these ancient monuments mark are at the end of March and end of September on our Gregorian calendar. The solstices these monuments mark are at the end of June and end of December on our Gregorian calendar. The equinoxes are not "bolted down" to the Gregorian calendar, this is just the days they fall out on, on the current calendar. It is remarkable to actually read about and visually watch these things take place. In studying about this I have come to realize that people today only *think* they are smarter than the primitive people that lived in the B.C. era.

No doubt, many of these monuments were used the worship to other gods. However, that does not make the sun or the moon pagan objects. The path of the sun and moon are created by Almighty Yahweh. What heathen people do on specific days of the sun and moons path is concocted by them. But they are not the ones that have made up the paths of the heavenly lights.

We recognize today that Yahweh's calendar has much to do with the moon. The new moon is very special in Yahweh's calendar as it marks the beginning of each Scriptural month. It is a fact that we can find that many heathen cultures, not in service to Yahweh, had a special day on the day of the new moon and even the full moon. This does not make the new and full moon erroneous. All this shows is that heathens took what Yahweh created and applied it to their heathen worship of other gods. The exact same thing applies to the path of the sun.

Anciently the equinoxes and solstices were determined by watching the path of the sun throughout the year. The sun always rises in the east and sets in the west, but there are only two days in the year when the sun rises due east and sets due west. These are the days of the equinoxes, the days when there is an equal amount of day (from sunrise to sunset) and an equal amount of night (from sunset to sunrise). The summer solstice is the day when the sun rises the furthest northeast, and the winter solstice is the day the sun rises the furthest southeast. I actually have a video presentation I put together that anyone can view.

The reason we can know beyond a shadow of a doubt that these monuments are set to the date of the equinoxes is because many of these same monuments also tell the day of the solstices (or either have other monuments close by them that do). Some also have pictures of the constellations drawn on them. They are clearly calendar time pieces.

Consider the Mayan pyramid in Mexico. This is basically a structure that shows the two equinoxes and the two solstices, and has 4 sides with 91 steps going up to the top for each of the four seasons. 91x4 equals 364. It then has a final top step totaling the steps to 365 days, the amount of days in the year. On two days out of the year (the equinoxes at the end of March and September) the sun rises and shines on the temple in such a way as to light up one ridge of the pyramid so that there appears to be the body of a snake traveling downward until it reaches and attaches to its head at the bottom of the pyramid. For these ancient people to have the intelligence to build such a monument is fascinating.

There is also a 5,000 year old cave in Loughcrew, Ireland. The rising sun on the day of the equinoxes illuminates the back stone of the chamber. There is only one small pathway to enter this particular cave, and the sun shines in this pathway only on the two equinoxes illuminating a drawing of the sun at the very back of the cave.

Let me mention one more monument that was found here in America. This particular location is called "Crack Cave" and is located in South Eastern Colorado. On the morning of the equinoxes the sun (rising due east) shines through a small crevice into a cave and perfectly lights up a small drawing that is believed to have been done by early American Indians. It is believed to be 1,500 to 2,500 years old.

What is so amazing about these ancient monuments is that fact that they are located in various and separated areas in the world. For example, the Mayans of ancient Mexico had no way of communicating with the Celts in Ireland or the various tribes amongst the early American Indians. They lived thousands of miles apart! **Yet the monuments formed or constructed by these peoples teach us that all civilizations followed the path of the sun with great accuracy in the exact same way.** I ask you to please take the time to watch the documentary I put together on these ancient monuments.

In Conclusion...

Believe it or not there is so much more I could mention in this presentation, but I have hit the high points today and I offer all of this information to you and so much more if you contact me by email or telephone. You can reach me by email at emjanzen@yahoo.com or by telephone at 678.347.6240. **I ask you to please not take my word or anyone else's word for anything. Please go back and research all of this point by point. Just be honest with yourself when you're doing the research.** This whole concept of a February and October equinox was brought to my attention around January of 2010 and at that time I thought it might be true so I went and studied the subject. I don't care one way or another which way is right, and it surely doesn't bother me to change positions, I've had to make many changes to my belief system in the past 15 years. I just want to follow the truth. I really appreciate everybody that has taken the time to hear me out today, and if anyone has any questions, I'll do my best to answer them.

Thanks,
Matthew
ministersnewcovenant.org

What follows now is more detailed information concerning the above points.

Philo's Understanding of Equal Day and Night

In this essay I would like to consider what Philo himself understood as being equal day and night. This will help us recognize properly what Philo believed to be the equinox, for he states quite emphatically that there is equal day and night at the time of both the Spring Equinox and the Fall Equinox. Notice this quote first:

WHO IS THE HEIR OF DIVINE THINGS XXIX
(149) **From the spring equinox to the summer solstice, day receives an addition to its length, and night, on the other hand, submits to a diminution; until the longest day and the shortest night are both completed. And then after the summer solstice the sun, turning back again the same road, neither more quickly nor more slowly than he advanced, but always preserving the same difference in the same manner, having a constantly equal arrangement, proceeds on till the autumnal equinox; and then, having made day and night both equal, begins to increase the length of the night, diminishing the day until the time of the winter solstice. (150) And when it has made the night the longest night, and the day the shortest day, then returning back again and adopting the same distances as before, he again comes to the spring equinox.**

Now notice this next place in the writings of Philo:

THE SPECIAL LAWS IV, XLII
(232)... **for who is there who does not know this fact, that the days are measured in due proportion to the nights, and the nights in due proportion to the days, by the sun, according to the equality of proportionate distances? (233) Nature, therefore, has marked out those periods in every year, which are called the equinoxes, from the state of things which exists at that time, namely, the spring and the autumnal equinox, with such distinctness, that even the most illiterate persons are aware of the equality which then exists between the extent of the days and of the nights.**

An even clearer understanding of Philo in the above text is seen by looking at the translation of Philo done by F.H. Colson.

THE SPECIAL LAWS IV, XLII (Colson)
(232)... for who does not know that the relation of days to nights and nights to days is regulated by the sun according to intervals of proportional equality? **The dates in spring and autumn every year, whose name of equinoxes is derived the facts observed, are so clearly marked out by nature, that even the least learned perceive the equality of length in the days and nights.**

We can be sure that Philo recognized that at both the Spring and Fall equinox the days and nights were equal in length. Now we must comb through the writings of Philo to see how he understood day and also how he understood night.

Let's begin now in Philo.

ON THE CREATION IX.

(32) Moses is right also when he says, that "darkness was over the face of the abyss." For the air is in a manner spread above the empty space, since having mounted up it entirely fills all that open, and desolate, and empty place, which reaches down to us from the regions below the moon. (33) And after the shining forth of that light, perceptible only to the intellect, which existed before the sun, then its adversary darkness yielded, as **God put a wall between them and separated them**, well knowing their opposite characters, and the enmity existing between their natures. In order, therefore, that they might not war against one another from being continually brought in contact, so that war would prevail instead of peace, **God**, burning want of order into order, **did not only separate light and darkness, but did also place boundaries in the middle of the space between the two, by which he separated the extremities of each.** For if they had approximated they must have produced confusion, preparing for the contest, for the supremacy, with great and unextinguishable rivalry, if boundaries established between them had not separated them and prevented them from clashing together, (34) **and these boundaries are evening and morning; the one of which heralds in the good tidings that the sun is about to rise, gently dissipating the darkness: and evening comes on as the sun sets, receiving gently the collective approach of darkness.** And these, I mean morning and evening, must be placed in the class of incorporeal things, perceptible only by the intellect; for there is absolutely nothing in them which is perceptible by the external senses, but they are entirely ideas, and measures, and forms, and seals, incorporeal as far as regards the generation of other bodies. (35) But when light came, and darkness retreated and yielded to it, and boundaries were set in the space between the two, namely, evening and morning, then of necessity the measure of time was immediately perfected, which also the Creator called "day." and He called it not "the first day," but "one day;" and it is spoken of thus, on account of the single nature of the world perceptible only by the intellect, which has a single nature.

1. Philo believed that there were boundaries in the middle or in between the day and the night. Philo named these boundaries as "evening" and "morning."

2. Philo said that the "morning" heralds in the good tidings that the sun is about to rise. This shows that Philo believed sun rise to be when the sun came above the horizon because he calls the time just before that "morning." Notice that he also says that this time is gently dissipating the darkness. The word dissipating carries the meaning of to "scatter, disperse, or dispel." The point is that the time period Philo calls the "morning" GENTLY SCATTERS AWAY the darkness, but notice that the darkness does not end until sun rise.

3. Philo speaks of "evening" coming on as the sun sets, and therefore Philo's definition of sun set would be when the sun sinks below the horizon. He then states that during this period of "evening" there is a gentle receiving the collective approach of darkness. Philo's point was that at sunset darkness begins to be received, but it is a gentle reception.

The above shows that Philo classed the periods of "evening" and "morning" in with the night or darkness. He does this by mentioning both sun rise and sun set, and also mentioning how darkness is gently dissipated at one end and gently received at another. At the same time Philo understood that these times were boundaries between the time period where the sun is ruling (day) and the total darkness of the night.

This understanding of Philo will become extremely apparent as we continue to look at ALL of what Philo said concerning this issue.

ON THE CREATION XVIII.
(55) But the Creator having a regard to that idea of light perceptible only by the intellect, which has been spoken of in the mention made of the incorporeal world, **created those stars which are perceptible by the external senses**, those divine and superlatively beautiful images, which on many accounts he placed in the purest temple of corporeal substance, namely in heaven. **One of the reasons for his so doing was that they** might give light; another was that they might be signs; another had reference to their dividing the times of the seasons of the year, and **above all dividing days and nights**, of months and years, which are the measures of time; and which have given rise to the nature of number. (56) And how great is the use and how great the advantage derivable from each of the aforesaid things, is plain from their effect. But with a view to a more accurate comprehension of them, it may perhaps not be out of place to trace out the truth in a regular discussion. **Now the whole of time being divided into two portions day and night, the sovereignty of the day the Father has assigned to the Sun, as a mighty monarch: and that of the night he has given to the moon and to the multitude of the other stars.** (57) **And the greatness of the power and sovereignty of the sun has its most conspicuous proof in what has been already said: for he, being one and single has been allotted for his own share and by himself one half portion of all time, namely day; and all the other lights in conjunction with the moon have the other portion, which is called night.** And **when the sun rises all the appearances of such numbers of stars are not only obscured but absolutely disappear** from the effusion of his beams; and when he sets then they all assembled together, begin to display their own peculiar brilliancy and their separate qualities.

1. Philo believed the moon and the stars had the sovereignty over the night.
2. Philo believed the sun had the sovereignty over the day.

3. Philo believed that the night ended when the sun rises and all the appearances of such numbers of stars disappear from the heavens.

ALLEGORICAL INTERPRETATION II, VIII
(30) Therefore, the awakening of the outward senses is the sleep of the mind; and the awakening of the mind is the discharge of the outward senses from all occupation**. Just as when the sun arises the brightness of all the rest of the stars becomes invisible; but when the sun sets, they are seen.** And so, like the sun, the mind, when it is awakened, overshadows the outward senses, but when it goes to sleep it permits them to shine.

1. Philo here is likening the sun rise to the time period that a human is awake from sleep.

2. Philo states that when the sun arises the brightness of all the stars becomes invisible.

3. Philo also says that when the sun sets the stars are seen.

ON THE BIRTH OF ABEL VI.
(34) Now, on account of these things, and because of what was said before, namely, that the things which are really pious, holy, and good do naturally utter a voice from themselves, even while they keep silence, I will desist from saying any more about them; for neither does **the sun nor the moon** require an interpreter, because **they, being on high, fill the whole world with light, the one shining by day and the other by night.**

1. Philo here in passing states that the sun shines by day and the moon shines by night.

This will be important later on in discussing Philo's comments concerning the time period of the moon known as the full moon.

CONCERNING NOAH'S WORK AS A PLANTER XXVIII.
(118) for the light which is perceptible by the outward senses, and held in honour, being that which throws the most brilliant light both upon itself and upon other things, and upon its own parents **the sun and the moon, and upon the most sacred company of the stars, which by their rising and setting fix the boundaries of night and day**...

1. Philo again mentions the sun, moon, and stars (as he has in other of his writings).

2. Philo states that is by the rising and setting of the sun, moon, and stars that the boundaries of night and day are fixed.

ON THE CONFUSION OF TONGUES XXI
(100) For the eyes of our body look upon the appearance **of the sun by day and of the moon by night** as standing still, and yet who is there who does not know that the rapidity of movements of these two bodies is incomparable, since they go round the whole heaven in one day?

1. Philo, once again, mentions the sun by day and the moon by night.

ON FLIGHT AND FINDING XXXIII.
(183) There are also many various fountains of instruction, by means of which most nutritious reasonings have sprung up like the trunks of palm-trees; "for," says Moses, "they came to Aileim, and in Aileim there were **twelve fountains of water** and seventy trunks of palm-trees. And they pitched their tents there by the side of the Water." The name Aileim is interpreted to mean "vestibules," a symbol of the approach to virtue. For as vestibules are the beginning of a house, so also are the encyclical preliminary branches of instruction the beginning of virtue, (184) **and twelve is the perfect number**, of which the circle of the zodiac in the heaven is a witness, studded as it is with such numbers of

brilliant constellations. The periodical revolution of the sun is another witness, for he accomplishes his circle in twelve months, **and men also reckon the hours of the day and of the night as equal in number to the months of the year,** (185) and the passages are not few in which Moses celebrates this number, describing the twelve tribes of his nation, appointing by law the offering of the twelve cakes of shewbread, and ordering twelve stones, on which inscriptions are engraved, to be woven into the sacred robe of the garment, reaching down to the feet of the high-priest, on his oracular dress.

1. Philo here makes mention that men reckon the hours of the day and of the night as equal to the number of months in the year - which he has already described as being 12.

This means that Philo believed there were 12 hours in the day and 12 hours in the night. This shows that Philo did not exclude the periods of evening and morning from the equation of day and night, as though there was only a 22 hour period to count for determining the equinox's.

ON DREAMS, THAT THEY ARE GOD SENT XIII
(1.76) Since, **as the sun divides day and night**, so also does Moses say that God divided the light from the darkness; for "God made a division between the light and between the Darkness." And besides all this, as the sun, when he arises, discovers hidden things, so also does God, who created all things, not only bring them all to light, but he has even created what before had no existence, not being their only maker, but also their founder.

1. Philo here is likening the S-U-N to the Almighty. He is speaking about how that God divided the light from the darkness, as well as how God brings all things to light. He says that the S-U-N is similar in that it - the sun - divides day and night and discovers hidden things.

This shows what we have learned in other places in Philo; he believed the lights in the heavens (sun, moon, and stars) are what divides day and night. Here is only mentions the sun dividing the day and the night.

THE SPECIAL LAWS II, XXXIII
(210) Again, the beginning of this festival is appointed for the fifteenth day of the month, on account of the reason which has already been mentioned respecting the spring season, also **that the world may be full, not by day only but also by night, of the most beautiful light, the sun and moon on their rising opposite to one another with uninterrupted light**, without any darkness interposing itself between so as to divide them.

1. Philo is here speaking of the beginning of the Feast of Tabernacles (reading earlier in this section shows this).

2. Philo speaks of this 15th day of the month as being full of beautiful light, not only by DAY but also by NIGHT.

3. Philo explains how this could be by recognizing that the SUN and the MOON rise opposite to one another on this 15th day of the month.

This shows that Philo believed the NIGHT began at sunset and the DAY began at sunrise. This is because (as we can still observe today) on the day of the full moon the moon rises above the horizon just as the sun sets below the horizon. Likewise, after the moon rules all night in the sky it sets below the horizon and the sun rises above the horizon.

Here we recognize that Philo had to have counted the "dusky" periods of evening and morning (as he spoke of in his work "On the Creation") in with the NIGHT when the moon ruled, specifically the full moon.

QUESTIONS AND ANSWERS ON GENESIS, I
(84) Why the man who lives a life of repentance is said to have lived three hundred and sixty five years? In the first place, the year contains three hundred and sixty-five days; therefore, by the symbol of the solar orbit, the sacred historian here indicates the life of the repentant man. In the second place, **as the sun is the cause of day and night, performing his revolutions by day above the hemisphere of the earth, and his course by night under the earth**, so also the life of the man of repentance consists of alternations of light and darkness; of darkness, that is, of times of agitation and circumstances of injury; and of light, when the light of virtue and its radiant brilliancy arises. In the third place, he has assigned to him a complete number, as the sun is ordained to be the chief of the stars of heaven, under an appointed number, in the time which came before the period of his repentance, to lead to the oblivion of the sins previously committed; since, as God is good, he bestows the greatest favours most abundantly, and, at the same time, he effaces the former offences of those who devote themselves to him, and which might deserve chastisement, by a recollection of their virtues.

1. Philo here mentions in passing that the SUN is the cause of day and night.

2. Philo goes on to clarify himself by saying that the SUN is ABOVE the hemisphere by DAY, and the SUN is BELOW the hemisphere by NIGHT.

Philo is certainly speaking of SUNRISE TO SUNSET as the time of DAY, and he is speaking of SUNSET TO SUNRISE as the time of NIGHT.

QUESTIONS AND ANSWERS ON GENESIS, II
(14) Why did the rain of the deluge last forty days and an equal number of nights? In the first place, **the word day** is used in a double sense. The **one meaning that time which is from morning to evening, that is to say, from the first rising of the sun in the east to his sinking in the west. Therefore they who make definitions, say, "That is day, as long as the sun shines on the earth."** In another sense, the word day is used of the day and night together. And in this sense we say that a month consists of thirty days, combining together and computing the period of night in the same calculation.

1. Philo here speaks of the two definitions of day, just like Scripture. A narrow definition and a broad definition.

2. The narrow definition of day - as opposed to night - is specifically spelled out by Philo here. He says it is from the first rising of the sun in the east to his sinking in the west. Just in case we don't understand him, he goes on to say that the definition made is that "it is day as long as the sun shines on the earth."

This harmonizes PERFECTLY with what Philo said in his QA on Genesis, I where he speaks of the sun being ABOVE the hemisphere by DAY, and BELOW the hemisphere by NIGHT.

ON THE CONTEMPLATIVE LIFE III
(27) And they are accustomed to **pray twice every day, at morning and at evening; when the sun is rising** entreating God that the happiness **of the coming day** may be real happiness, so that their minds may be filled with heavenly light, **and when the sun is setting** they pray that their soul, being entirely lightened and relieved of the burden of the outward senses, and of the appropriate object of these outward senses, may be able to trace out truth existing in its own consistory and council chamber.

1. Philo here speaks of a group of people who pray two times a day.

2. He goes on to speak of how they pray in the morning, when the sun is rising so that the coming DAY may be filled with real happiness.

3. He then speaks of them praying at evening, when the sun is setting.

ON THE CONTEMPLATIVE LIFE XI
(83) And after the feast **they celebrate the sacred festival during the whole night**; and this **nocturnal festival** is celebrated in the following manner: they all stand up together, and in the middle of the entertainment two choruses are formed at first, the one of men and the other of women, and for each chorus there is a leader and chief selected, who is the most honourable and most excellent of the band. (84) Then they sing hymns which have been composed in honour of God in many metres and tunes, at one time all singing together, and at another moving their hands and dancing in corresponding harmony, and uttering in an inspired manner songs of thanksgiving, and at another time regular odes, and performing all necessary strophes and antistrophes. (85) Then, when each chorus of the men and each chorus of the women has feasted separately by itself, like persons in the bacchanalian revels, drinking the pure wine of the love of God, they join together, and the two become one chorus, an imitation of that one which, in old time, was established by the Red Sea, on account of the wondrous works which were displayed there; (86) for, by the commandment of God, the sea became to one party the cause of safety, and to the other that of utter destruction; for it being burst asunder, and dragged back by a violent reflux, and being built up on each side as if there were a solid wall, the space in the midst was widened, and cut into a level and dry road, along which the people passed over to the opposite land, being conducted onwards to higher ground; then, when the sea returned

and ran back to its former channel, and was poured out from both sides, on what had just before been dry ground, those of the enemy who pursued were overwhelmed and perished. (87) When the Israelites saw and experienced this great miracle, which was an event beyond all description, beyond all imagination, and beyond all hope, both men and women together, under the influence of divine inspiration, becoming all one chorus, sang hymns of thanksgiving to God the Saviour, Moses the prophet leading the men, and Miriam the prophetess leading the women. (88) Now the chorus of male and female worshippers being formed, as far as possible on this model, makes a most humorous concert, and a truly musical symphony, the shrill voices of the women mingling with the deep-toned voices of the men. The ideas were beautiful, the expressions beautiful, and the chorus-singers were beautiful; and the end of ideas, and expressions, and chorussingers, was piety; (89) therefore, **being intoxicated all night till the morning with this beautiful intoxication, without feeling their heads heavy or closing their eyes for sleep, but being even more awake than when they came to the feast, as to their eyes and their whole bodies, and standing there till morning, <u>when they saw the sun rising they raised their hands to heaven</u>, imploring tranquillity and truth, and acuteness of understanding. And after their prayers they each retired to their own separate abodes, with the intention of again practising the usual philosophy to which they had been wont to devote themselves.** (90) This then is what I have to say of those who are called therapeutae, who have devoted themselves to the contemplation of nature, and who have lived in it and in the soul alone, being citizens of heaven and of the world, and very acceptable to the Father and Creator of the universe because of their virtue, which has procured them his love as their most appropriate reward, which far surpasses all the gifts of fortune, and conducts them to the very summit and perfection of happiness.

1. Philo here speaks of a group of people who kept a festival all night until the morning.

2. He goes on to say that when these people SAW THE SUN RISE they raised their hands to heaven.

The understanding is that this NIGHT festival was over when they SAW the SUN RISE.

The conclusion of this short paper is the following:

1. Philo believed that the equinox's - both Spring and Fall - were the days of the year in which the day and night were equal in length.

2. Philo believed the day and night were divided by the lights in the heavens: the sun, moon, and stars.

3. Philo narrows this down throughout his writings by speaking of the things like (1) the sun ruling by day above the hemisphere, but being below the hemisphere by night, (2) the full moon rising just as the sun is setting moving from day to night, and (3) people who saw the sun rise with their eyes and thus ended their night festival.

4. There is no doubt that in Philo's work titled "On the Creation" he speaks of LIGHT and DARKNESS being divided by boundaries of "evening" and "morning." However, when we look carefully at this text in Philo along with everything else in his writings we see that Philo included these boundaries of LIGHT and TOTAL DARKNESS in with the evening.

5. This all harmonizes with all the other evidence of the Spring and Fall equinox's being at the end of March and September. The day and night are equal at these times of the year so long as we understand (as Philo did) that day and night were divided by sunrise to sunset and then sunset to sunrise.

Some Thoughts on Sunset, Darkness, etc.

It is important to understand that equal day and night at the Spring and Fall Equinox has always been measured by sunrise and sunset by the ancients. It was NEVER measured any other way. **I have another paper that documents (with references) all the ancient authors that place the Spring Equinox at the end of MARCH and the Fall Equinox at the end of SEPTEMBER.** This means that we must understand that the NIGHT begins at sunset, and the DAY begins at sunrise. The Judahite historian Philo, relays to us this very understanding in his writings:

PHILO: QUESTIONS AND ANSWERS ON GENESIS, I
(84) Why the man who lives a life of repentance is said to have lived three hundred and sixty five years? In the first place, the year contains three hundred and sixty-five days; therefore, by the symbol of the solar orbit, the sacred historian here indicates the life of the repentant man. In the second place, **as the sun is the cause of day and night, performing his revolutions by day above the hemisphere of the earth, and his course by night under the earth...**

Notice how Philo says that the SUN is the cause of the DAY and the NIGHT. He goes on to say that the SUN's revolution by DAY is ABOVE the hemisphere of the earth, and by NIGHT under the earth.

I believe equal light/darkness is equal sunrise/sunset, because Scripturally the evening/night portion of the day begins at sunset and the morning/light portion of the day begins at sunrise.

Any other way of reckoning it is subjective. For example to say that "dark" is when the night begins yields no objective way of really knowing when the night begins. One man may say "Well, it's dark" 30 minutes after sundown, but the next man may say, "No, I think I'll wait another 15 minutes and then it will be dark." The truth is that the sky grow darker and darker until the sun is 18 degrees below the horizon which takes approximately 90 minutes after sunset. You do not have this problem with sunset. When the sun drops below the YHWH-made horizon it ceases to rule the day, and therefore brings on the first degree of night = evening.

The Scriptural equinox occurs much closer to the equal day/night as determined by sunrise and sunset. This led me to believe the way that I do concerning sunset.

Genesis 15:17; Amos 8:9; and Micah 3:6 do not prove that sunset is complete darkness. These Scriptures actually prove that sunset is when darkness starts.

The above verses actually prove that sunset is the beginning of darkness. Biblically, sunset was considered the time when the sun ceased to rule in the sky and night began. It didn't work like a light switch with just an on and off position. Erev (evening) is a word that can describe dusk, night, dark night, etc. Look at these definitions from Hebrew Lexicons:

STRONG'S - "dusk"

BROWN, DRIVERS, BRIGGS - "evening, night, sunset"

Notice also that the common word for evening in the Tanak is "ereb" #6153 in Strong's. Here are some words that are closely related to this common word, containing the same consonants in Hebrew. The only difference is the vowel pointing.

#6154 - "the web, also a mixture or mongrel race"

#6151 - "to commingle"

#6150 - "covering with a texture, to grow dusky at sundown"

The idea here is that evening begins at dusk, when there is a MIXTURE or GREY color over the land. Darkness has begun, but it will not be complete darkness until midnight.

Philo mentions these dusky periods in his writings and includes them in with the night.

PHILO: ON THE CREATION IX
(33) And after the shining forth of that light, perceptible only to the intellect, which existed before the sun, then its adversary darkness yielded, as **God put a wall between them and separated them**, well knowing their opposite characters, and the enmity existing between their natures. In order, therefore, that they might not war against one another from being continually brought in contact, so that war would prevail instead of peace, **God**, burning want of order into order, **did not only separate light and darkness, but did also place boundaries in the middle of the space between the two, by which he separated the extremities of each.** For if they had approximated they must have produced confusion, preparing for the contest, for the supremacy, with great and unextinguishable rivalry, if boundaries established between them had not separated them and prevented them from clashing together, (34) **and these boundaries are evening and morning; the one of which heralds in the good tidings that the sun is about to rise, gently dissipating the darkness: and evening comes on as the sun sets, receiving gently the collective approach of darkness.**

Notice carefully how Philo says that the MORNING is the herald of good news that the sun is about to rise, gently dissipating the darkness. Philo is saying that this boundary he has spoken of is called MORNING and it takes place as the darkness of the night sky gently scatters away. Then comes the brilliant Sun that begins to rule the DAY the moment you see it peak above the horizon.

Then Philo says that the EVENING comes on as the sun sets. This perfectly aligns with the Hebrew word *ereb*, which carries the meaning of dusk or sunset. When the sun sets, the sun has ceased to rule, so it is therefore NIGHT, but notice that Philo says "receiving gently the collective approach of darkness." Philo is speaking of how the night time gently receives darkness, a little at a time. **Philo CLEARLY places these dusky periods in with the night. This makes perfect sense, seeing that the sun is not ruling at these times, but as I will show with the next quote from Philo, the moon does rule at these times at the period of the full moon.**

Notice how Philo speaks of day and night:

PHILO: THE SPECIAL LAWS II, XXXIII
(210) Again, the beginning of this festival is appointed for the fifteenth day of the month, on account of the reason which has already been mentioned respecting the spring season, also **that the world may be full, not by day only but also by night, of the most beautiful light, the sun and moon on their rising opposite to one another with uninterrupted light**, without any darkness interposing itself between so as to divide them.

Philo is here speaking of the beginning of the Feast of Tabernacles (reading earlier in this section shows this).

Philo speaks of this 15th day of the month as being full of beautiful light, not only by DAY but also by NIGHT.

Philo explains how this could be by recognizing that the SUN and the MOON rise opposite to one another on this 15th day of the month.

This shows that Philo believed the NIGHT began at sunset and the DAY began at sunrise. This is because (**as we can still observe today**) on the day of the full moon the moon rises above the horizon just as the sun sets below the horizon. Likewise, after the moon rules all night in the sky it sets below the horizon and the sun rises above the horizon.

Here we recognize that Philo had to have counted the "dusky" periods of evening and morning (as he spoke of in his work "On the Creation IX. 32-35") in with the NIGHT when the moon ruled, specifically the full moon.

Ask yourself this question: when the sun sets below the horizon and the full moon comes up at the same time above the horizon, what heavenly body is ruling? Surely it

is not the sun; the sun can't even be seen, while the moon is in full brilliancy. The moon is doing the ruling here and thus it is NIGHT TIME because the MOON RULES AT NIGHT, not during the DAY (Gen. 1:14-18; Psalm 136:7-9; Jer. 31:35-36).

Nehemiah 13:19 shows that sunset begins the period of evening, but THIS VERSE HAS BEEN MISUNDERSTOOD by many who claim that the evening begins at the time of total darkness.

The "total darkness" position is problematic because once sunset takes place the sky grows darker and darker until the sun is about 18 degrees below the horizon. This takes place roughly 90 minutes after sunset. One man may say that we should start counting 30 minutes after sunset, another man may say 60 minutes, while yet another may say 90 minutes. Still another may say 45 minutes, and yet another 75 minutes. There is no conjunction point, so it is completely subjective. When you use the YHWH made horizon, you have a conjunction point where you can definitively say that evening has begun at sunset.

At any rate, what is getting "dark" in Nehemiah 13:19? **It is not the DAY that is getting dark, but the GATES.** Even in the KJV we see this when it says, "As the GATES of Jerusalem began to be dark..." The KJV however misses the translation. Notice a couple of other translations.

HCSB - "When shadows began to fall on the gates of Jerusalem just before the Sabbath."

NIV - "When the evening shadows fell on the gates of Jerusalem before the Sabbath."

The word "dark" in the KJV is the Hebrew word *tsalal* and is defined by Strong's as "hovering over, or to shade." It is only used one other time in the entire Tanak and that's in Ezekiel 31:3:

"Behold, the Assyrian *was* a cedar in Lebanon with fair branches, and with a **shadowing shroud**, and of an high stature; and his top was among the thick boughs." (KJV)

This verse refers to the shade that leafy shroud or trees give.

The point in Nehemiah 13:19 is that as the sun was setting it casted a shadow on the gates of Jerusalem before the Sabbath. This shows that at sunset (the time when the sun went below the YHWH made horizon) Sabbath would begin.

This is significant because it shows **sunset** begins the evening or night period of a 24 hour day. Consistency demands that **sunrise** begin the light period of the 24 hour day. **At the time when these two are of equal length is how what we call the equinox was measured anciently.**

Sometimes people give many Scriptures that talked about "sundown" and "dark," and I believe all of them. To me it shows that sunset was considered to be darkness. It wasn't complete darkness, but it was the time that darkness began because the sun had ceased to rule in the sky. There are varying degrees of darkness during the night time.

Philo: on the Spring and Fall Equinox

If we want to know when Philo believed the equinox's to be (both Spring and Fall) then we need to go to each place in Philo where he specifically mentions these equinox's and determine what he believed by these texts. To read a passage in Philo where he is not even discussing the equinox's will not teach us when Philo believe the equinox's to be. I will show in this short section that Philo did not believe the Spring Equinox took place in the Roman month February, nor did he believe the Fall Equinox took place in the Roman Month October.

*All quotations of Philo are from the translation done by CD Yonge unless otherwise noted.

Here is the first place Philo mentions the equinox's. It is found in his writing titled "On the Creation."

ON THE CREATION XXXIX.
(116) And the sun, the ruler of the day, **making two equinoxes every year, both in spring and autumn. The spring equinox in the constellation of Aries, and the autumnal one in Libra**, gives the most evident demonstration possible of the divine dignity of the number seven. **For each of the equinoxes takes place in the seventh month, at which time men are expressly commanded by law to celebrate the greatest and most popular and comprehensive festivals**; since it is owing to both these seasons, that all the fruits of the earth are engendered and brought to perfection; the fruit of corn, and all other things which are sown, being owing to **the vernal equinox**; and that of the vine, and of all the other plants which bear hard berries, of which there are great numbers, to **the autumnal one**.

Consider these points about what Philo just said:

1. The two equinox's in the year were in Spring and in Autumn (Fall).

2. He believed the Spring Equinox took place in the constellation of Aries.

3. He believed the Fall Equinox took place in the constellation of Libra.

4. He stated that men are commanded to keep the greatest festivals at each of these equinoxes, and he then names them as the spring/vernal and the fall/autumnal.

Next we move to his work titled WHO IS THE HEIR OF DIVINE THINGS. He writes the following:

WHO IS THE HEIR OF DIVINE THINGS XXIX.

(146) These things being thus previously sketched out, see now how God, dividing things in the middle, has divided them into equal portions according to all the ideas of equality which occur in the creation of the universe. He has divided the heavy things so as to make them equal in number to the light ones, two to two; that is to say, so that the earth and the water, being things of weight, are equal in number to those which are by nature light, air, and fire. Again, he has made one equal to one, the driest thing to the wettest thing, the earth to the water; and the coldest thing to the hottest thing, the air to the fire. **So, in the same manner, he had divided light from darkness, and day from night, and summer from winter, and autumn from spring**; and so on. (147) Again, he has divided things so as to make his divisions equal in point of magnitude; such as the parallel cycles in heaven, and those which belong **to the equinoxes both of spring and autumn, and those which belong to the winter and summer solstice**. And on the earth he has divided the zones, two being equal to one another, which being placed close to the poles are frozen with cold, and on this account are uninhabitable. And two he has placed on the borders between these two and the torrid zone, and these two they say are the abode of a happy temperature of the air, one of them lying towards the south and the other towards the north. (148) Now the divisions of time are equal in point of length, the longest day being equal to the longest night, and the shortest day being equal to the shortest night, and the mean length of day to the mean length of night**. And the equal magnitude of other days and nights appears to be indicated chiefly by the equinoxes.** (149) **From the spring equinox to the summer solstice, day receives an addition to its length, and night, on the other hand, submits to a diminution; until the longest day and the shortest night are both completed. And then after the summer solstice the sun, turning back again the same road, neither more quickly nor more slowly than he advanced, but always preserving the same difference in the same manner, having a constantly equal arrangement, proceeds on till the autumnal equinox; and then, having made day and night both equal, begins to increase the length of the night, diminishing the day until the time of the winter solstice. (150) And when it has made the night the longest night, and the day the shortest day, then returning back again and adopting the same distances as before, he again comes to the spring equinox.** Thus the differences of time which appear to be unequal, do in reality possess a perfect equality in respect of magnitude, not indeed at the same seasons, but at different seasons of the year.

We can conclude the following about the equinox's from this quotation from Philo:

1. The equinox's have to do with the Spring and the Autumn (while the solstice's have to do with the winter and the summer).

2. The equinox's are the two times in the year when day and night are of equal length.

3. We might also recognize here that Philo calls the day of the Summer Solstice the longest day and the day of the Winter Solstice the shortest day.

Next we come to Philo's writing titled ON THE LIFE OF MOSES II where he writes the following:

ON THE LIFE OF MOSES II
(123) And the colour of the stars is an additional evidence in favour of my view; for to the glance of the eye the appearance of the heaven does resemble an emerald; and it follows necessarily that six names are engraved on each of the stones, because each of the hemispheres cuts the zodiac in two parts, and in this way comprehends within itself six animals. (124) **Then the twelve stones on the breast, which are not like one another in colour, and which are divided into four rows of three stones in each, what else can they be emblems of, except of the circle of the zodiac? For that also is divided into four parts, each consisting of three animals, by which divisions it makes up the seasons of the year, spring, summer, autumn, and winter, distinguishing the four changes, the two solstices, and the two equinoxes, each of which has its limit of three signs of this zodiac, by the revolutions of the sun, according to that unchangeable, and most lasting, and really divine ratio which exists in numbers**; (125) on which account they attached it to that which is with great propriety called the logeum. **For all the changes of the year and the seasons are arranged by well-defined, and stated, and firm reason**; and, though this seems a most extraordinary and incredible thing, by their seasonable changes they display their undeviating and everlasting permanence and durability.

Here we see the following:

1. Philo likened the year's division to the breastplate of the high priest in Israel. He says that the breast plate of the priest was divided into four rows of three stones in each.

2. He goes on to tell us that the year is divided into four seasons, each having three signs of the zodiac.

3. He also explains that each of these four seasons are marked off by the two solstices and the two equinox's.

With this new found method of determining the equinox you have the seasons of the year being out of kilter. In other words you have four months of spring and summer, but only 2 months of fall and winter. This makes 8 and 4, or (counting from Spring) it makes 4-4-2-2. First off, this places the Feast of Tabernacles as a summer feast rather than a fall feast. This means you have Passover in spring. but Pentecost and Tabernacles in summer. In other words - **spring, summer, summer** instead of **spring, summer, fall**.

Please allow me to digress a moment and quote a few other sections in Philo where he speaks of the equal division of the four seasons.

THE SPECIAL LAWS I [COLSON] XXXVIII (210)
...for **winter and summer, spring and autumn**, those seasons which occur annually and our so highly beneficial to our life..."

THE SPECIAL LAWS I [COLSON] XVI (87)
Then on the breast there are **twelve precious stones** of different colours, arranged in **four rows of three each, set in this form on the model of the zodiac, for the zodiac consisting of twelve signs makes the four seasons of the year by giving three signs to each.**

THE SPECIAL LAWS IV XLII (235)
For as **the year is portioned out into four divisions**, the air is formed by nature to endure changes and alterations at what are called the seasons of the year, and it displays an indescribable regularity in its irregularity; **for as the atmosphere is divided by an equal number of months into winter, and spring, and summer, and autumn, it completes the whole year by allotting three months to each season**; as, in fact, the very name of the year intimates. For it in itself contains everything, being complete in itself, though otherwise it would not be able to effect this, if it were not aided by **the regular revolutions of the seasons of the year.** (236) **Again, this same equality extends from the heavenly bodies, and from those which are raised on high, to the things upon earth...**

Some proponents of the false February equinox attempt to reconcile their position with Philo by saying that their position does have three months to each season like this:

- Febrary, March, April
- May, June, July
- August, September, October
- November, December, January

This just simply will not work and here is why. The seasons are tied to the equinox's. In other words Spring begins with the spring equinox and ends at the Summer solstice. Summer begins with the summer solstice and ends at the fall equinox. Fall begins with the fall equinox and ends at the winter solstice. Winter begins at the winter solstice and ends at the Spring equinox. Philo's point is that there exists an equal time period between all of the four seasons of the year, and this can only be true if the spring equinox is at the end of March and the fall equinox is at the end of September.

For example, these proponents state that the Spring Equinox takes place on February 20. Well, from February 20 until the summer solstice on June 21 is about 121 days. Also from June 21 until when these proponents say the fall equinox takes place is about 121 days. However, from this supposed fall equinox until the winter solstice is about 62 days, and from the winter solstice to the supposed spring equinox is about 62 days. THERE IS NO POSSIBLE WAY that Philo could have believed the spring equinox took place at the end of February and the fall equinox took place at the end of October.

Philo also states in this same book:

ON THE LIFE OF MOSES II, XLI

(222) **Moses puts down the beginning of the vernal equinox as the first month of the year**, attributing the chief honour, not as some persons do to the periodical revolutions of the year in regard of time, but rather to the graces and beauties of nature which it has caused to shine upon men; for it is through the bounty of nature that the seeds which are sown to produce the necessary food of mankind are brought to perfection.

1. This shows us that Philo believed that the first month of the Biblical year has something to do with the vernal (Spring) equinox.

The next place Philo mentions an equinox is in his work titled THE DECALOGUE where he writes the following:

THE DECALOGUE XXX
(161) But to the seventh day of the week he has assigned the greatest festivals, those of the longest duration**, at the periods of the equinox both vernal and autumnal in each year; appointing two festivals for these two epochs, each lasting seven days; the one which takes place in the spring being for the perfection of what is being sown, and the one which falls in autumn being a feast of thanksgiving for the bringing home of all the fruits which the trees have produced. And seven days have very appropriately been appointed to the seventh month of each equinox**, so that each month might receive an especial honour of one sacred day of festival, for the purpose of refreshing and cheering the mind with its holiday.

1. Here Philo states something similar to what he already stated in his work On the Creation. He says that the greatest festivals (Unleavened Bread and Tabernacles) are at the periods of the vernal and autumnal equinox.

2. He clarifies this even further by stating that the Creator appointed these two festivals for these two epochs. He is calling the equinox's by the term epochs.

3. He also says that one of the festivals takes place in Spring and the other festival takes place in Autumn.

Here we are beginning to see clearly why it is completely inaccurate to think that Philo believed the Spring Equinox was at the end of February and the Fall Equinox was at the end of October. If the Spring Equinox is on February 20th and the Fall Equinox is on October 23rd then that means the February equinox proponents will ALWAYS - WITHOUT EXCEPTION - keep the Feast of Tabernacles BEFORE their Fall Equinox ever takes place. **This BY ITSELF completely disproves this hypothesis that the Spring and Fall equinox's take place on February 20th and October 23rd.**

Keep this in mind. With this new found way of determining the equinox's these people will always keep his Feast of Unleavened Bread AFTER the Spring Equinox, so he is okay here at least in theory. However, he will never keep his Feast of Tabernacles after the Fall Equinox and this means that THERE IS NO POSSIBLE WAY that Philo could

have believed the Spring and Fall equinox's took place at the ends of February and October.

REMEMBER THIS: In his work On the Creation Philo stated that men are commanded to keep the greatest festivals at each of these equinoxes, and he then names them as the spring/vernal and the fall/autumnal. He then states in the Decalogue that the greatest festivals (Unleavened Bread and Tabernacles) are at the periods of the vernal and autumnal equinox.

You can safely conclude that Philo did not believe what these February equinox proponents are pushing. Philo believe that the Feast of Unleavened Bread came after the Vernal Equinox and the Feast of Tabernacles came after the Autumnal Equinox.

Let's move on now to the next mentioning of an equinox in the writings of Philo.

THE SPECIAL LAWS XXXV
(172) **And loaves are placed on the seventh day on the sacred table, being equal in number to the months of the year, twelve loaves, arranged in two rows of six each, in accordance with the arrangement of the equinoxes; for there are two equinoxes every year, the vernal and the autumnal**, **which are each reckoned by periods of six months. At the vernal equinox** all the seeds sown in the ground begin to ripen; about which time, also, the trees begin to put forth their fruit. And **by the autumnal one** the fruit of the trees has arrived at a perfect ripeness; and at this period, again, is the beginning of seed time.

1. Philo again lets us know that he believed in two equinox's every year - vernal (Spring) and autumnal (Fall).

2. Philo states here that at the Vernal Equinox all the seeds sown in the ground begin to ripen and the trees begin to put forth their fruit.

3. Notice also that Philo states that at the Autumnal Equinox the FRUIT of the trees have arrived at perfect ripeness. This let's us know that by the word FRUIT Philo was speaking of the actual edible FRUIT on a FRUIT TREE.

This means that Philo observed the FRUIT, not the bud or flower, etc. but the FRUIT on a fruit tree at the Vernal Equinox. Philo also observed this same FRUIT in a ripe state that the time of the Autumnal Equinox.

*Also take note that Philo speaks of the "shew-bread" as being arranged in 12 loaves (equal to the months of the year) with two rows of six each IN ACCORDANCE WITH THE ARRANGEMENT OF THE EQUINOXES. He then mentions that there are TWO EQUINOXES - vernal and autumnal - that are reckoned by periods of 6 months. In other words there are 6 months allotted from spring equinox to fall equinox, and then 6 months allotted from fall equinox back to spring equinox. This is IMPOSSIBLE if you reckon the spring equinox to be on February 20 and the fall equinox to be on October 22. In this

latter case you would have about 8 months from spring equinox to fall equinox, and only 4 months from fall equinox to spring equinox.

Next from Philo:

THE SPECIAL LAWS XXXV
(181) **In the first season--he calls springtime and its equinox the first season--he ordered that a feast which is called "the feast of unleavened bread" be celebrated for seven days** and declared that every day was equal in honor in religious services. For he commanded that each day ten whole burnt offerings should be sacrificed just as they are for the new moons, making the total number of whole burnt offerings apart from those dealing with the trespass offerings seventy. (182) For he thought that the same reason governed the relation of the new moon to the month which governed the relation **of the seven days of the feast to the equinox that took place in the seventh month.**

1. Philo believe that the first season of the year was the Spring time and he tied this season with the equinox.

2. Philo then goes on to liken the sacrifices of the seven day feast in the first month (Spring Equinox) to the seven day feast in the seventh month (Fall Equinox).

Once again, these greatest feasts in Israel (7 days in length) take place in the Spring (Unleavened Bread) and the Fall (Tabernacles). The seasons of Spring and Fall are clearly pointed out by the Spring Equinox, which equals Spring, and the Fall Equinox, which equals Fall. THIS IS IMPOSSIBLE WITH A FALL EQUINOX ON OCTOBER 23. UTTERLY IMPOSSIBLE.

Next from Philo:
THE SPECIAL LAWS XXXV
(186) **When the third season takes place in the seventh month at the autumnal equinox**, at the beginning of the month, the feast which begins the sacred month named "the feast of trumpets" and which was discussed earlier is celebrated.

1. Philo calls the third season the time of the autumnal equinox.

We have seen that Philo believe the first season to be Spring (Spring Equinox), the second season to be Summer (Summer Solstice), and now he calls the third season Autumn (Fall Equinox).

Next from Philo:
THE SPECIAL LAWS II, XXVIII.
(150) And there is **another festival** combined with the feast of the passover, having a use of food different from the usual one, and not customary; the use, namely, of **unleavened bread**, from which it derives its name. And there are two accounts given of this festival, the one peculiar to the nation, on account of the migration already described; the other a common one, in accordance with conformity to nature and with the harmony of the whole

world. And we must consider how accurate the hypothesis is. **This month**, being the seventh both in number and order, according to the revolutions of the sun, **is the first in power; (151) on which account it is also called the first in the sacred scriptures**. And the reason, as I imagine, is as follows. **The vernal equinox is an imitation and representation of that beginning in accordance with which this world was created. Accordingly, every year, God reminds men of the creation of the world, and with this view puts forward the spring, in which season all plants flourish and bloom**; (152) for which reason this is very correctly set down in the law as the first month, since, in a manner, it may be said to be an impression of the first beginning of all, being stamped by it as by an archetypal Seal. (153) Although the month in which **the autumnal equinox occurs is first in sequence according to solar orbits, it is not considered first in the law. The reason is that at that time, after all the crops have been harvested, the trees lose their leaves and everything that springtime produced in the height of its glory is withering under dry winds after it has been made dry by the flaming heat of the sun.** (154) Therefore he thought that to apply the name "first" to the month in which the hill country and the plain become barren and infertile, was incongruous and unfitting. For it is necessary that the most beautiful and desirable phenomena belong to those things which are first and have received the position of leadership, those phenomena through which the reproduction and growth of animals and fruit and crops take place, but not the ominous destructive forces.

1. Here Philo again links the first month and the season of Spring with the Vernal Equinox and the Feast of Unleavened Bread.

2. He also speaks of how that in the Torah (law) the Vernal Equinox marks the first month and the Autumnal Equinox marks the seventh month.

Here we have another proof that this hypothesis concerning when the two equinox's (being in February and October) is just not accurate. The reason being because, once again, they will always keep their Feast of Tabernacles before the Autumnal Equinox even takes place (according to them, October 23rd).

THE SPECIAL LAWS II, XXXIII.

(204) **The last of all the annual festivals is that which is called the feast of tabernacles, which is fixed for the season of the autumnal equinox**. And by this festival the lawgiver teaches two lessons, both that it is necessary to honour equality, the first principle and beginning of justice, the principle akin to unshadowed light; and that it is becoming also, after witnessing the perfection of all the fruits of the year, to give thanks to that Being who has made them perfect. (205) **For the autumn, as its very name shows is the season which comes after the fruits of the year are now gathered into the granaries**, on account of the providence of nature which loves the living creatures upon the earth. (206) **And, indeed, the people are commanded to pass the whole period of the feast under tents**, either because there is no longer any necessity for remaining in the open air labouring at the cultivation of the land, since there is nothing left in the land, but all ... is stored up in the barns, on account of the injuries which

otherwise might be likely to visit it from the burning of the sun or the violence of the Rains.

1. Philo believed that the last commanded annual festival (Tabernacles) is fixed for the season of the autumnal equinox.

2. Philo names this time that people dwell in tents as the Autumn Season.

You cannot have a festival in the Autumn season until the marker for that season takes place. We have seen throughout Philo's writings that Philo believed the Autumnal Equinox marked the season of Autumn.

Once again, based upon the writings of Philo, the February equinox hypothesis falls short from being correct.

THE SPECIAL LAWS IV, XLII
(231) for this is the principle of equality, which is, as those who have accurately investigated the secrets of nature have handed down to us, the mother of justice; and equality is a light which is never shaded; the sun (if one must speak the plain truth) appreciable by the intellect alone, since inequality, on the contrary, in which that which is superior and that which is inferior are both found, is the beginning and source of darkness; (232) it is equality which, by its unchangeable laws and ordinances, has arranged, in their present beautiful order, all the things in heaven and earth; **for who is there who does not know this fact, that the days are measured in due proportion to the nights, and the nights in due proportion to the days, by the sun, according to the equality of proportionate distances? (233) Nature, therefore, has marked out those periods in every year, which are called the equinoxes, from the state of things which exists at that time, namely, the spring and the autumnal equinox, with such distinctness, that even the most illiterate persons are aware of the equality which then exists between the extent of the days and of the nights.**

1. Philo here believes that the spring and autumnal (fall) equinox's are the two days of the year in which day and night are of equal length.

I will get to this in more detail in another paper/post/essay, but for now let me say that I can prove from the writings of Philo that Philo marked the division of day and night by sunrise and sunset. I know for sure that He did not mark the division of day and night by starting even 1 hour or more after sunset, or by excluding the dusky periods of the 24 hour day from the equation. I know this is the case because if Philo did believe as the February equinox proponents state then HE COULD NOT POSSIBLY BELIEVE that (1) the Feast of Tabernacles came after the Autumnal Equinox and (2) that the four seasons of the year are equally divided into three months (approx. 91 days) a piece.

Next from Philo:

FLACCUS XIV.

(116) This was the unexampled misfortune which befell Flaccus in the country of which he was governor, being taken prisoner like an enemy on account of the Jews, as it appears to me, whom he had determined to destroy utterly in his desire for glory. And a manifest proof of this is to be found in the time of his arrest, **for it was the general festival of the Jews at the time of the autumnal equinox, during which it is the custom of the Jews to live in tents...**

1. Philo believed that the custom (law) concerning dwelling in tents (Feast of Tabernacles) took place at the time of the Autumnal Equinox.

I do not mean to sound like a broken record, but let me say again that this is UTTERLY IMPOSSIBLE if the Fall Equinox takes place on October 23, using this new found false method of determining the equinoxes.

There are more places where Philo mentions the two equinox's in his QUESTIONS AND ANSWERS ON GENESIS (both II and III), but I do not want to overload anyone with too much information. I have given concrete, solid evidence showing that Philo, a Judahite historian of the 1st century B.C. and 1st century A.D. did not believe in an end of February Spring Equinox nor an end of October Fall Equinox.

The Sign of Aries in Josephus, Philo, and Others...

I would like to talk a little bit about Josephus' mentioning of Aries in Antiquities 3.10.5 which reads:

Josephus - Antiquities 3.10.5
In the month of Xanthicus, which is by us called *Nisan,* and is the beginning of our year, on the fourteenth day of the lunar month, when the sun is in Aries, (for in this month it was that we were delivered from bondage under the Egyptians,)...

Clearly, in the days of Josephus, the Passover was kept when the sun was in Aries. Aries is the Latin word for Ram, and refers to a constellation in the sky. Here is a good introduction to Aries: http://www.farmersalmanac.com/astronomy/2011/03/21/zodiac-zone-meet-aries/

Not only does Josephus speak of Aries in relation to the Passover, but so does the Judahite historian Philo:

Philo - On the Creation, XXXIX(116)
(116) And the sun, the ruler of the day, making two equinoxes every year, both in spring and autumn. **The spring equinox in the constellation of Aries, and the autumnal one in Libra**, gives the most evident demonstration possible of the divine dignity of the number seven. For each of the equinoxes takes place in the seventh month, **at which time men are expressly commanded by law to celebrate the greatest and most popular and comprehensive festivals**; since it is owing to both these seasons, that all the fruits of the earth are engendered and brought to perfection; the fruit of corn, and all other things

which are sown, being owing to the vernal equinox; and that of the vine, and of all the other plants which bear hard berries, of which there are great numbers, to the autumnal one.

Philo - QA on Exodus (Book 1.1)
(Scripture) thinks it proper to reckon the cycle of months from the vernal equinox. Moreover, (this month) is said to the "first" and the "beginning" by synonymy, since these (terms) are explained by each other, for it is said to be the first both in order and in power; similarly that time which proceeds from the vernal equinox also appears (as) the beginning both in order and in power, in the same way as the head (is the beginning) of a living creature. And thus those who are learned in astronomy have given this name to the before-mentioned time. **For they call the Ram the head of the zodiac since in it the sun appears to produce the vernal equinox.**

You can access most of Philo's writings here:
http://www.earlyjewishwritings.com/philo.html

Philo writings on Exodus can be found here:
http://openlibrary.org/books/OL20423933M/Questions_and_answers_on_Exodus

So Josephus states that in his day the Passover was kept when the sun was in Aries, and Philo states that the spring equinox was in the constellation of Aries and in this sign the sun appears to produce the vernal equinox. The question we have to ask our self is, "When did the sun enter the sign of Aries in the 1st century A.D.?" Here is what I have found in my research.

The zodiac is the division of the annual path in the sky near the path of the sun into 12 equal parts. Each of these parts is called a sign of the zodiac. For this purpose the “year” is the solar year, that is, the average time from one vernal equinox to the next vernal equinox. Each sign has a name, which is also the name of a constellation of stars in the sky.

At the time that the zodiac was being developed by the Babylonians about 460 BCE, each named constellation did appear in the sky during some of the time of the sign that had its same name. However, from one year to the next year these constellations do not appear at exactly the same time in the sky. There is a very slow drift of the time of appearance of each constellation in the sky with respect to the vernal equinox each year. This slow drift in the time of the appearance of the stars each year has been named ***precession of the equinoxes***, and it takes about 25,800 years for the appearance of the stars to cycle around one complete year. The Greek astronomer Hipparchus discovered precession around 140 BCE. There is no evidence that the Babylonians knew about precession. The main point is that the constellations slowly change position relative to the vernal equinox, but the signs of the zodiac remain fixed relative to the vernal equinox.

The zodiac is divided up into 360 equal parts, each of which is called a degree. This shows that each degree is slightly longer than one day because there are about 365.2422 days per year. Each of the 12 signs is 30 degrees, so that each sign is almost 30.5 days.

Here are some ancient authors around the time period that both Josephus and Philo wrote. They date the beginning of Aries to be 8 days before the spring equinox, around March 17th of the Julian calendar.

Columella - Book IX, Chapter XIV (Page 407)
From the first equinox, which happens **about the 24th of March, in the 8th part of Aries**, to the rising of Pleiades, there are reckoned 48 days of spring-time.

Columella - Book XI, Chapter 2 (Page 467)
The 17th of March the Sun passes into Aries (the Ram): a west or north-west wind. the 21st of March the Horse sets in the morning: northerly winds. The 23rd of March Aries begins to rise: a rainy day; sometimes it snows. The 24th of March, the vernal Equinox is the sign of the storm.
*(*You can access Columella at google books for free)*

Vitrivius - Boox IX, Chapter 3
http://penelope.uchicago.edu/Thayer/E/Roman/Texts/Vitruvius/9*.html
When the sun has entered the sign of Aries, and run through about an eighth part of it, it is the vernal equinox.

Pliny - Book XVIII, Chapter 59
http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D18%3Achapter%3D59
In all these calculations, it must be remembered, equinoctial hours are spoken of, and not those measured arbitrarily in reference to the length of any one day in particular. All these seasons, too, commence at the eighth degree of the signs of the Zodiac. The winter solstice begins at the eighth degree of Capricorn, the eighth day before the calends of January, in general; **the vernal equinox at the eighth degree of Aries**; the summer solstice, at the eighth degree of Cancer; and **the autumnal equinox at the eighth degree of Libra**: and it is rarely that these days do not respectively give some indication of a change in the weather.

Pliny - Book II, Chapter 17
http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D2%3Achapter%3D17
The Sun himself is in four different states; **twice the night is equal to the day, in the Spring and in the Autumn, when he is opposed to the centre of the earth, in the 8th degree of Aries and Libra.** The length of the day and the night is then twice changed, when the day increases in length, from the winter solstice in the 8th degree of Capricorn, and afterwards, when the night increases in length from the summer solstice in the 8th

degree of Cancer. The cause of this inequality is the obliquity of the zodiac, since there is, at every moment of time, an equal portion of the firmament above and below the horizon. But the signs which mount directly upwards, when they rise, retain the light for a longer space, while those that are more oblique pass along more quickly.

I must note here that not everyone believed that the vernal equinox was in the 8th degree or part of Aries. Some held to the view that Aries and the day of the equinox were equivalent. Notice what Columella states in one of his writings:

Columella - Book IX, Chapter XIV (Page 410)
From the setting of the Pleiades to the winter solstice, which happens almost about the 23rd of December, in the 8th part of Capricorn, the hives then make use of the honey which they laid up in store, and with it they are nourished and supported till the rising of Arcturus. **Nor am I ignorant of Hipparchus's computation which teaches, that the solstices and the equinoxes do not happen in the 8th, but in the first parts of the signs**. But, in this rural discipline, I now follow the calendars of Eudoxus and Meton, and those of the ancient astronomers, which are adapted to the public sacrifices; because Husbandmen are both better acquainted with that old opinion which was been commonly entertained: nor, yet, is the niceness and exactness of Hipparchus necessary, to the grosser apprehensions, and scanty learning of Husbandmen.

Here Columella states that he is aware that Hipparchus (the astronomer that discovered the precession of the equinoxes) believed that the solstices and equinoxes happened in the 1st part of the zodiac signs rather than the 8th.

On page 600 of the book titled, "*A History of Ancient Mathematical Astronomy*" Volume 2, by Otto Neugebauer, explains that not only Hipparchus (140 B.C.) but also a follower of Hipparchus named Ptolemy (around 150 A.D.) dated the vernal equinox as the first degree of Aries.

Another work by a Greek astronomer named Geminos (90 - 35 B.C.) wrote about this on page 114-117 of his work titled, "*An Introduction to Phenomena*." This will be a bit lengthy, but focus and take the time to follow what Geminos wrote.

"The year's time is divided into 4 parts: spring, summer, fall, and winter. **Spring equinox occurs around the height of the flowering time, [when the Sun is] in the first degree of Aries...**

The two solstices and the two equinoxes occur**, in the way of thinking of the Greek astronomers, in the first degrees of these signs; but in the way of thinking of the Chaldeans, they occur in the eighth degrees of these signs.** The days on which the two solstices and the two equinoxes occur are the same days in all places, **because the equinox occurs in all places at one time**, and similarly the solstice. And again, the points on the circle of signs at which the two solstices and the two equinoxes occur are exactly the same points for all astronomers. **There is no difference between the Greeks and the Chaldeans except in the division of the signs, since the first points of the**

signs are not subject to the same convention for them: among the Chaldeans, they precede by 8 degrees. Thus, the summer solstitial point, according to the practice of the Greeks, is in the first part of Cancer; but according to the practice of the Chaldeans, in the eighth degree...

The vernal equinox occurs when the Sun, in the course of its climb from south to north, is on the equatorial circle: at that time the day becomes equal to the night. For day and night are not always constantly equal, but on certain days the day is longer than the night, and on certain others the night is longer than the day. **Night and day are not equal except on two days in the year, which are the days of vernal equinox and autumnal equinox.** Summer solstice occurs when the Sun arrives closest to the zenith in our region and is elevated to its greatest elevation above our horizon, when it describes its most northerly circle and produces the longest day of all those in the year, and the shortest night... **Autumnal equinox occurs when the Sun, passing from north to south, is again located on the equator circle and makes the day equal to the night**... The times between the solstices and the equinoxes are divided in the following way. **From spring equinox to summer solstice there are 94 1/2 days, for in just so many days the Sun passes through Aries, Taurus, and Gemini**; then arriving at the 1st degree of Cancer, it produces summer solstice. **From summer solstice to autumnal equinox there are 92 1/2 days, for in just so many days the Sun passes through Cancer, Leo, and Virgo**; then, arriving at the 1st degree of the Claws, it produces the autumnal equinox. **From autumnal equinox to winter solstice there are 88 1/8 days, for in just so many days the Sun passes through the Claws, Scorpio, and Sagittarius**; and when the Sun arrives at the 1st degree of Capricorn it produces winter solstice. **From winter solstice to spring equinox there are 90 1/8 days, for in just so many days the Sun passes through the remaining three signs Capricorn, Aquarius, and Pisces**. All the days of these four seasons, when added up, make 365 1/4, which was just the number of days in the year.

So Geminos agrees with Hipparchus and Ptolemy that the spring equinox is in the first degree of Aries, while the Romans Vitruvius, Pliny, and Columella state the equinox to take place in the 8th degree of Aries.

It appears from the writings of Philo that he believed the equinox happened in the first degree of Aries, but of this I am not certain. We do find an interesting parallel in Philo to what we just read in Geminos about the signs of the zodiac. Look at this from Philo:

Philo - QA on Exodus page 125
At each season of the year the sun completes (its course) through three zodiacal signs, which He has called "mixing-bowls," since three powers, distinct and separate from one another, undergo a unified mixing to make up the time of one year. For example, **the spring (consists of) Aries, Taurus, Gemini**; **and again, in the summer (we have) Cancer, Leo, Virgo; and in the autumn, Libra, Scorpio, Sagittarius; and in the winter, Capricorn, Aquarius, Pisces.**

Both Geminos and Philo **speak of the exact same signs of the zodiac for the seasons of spring, summer, fall, and winter.** Keep in mind that Geminos defined the equinox as the day in which the sun rises due east and sets due west.

Looking at what Geminos and Philo said concerning the signs of the zodiac show us that there are about 30 days *roughly* assigned to each sign of the zodiac. In other words Aries lasts 30 days, Taurus last 30 days, Gemini lasts 30 days, etc.

The Roman poet Ovid, writing in the 1st century A.D. tracks for us what day the sign of Aries was *over with* on the Julian calendar:

Book IV: April 20
Next dawn when Memnon's saffron-robed mother,
With her rosy horses, comes to view the wide lands,
The sun leaves the Ram, Aries, leader of the woolly flock,
Betrayer of Helle, and meets a nobler victim on leaving.
Whether it's Jupiter the Bull, or Io the Heifer's hard to tell:
The front of the creature appears: the rest's concealed.
But whether the sign's a bull or whether it's a heifer,
It enjoys that reward for its love, against Juno's wishes.

If Aries lasted for 30 days and the sun left Aries on April 20 this means that the sun entered Aries on March 22. It appears from this that Ovid dated Aries to begin around March 22nd. This is not far away from when Columella dated Aries to begin on the Julian Calendar, March 17th.

ARCTURUS: WHAT IS IT AND WHEN IS IT?

There has been a lot said about "Arcturus" in this discussion on when the true spring and fall equinox take place. This has caused me to study into the meaning of "Arcturus." I ask everyone to take a look at what I have found in my studies.

My studies on the star Arcturus have led to the following conclusions:

1. There is a rising of Arcturus that takes place mid to late February.

2. There is a rising of Arcturus that takes place mid September.

3. No rising of the star Arcturus is ever EQUATED with either the Spring or Fall Equinox.

4. The rising of the star Arcturus in September is sometimes used in proximity to the Fall Equinox. Certain ancient authors date a rising of Arcturus in the Fall to be prior to the Fall Equinox at the end of September.

5. **I have not found any ancient authors** that date the Spring Equinox at the end of February or the Fall Equinox at the end of October.

This first reference is taken from the Dictionary of Greek and Roman Antiquities, by William Smith, dated to 1870. You can search the reference for yourself by going to the following location: http://www.ancientlibrary.com/smith-dgra/0166.html

He says on page 159 of this work:

"Considerable difficulty arises in the discussion of the passages which refer to Arcturus, from the circumstance that this name is sometimes applied generally to the whole of the wide spreading constellation of Bootes, and sometimes confined to the bright star in the knee of the figure."

Right away we see that Arcturus is a star; it is actually the brightest star in the constellation Bootes (http://stardate.org/nightsky/constellations/bootes). Mr. Smith believes that sometimes in ancient literature the name appears to an entire constellation named "Bootes" while at other times the name designates one bright star within the larger constellation. Further information may be found here:
http://space.about.com/od/stars/p/arcturusinfo.htm

Here are some of the authors (and references) Mr. William Smith informs us of:

(1) HOMER

We read of the name "Bootes" when we consult Book 5 of Homer's Odyssey. Homer was a poet writing around 800 B.C. Book 5 of his work can be found here:
http://classics.mit.edu/Homer/odyssey.5.v.html Homer writes:

"He never closed his eyes, but kept them fixed on the Pleiads**, on late-setting Bootes**, and on the Bear- which men also call the wain, and which turns round and round where it is, facing Orion, and alone never dipping into the stream of Oceanus- for Calypso had told him to keep this to his left."

William Smith informs us in his dictionary that Homer, "...speaks of Arcturus as (late-setting) because the apparent evening or heliacal setting took place late in the year when winter was nigh at hand, and hence the phrase... for long nights." What does Smith mean by "heliacal setting?"

I will go ahead and cover both heliacal RISING and heliacal SETTING. This definition is found from an online encyclopedia located here:
http://www.encyclopedia.com/doc/1O80-heliacalrisingandsetting.html

"Heliacal Rising and Setting The first visible rising of a celestial object in the morning sky after conjunction with the Sun; or the last visible setting of a celestial object in the

evening sky before conjunction. The heliacal rising of Sirius was used by the Egyptians as a yearly marker for their calendar."

The term "heliacal" has to do with the sun, thus heliacal rising and setting speak of the rise of a celestial object (in this case a star) and the setting of a celestial object. Therefore Homer, in the above quotation from his work "Odyssey" speaks of the SETTING of Bootes as taking place late in the year when winter was close. Homer gives no specific date for the heliacal SETTING of Bootes, only a general statement concerning it being late in the year.

(2) HESIOD

The next ancient author we come to is a man by the name of Hesiod. Information about both Homer and Hesiod may be found here:
http://ancienthistory.about.com/cs/people/p/hesiod.htm

Smith informs us that:

"Hesiod... dates the commencement of Spring from the evening rising of Arcturus... sixty days after the solstice. Now the apparent evening rising for the age and country of Hesiod fell upon the 24th of February, therefore his statement is correct in round numbers. Again, in the same poem... he marks the period of the vintage by the morning (heliacal) rising of Arcturus, which according to Ideler, fell in that age on the 18th of September." When we look up the writings of Hesiod the following is what we find. Let me note that you can read Hesiod's writings yourself by going to the following location:
http://omacl.org/Hesiod/works.html

"(ll. 564-570) **When Zeus has finished sixty wintry days after the solstice, then the star Arcturus** (25) **leaves the holy stream of Ocean and first rises brilliant at dusk.** After him the shrilly wailing daughter of Pandion, the swallow, appears to men when spring is just beginning. Before she comes, prune the vines, for it is best so...

(ll. 609-617) **But when Orion and Sirius are come into mid-heaven, and rosy-fingered Dawn sees Arcturus** (30), **then cut off all the grape-clusters, Perses, and bring them home.** Show them to the sun ten days and ten nights: then cover them over for five, and on the sixth day draw off into vessels the gifts of joyful Dionysus. But when the Pleiades and Hyades and strong Orion begin to set (31), then remember to plough in season: and so the completed year (32) will fitly pass beneath the earth."

First, Hesiod speaks of the evening rising of Arcturus. He states that this star rises brilliant at dusk 60 days after the winter solstice. If we count the winter solstice as taking place on December 21, 60 days after December 21 brings us to about February 19. We read Smith state that the rising of Arcturus in that age was February 24 so Hesiod was speaking in "round" numbers when he said "60 days."

Secondly, we read of Hesiod speak of the morning rising of Arcturus at dawn just after Orion and Sirius come into mid-heaven. Hesiod doesn't give us an exact date or even a general time period by numbers as he does with the evening rising of the star. **He does however equate this time with the time for cutting off the grape clusters**. As Smith stated in his work, "...he (Hesiod) marks the period of the vintage by **the morning (heliacal) rising of Arcturus, which according to Ideler, fell in that age on the 18th of September."**

It has been suggested that Hesiod wrote of the Spring Equinox taking place in the end of February, but such is not the case at all. This is what Hesiod said:

(ll. 536-563) Then put on, as I bid you, a soft coat and a tunic to the feet to shield your body, -- and you should weave thick woof on thin warp. In this clothe yourself so that your hair may keep still and not bristle and stand upon end all over your body.

Lace on your feet close-fitting boots of the hide of a slaughtered ox, thickly lined with felt inside. And when the season of frost comes on, stitch together skins of firstling kids with ox-sinew, to put over your back and to keep off the rain. On your head above wear a shaped cap of felt to keep your ears from getting wet, for the dawn is chill **when Boreas has once made his onslaught**, and at dawn a fruitful mist is spread over the earth from starry heaven upon the fields of blessed men: it is drawn from the ever flowing rivers and is raised high above the earth by windstorm, and sometimes it turns to rain towards evening, and sometimes to wind **when Thracian Boreas huddles the thick clouds**. Finish your work and return home ahead of him, and do not let the dark cloud from heaven wrap round you and make your body clammy and soak your clothes. Avoid it; **for this is the hardest month, wintry, hard for sheep and hard for men**. In this season let your oxen have half their usual food, but let your man have more; **for the helpful nights are long**. **Observe all this until the year is ended and you have nights and days of equal length, and Earth, the mother of all, bears again her various fruit.**

Notice that all that Hesiod speaks of here is a time during the winter. He mentions Boreas twice (which was a Greek god of the wind and winter http://www.theoi.com/Titan/AnemosBoreas.html) and also how that during the winter it is hard for animals and men as well as a time of long nights. He then mentions to observe all of this until the year is ended and you have nights and days of equal length. He does not give a date for the nights and days of equal length, he simply mentions it in passing.

Hesiod does go on after this to speak of Arcturus rising 60 days after the winter solstice, but he does not equate this with the nights and days of equal length, rather, only with the rising of Arcturus. As we move on to writers who are more specific, we will see that no one in antiquity equated the rising of the star Arcturus with either the Spring or Fall Equinoxes.

(3) COLUMELLA

Columella is the next ancient author William Smith brings up in his dictionary. Columella lived in the reigns of the first emporers to about AD 70. He moved early in life to Italy where he owned farms and lived near Rome. Columella authored a word titled "On Agriculture" and it is said to be the most comprehensive, systematic and detailed of Roman agricultural works. Basic information about Columella may be found at this location:
http://www.answers.com/topic/lucius-junius-moder-tus-columella

Smith writes of Columella:

"Columella... places the rising of Arcturus about 50 days after the rising of Canicula; and since the heliacal rising of the latter [Canicula] fell on the 2nd of August at Rome in the Julian era, and of the former [Arcturus] on the 21st of September, the computation is exact."

We now read directly from the writings of Columella. You can read the entire of work of Columella online by doing a search for it at www.books.google.com.

Columella - Book IX, Section XIV
Amost after the 50th day from the rising of the Dog-star, **Arcturus riseth**, when the bees make their honey from the dewey flowers of thyme, and Italian and Greek favory; **and this honey which is of the best sort, appears in all its lustre and beauty at the autumnal equinox, which is before the 1st of October, when the Sun is just arrived at the 8th part of Libra**. But great care must be taken, between the rising of the Dog-star, and that of Arcturus, that the bees be not surprised and intercepted by the fury and violence of wasps, which for the most part, lie in wait before the doors of the hives, and watch for their coming out. **After the rising of Arcturus, about the time of the equinox, when the Sun is in Libra, (as I said) is the second taking out of the honey-combs. Then from the time of the equinox, which falls about the 24th of September**, to the setting of the Pleiades, for the space of 40 days, the bees lay up for their winter provision the honeys they have gathered from tamarisk flowers, and shrubs which grow in thickets and woods... From the setting of the Pleiades to the winter solstice, which happens almost about the 23rd of December, in the 8th part of Capricorn, the hives then make use of the honey which they laid up in store, and with it they are nourished and supported **till the rising of Arcturus**."

The first rising of Arcturus Columella speaks of must be in the season of Autumn because he mentions the bees making honey and he mentions that this honey appears in beauty at the autumnal equinox before the 1st of October. He then mentions this same Autumn rising of Arcturus a few words later by speaking of the time AFTER the rising of Arcturus, and AT the time of the autumnal equinox which he dates specifically on September 24th. He then mentions another rising of Arcturus in passing, and this must be the rising of Arcturus heralding the Spring season because he mentions the winter solstice

on December 23rd in connection with the honey in the bee hives whereby the bees are nourished until the rising of Arcturus.

This is the first work I have seen which associates the rising of Arcturus in any way with an equinox. Columella does not associate it here with the Spring Equinox, but instead with the Fall Equinox. He says it rises BEFORE the Fall Equinox, and then he dates the Fall Equinox on September 24th.

Columella - Book XI, Section II.21
On February 21st Arcturus rises early in the night: the day is cold with wind in the North or North-west, and it sometimes rains. On February 22nd at dusk the Arrow begins to rise: the weather is variable: the days are called the Halcyon days: in the Atlantic indeed the greatest calm has been observed.

This particular book and section of Columella I have in my library, published by Harvard University Press and part of the Loeb Classical Library. You can access it at www.books.google.com as well though.

Here Columella dates the rising of Arcturus to be on February 21st. This must be the rising he spoke of back in Book IX that took place after the bees had thrived during the winter on the honey they made previously. Columella says nothing here in relation to Arcturus being the time of the Spring Equinox. However, notice what Columella does say in this next citation.

Columella - Book XI, Section II.31
On March 17th the Sun passes into Aries (the Ram): the wind is North or North-west. On March 21st the Horse (Pegasus) sets in the early morning: the winds are northerly. On March 23rd Aries begins to rise: it is a rainy day and occasionally it snows. **On March 24th and 25th the spring equinox is a sign of a storm.**

Here Columella speaks of the Sun passing into Aries on March 17th. Those of you who have studied about Aries during that time know of the significance to this. Both Josephus and Philo associate Aries (the Ram) with the time of the Passover and Feast of Unleavened Bread in their day. Columella then specifically dates the Spring Equinox to be March 24th - 25th.

Columella then mentions the setting of Arcturus to be on June 7th (Book XI, Section II.45). He then mentions another rising of Arcturus on September 5th and then again on September 17th (Book XI, Section II.63, 65) and the Fall Equinox to take place on September 24th - 26th (Book XI, Section II. 66). He then later states that on October 29th Arcturus sets in the evening and he calls it a windy day (Book XI, Section II.78).

This last setting of Arcturus that Columella mentions (October 29th) aligns with what we read in Homer's Odyssey earlier where Homer spoke of the late-setting of Bootes (an alternate name for Arcturus).

We see from the writings of Columella how the ancients dated the risings and settings of Arcturus. Columella never equated the risings of Arcturus with either the Spring or Fall Equinox. He did associate the rising of Arcturus in the Fall to be shortly before the Fall Equinox. Columella then dates the Fall Equinox (Book IX, Section XIV) to be on September 24th.

To digress for just a moment, here are the other sections in Columella where a specific date for the either equinox is given.

Columella - Book II, Chapter VIII
They are hid from our sight the thirty-first day after **the autumnal equinox, which falls almost upon the 23rd of September**...

In context Columella speaks of the proper time for sowing certain grains. In passing here he mentions the autumnal equinox and states that in occurs close to September 23rd.

Columella - Book III, Chapter XIV
There are **almost 40 days** proper for planting in the spring, **from the 13th of February till the Equinox**...
Here he writes concerning planting the vine and he states that such should be done anywhere from the 13th day of February until the equinox. If we begin to number from February 13 and count 40 days that brings us to around March 24.

Columella - Book IX, Chapter XIV
From the first equinox which happens about the 24th of March, in the 8th part of Aries, to the rising of the Pleiades, there are reckoned 48 days of spring-time.

Here Columella records the date of the spring equinox (according to the then used Julian Calendar) to be on March 24th. He also states that this day was the 8th part of Aries, meaning that the 1st part of Aries would have been reckoned to fall upon March 17.

Columella - Book of Trees, Chapter V
Before **the vernal equinox, which is on the 25th of March**, level or fill up the hollow you have made by laying open the roots of the vine.

Here Columella dates the spring equinox to be on March 25th. I am not certain as to why he gives the date of March 24th earlier and March 25th here, but suffice it to say that Columella definitely dates the spring equinox to be at the end of March.

(4) PLINY THE ELDER

Our next author we come to is Pliny the Elder. Gaius Plinius Secundas (Pliny the Elder) was a Roman official and military officer who also wrote as a naturalist, biographer and historian. He is most known for his only extant work, a 37-volume *Natural History* that served as the basis for scientific knowledge for centuries. Pliny wrote in Latin, using mostly Greek sources and his own observations (and vivid imagination). In 79 A.D.,

when Mt. Vesuvius erupted, Pliny was a naval commander at the Bay of Naples. While attempting to get closer to the volcano and possibly effect a rescue, Pliny was overcome with fumes and died. You can read basic information about Pliny the Elder at this location: http://www.livius.org/pi-pm/pliny/pliny_e.html

William Smith writes much about Pliny's mentioning of Arcturus. He states that Pliny mentioned several risings and settings of Arcturus in his work titled "Natural History." We have the ability to "comb" through this ancient work of Pliny and take a look at what he said concerning Arcturus. I have found a total of 9 places where Pliny mentions Arcturus by name. I will deal with the places that give a hint of any dates. You can access his writings and look at all 9 places for yourself at the following location: http://www.archive.org/stream/plinysnaturalhis00plinrich/plinysnaturalhis00plinrich_djvu.txt

Pliny - BOOK II. History of Nature. 85
Vapour, redoubled by the Hotness of that Star, is thought to be assuaged by them : and no Winds keep their set Times better than they. Next after them come the South Winds again, which are usually up, **until the Star Arcturus riseth, and that is eleven Days before the autumnal Equinox**. With it entereth Corns, and thus Corns beginneth the Autumn ; and to this Vulturnus is contrary. **After that Equinox about four-and-forty Days, the Vergilice go down and begin Winter, which Season usually falleth upon the third Day before the Ides of November**. This is the Winter North-east Wind, which is far unlike to that in Summer, opposite and contrary to Africus.

Pliny mentions that a rising of the star Arcturus takes place 11 days before the Fall Equinox, but he doesn't give a specific date for either occurence (as did Columella). He does however say that after the Fall Equinox there is about 44 days and the Vergilice go down and begin Winter, the season usually falling the 3rd day before the middle (Ides) of November. If we take the Fall Equinox to be September 24th, as Columella (an author during the same time period as Pliny the Elder) has stated and add 44 days we come to the date of November 6th or 7th depending on how we count. This is extremely close to being the 3rd day before the middle of November. If we use September 26th as the date of the Fall Equinox (mentioned by Columella - Book XI, Section II.66) we can arrive at the date of November 9th which is even closer to the Ides of November. All of this shows that Pliny held to the same or similar date for the Fall Equinox as Columella; late September. At the same time Pliny does not equate the rising of Arcturus with the Fall Equinox, he only states that it rises about 11 days before the Fall Equinox.

Pliny - 86 History of Nature. Book VIII
For as Men are indebted to the Ox's Labour for their Food, so they owe the clothing of their Bodies to the Sheep. They are fertile from two Years of Age upward to nine, and some until they are ten Years old. The first Lambs are smaller than the others. **They go with Young about the Setting of Arcturus, that is, from the third Day before the Ides of May** to the Setting of the Eagle, on the tenth Day before the Calends of August.

Pliny mentions the lambs going with young at ABOUT THE SETTING of Arcturus. He states these lambs do this on the 3rd day before the middle (Ides) of May. This would be about May 12th. If we look at Columella's work (Book XI, Section II.43) we find that Columella dates a morning setting of Arcturus on May 22nd or 23rd. Pliny thus makes sense to say that the lambs go with young ABOUT the setting of Arcturus. May 12th is near May 22nd.

Pliny also mentions the star Arcturus in this next section found here:
http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.02.0137:book=11:chapter=15&highlight=sign%2Carcturus

Pliny - Book XI, Chapter XV
(16.) The third kind of honey, which is the least esteemed of all, is the wild honey, known by the name of *ericeunm.*[6] It is collected by the bees after the first showers of autumn, when the heather[7] alone is blooming in the woods, from which circumstance it derives its sandy appearance. **It is mostly produced at the rising of Arcturus, beginning at the day before the ides of September.** Some persons delay the gathering of the summer honey until the rising of Arcturus, because from then till the autumnal equinox there are fourteen days left, **and it is from the equinox till the setting of the Vergiliæ, a period of forty-eight days**, that the heather is in the greatest abundance. The Athenians call this plant by the name of *tetralix,* and the Eubœans*sisirum,* and they look upon it as affording great pleasure to the bees to browse upon, probably because there are no other flowers for them to resort to. **This gathering terminates at the end of the vintage and the setting of the Vergiliæ, mostly about the ides of November.** Experience teaches us that we ought to leave for the bees two-thirds of this crop, and always that part of the combs as well, which contains the bee-bread.
From the winter solstice to the rising of Arcturus the bees are buried in sleep for sixty days, and live without any nourishment. **Between the rising of Arcturus and the vernal equinox**, they awake in the warmer climates, but even then they still keep within the hives, and have recourse to the provisions kept in reserve for this period.

Let's notice a few things about this quote from Pliny:

Pliny states that the honey is mostly produced at the rising of Arcturus and then he dates this as the day before the middle (Ides) of September. **This would be September 14th, and thus Pliny gives September 14th as a date for the rising of Arcturus.** Pliny then states that from the autumnal equinox to the setting of the Vergiliae was a period of 48 days. Pliny then mentions this same period by saying that the setting of the Vergiliae was mostly about the middle (Ides) of November. **If we count backwards from November 15th for 48 days this brings us to September 29 which is very close to the autumnal equinox.** Pliny was probably stating approximate timings as he uses the phrases "mostly produced" and "mostly about."

Pliny then mentions the bees being buried in sleep for 60 days from the winter solstice to the rising of Arcturus. This agrees with Hesiod and places a rising of Arcturus around February 19. **Next Pliny mentions a period of time BETWEEN this February rising**

of Arcturus and the Spring Equinox. He says that during this between time the bees awake in the warmer climates, but still keep in their hives.

Pliny mentions the word equinox about 16 times to my counting. You can look all 16 times at the above location, but so far as I can see only one other time gives a hint at any date.

Pliny - BOOK II. History of Nature. 113 CHAPTER LXIX.
THAT the Earth is in the midst of the whole World, appeareth by undoubted Reasons : but most evidently **by the equal Hours of the Equinox**. For, unless it were in the midst, the Instruments called Dioptrce have proved that Nights and Days could not be found equal : and those Instruments, above all other, confirm the same: **seeing that in the Equinox, by the same Line, both Rising and Setting of the Sun are seen**; but the Summer Sun rising, and the Winter setting, by their own several Lines. Which could by no means happen if the Earth resteth not in the Centre.

Pliny here speaks of "equal hours of the equinox" and also implies that nights and days are equal at the time of the equinox. He then states that in the equinox both the rising and setting of the sun are seen by the same line. Pliny is referencing here a sunrise due east and sunset due west. This is evidence that the ancients determined the days of the equinoxes by watching the movement of the sun through the sky. When the sun rose due east and set due west ("one the same line") in the spring time it was the spring equinox. When the sun rose due east and set due west in the fall time it was the fall equinox. I am currently (as of 10.30.11) working on a paper documenting many ancient references to determining the equinoxes in this fashion.

(5) OVID

Our next author to consult will be the ancient poet Ovid. Publius Ovidius Naso or Ovid was born on March 20, 43 B.C. in Sulmo (modern Sulmona, Italy), to an equestrian (moneyed class), family. His father took him and his one-year older brother to Rome to study to become public speakers and politicians, but instead, Ovid put his rhetorical education to work in his poetic writing. Ovid was a prolific Roman poet whose writing influenced Chaucer, Shakespeare, Dante, and Milton. As those men knew, to understand the corpus of Greco-Roman mythology requires familiarity with Ovid's *Metamorphoses*. Basic information can be found concerning Ovid at this location:
http://ancienthistory.about.com/cs/people/a/ovid.htm

One of Ovid's works is titled "Fasti" a word that means "Festival Days." In this work Ovid goes through the days of the year in a poetic style. He was only able to finish January through June in this work because he was banished to the area of the Black Sea by a Roman Emporer in 8 A.D.

You can access Ovid's "Fasti" at this location:
http://www.poetryintranslation.com/PITBR/Latin/Fastihome.htm

Ovid does not mention the name Arcturus, but he does mention the name Bootes, an alternate for Arcturus which speaks of the entire constellation of stars, of which Arcturus was one.

Book II: February 11
On the third night, you will see straight away
That the Bear Keeper Bootes' feet have emerged.

Ovid is possibly making reference to Arcturus here emergin on February 11th. Columella dates the rising of Arcturus in February to be on February 21st (Book XI, Section II.21) and Columella's date is more technical as he specifically mentions Arcturus the individual star.

Book II: February 9
Five days later, **the Morning Star has lifted its brightness**
From the ocean waves, and these are the first days of spring.
But don't be misled: **cold days are still in wait for you**,
Departing winter leaves sharp traces behind.

I bring up this next quote from Ovid only because it mentions the "first days of Spring. Ovid dates this as February 9th and mentions the "Morning Star" lifting its brightness from the ocean waves. I do not believe this Morning Star Ovid speaks of is the star Arcturus, but rather the planet Venus. You can read about the Morning Star a little here: http://www.universetoday.com/22570/venus-the-morning-star/

Book III: March 26
When the Morning Star has three times heralded the dawn,
You'll find the daylight hours are equal to those of night.

Here, Ovid speaks of the Morning Star again stating about it being a herald of dawn three times. He then goes on to mention that on this date - MARCH 26 - you will find that the daylight hours are equal to those of the night. Ovid's date for the Spring Equinox squares with the date given by Columella (Book XI, Section II.31).

(6) ANCIENT CHART / TABLE

I have also found this ancient table of dates labeled under the name AETIUS III.164(http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:2007.01.0074:chapter=intro&highlight=equinox%20%20)

The table is in some way related to or associated with the writing of Hippocrates (an ancient Greek physician born 460 B.C. - http://www.notablebiographies.com/He-Ho/Hippocrates.html) titled *"Airs, Waters, and Places."* The table looks as follows:

The following table, taken from Aetius III. 164, may prove useful in determining the periods of the year mentioned in the Hippocratic writings.

March 23 . . ἰς1ημερία ἐαρινή.

April 1 . . αἱ πληιάδες2 ἀκρόνυχοι φαίνονται.

April 19 . . αἱ πληιάδες2 ἐς1πέπιοι κρύπτονται.

April 21 . . αἱ πληιάδες2 ἀμα ἡλίου ἀνατολῆ ἐπιτέλλους1ι.

May 7 . . . αἱ πληιάδες2 ἑῶαι φαίνονται (heliacal rising).

[p. 68] June 6 . . . ἀρκτοῦρος2 δύνει.

June 25 . . τροπαὶ θεριναί.

July 19 . . ὁ κύων εῶος2 ἐπιτέλλει.

September 17 ἀρκτοῦρος2 ἐπιτέλλει (heliacal rising).

September 25 ἰς1ημερία φθινοπωρινή.

November 6 αἱ πληιάδες ἑῶαι δύνους1ι (cosmic setting).

December 23 τροπαὶ χειμεριναί.

February
25 ἀρκτοῦρος2 ἐς1πέριος2 ἐπιτέλλει καὶ (26) χελιδόνες2 πέτονται καὶ φαίνονται.

If you go to the internet link I gave above you have the ability to click on the Greek words that are linked. You will then see a page pop up titled "Greek Word Study Tool." On this page you will see a link that says either "LSJ" or "Middle Liddell." These are Greek lexicons that will give you the English definitions of the Greek words located by each corresponding date. I will translate a few of them for you, but you should look them up for yourself.

- March 23 | day of spring
- June 25 | turning of summer
- September 17 | arcturus
- September 25 | day of autumn
- December 23 | turning of winter
- February 25 | arcturus

These dates align with everything else I've research on Arcturus along with the equinoxes and solstices.

(7) PTOLEMY QUOTES HIPPARCHUS

I would also like to make mention of a man named Hipparchus. I have taken this information about Hipparchus from the following location:

http://www.websters-dictionary-online.org/definitions/Hipparchus

Hipparchus (190 BC – 120 BC) was a Greek astronomer, geographer, and mathematician of the Hellenistic period who was born in Nicaea (now Iznik, Turkey), and probably died on the island of Rhodes. He is known to have been a working astronomer at least from 147 BC to 127 BC. **Hipparchus is considered the greatest ancient astronomical observer and, by some, the greatest overall astronomer of antiquity**. He was the first Greek whose quantitative and accurate models for the motion of the Sun and Moon survive. For this he certainly made use of the observations and perhaps the mathematical techniques accumulated over centuries by the Chaldeans from Babylonia. He possessed a trigonometric table, and appears to have solved some problems of spherical trigonometry. With his solar and lunar theories and his trigonometry, he may have been the first to develop a reliable method to predict solar eclipses. His other reputed achievements include the discovery of precession, the compilation of the first comprehensive star catalog of the western world, and possibly the invention of the astrolabe, also of the armillary sphere which first appeared during his century and was used by him during the creation of much of the star catalogue. It would be three centuries before Claudius Ptolemaeus' synthesis of astronomy would supersede the work of Hipparchus; it is heavily dependent on it in many areas.

Before Hipparchus, Meton, Euctemon, and their pupils at Athens **had made a solstice observation (i.e., timed the moment of the summer solstice) on June 27, 432 BC (proleptic Julian calendar).** Aristarchus of Samos is said to have done so in 280 BC, and Hipparchus also had an observation by Archimedes. **Hipparchus himself observed the summer solstice in 135 BC, but he found observations of the moment of equinox more accurate, and he made many during his lifetime**. **Ptolemy gives an extensive discussion of Hipparchus' work on the length of the year in the *Almagest* III.1, and quotes many observations that Hipparchus made or used, spanning 162 BC to 128 BC.**

Ptolemy quotes an equinox timing by Hipparchus (at 24 March 146 BC at dawn) that differs by 5h from the observation made on Alexandria's large public equatorial ring that same day (at 1h before noon): Hipparchus may have visited Alexandria but he did not make his equinox observations there; presumably he was on Rhodes (at nearly the same geographical longitude).

Take special note in the above information that Ptolemy (http://library.thinkquest.org/19029/history200.html) states in his work titled Almagest that Hipparchus dates an equinox on **March 24, 146 B.C**. This aligns perfectly with what we observed from the writings of Columella dated to the middle of the first century A.D.

(8) CONCLUSIONS

1. There is a rising of Arcturus that takes place mid to late February.

2. There is a rising of Arcturus that takes place mid September.

3. No rising of the star Arcturus is ever EQUATED with either the Spring or Fall Equinox.
4. The rising of the star Arcturus in September is sometimes used in proximity to the Fall Equinox. Certain ancient authors date a rising of Arcturus in the Fall to be prior to the Fall Equinox at the end of September.

5. **I have not found any ancient authors** that date the Spring Equinox at the end of February or the Fall Equinox at the end of October.

Do the Writings of Pliny the Elder Prove a February Equinox?

Before we begin let me give this astonishing quote from the writings of Pliny found here: http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D18%3Achapter%3D59

CHAP. 59.—THE EPOCHS OF THE SEASONS.
The year is divided into four periods or seasons, the recurrence of which is indicated by the increase or diminution of the daylight. **Immediately after the winter solstice the days begin to increase, and by the time of the vernal equinox, or in other words, in ninety days and three hours, the day is equal in length to the night.** After this, for ninety-four days and twelve hours, the days continue to increase, and the nights to diminish in proportion, **up to the summer solstice; and from that point the days, though gradually decreasing, are still in excess of the nights for ninety-two days, twelve hours, until the autumnal equinox. At this period the days are of equal length with the nights**, and after it they continue to decrease inversely to the nights until the winter solstice, a period of eighty-eight days and three hours.

Pliny states in very plain language here that he reckoned there to be 90 days and 3 hours between the winter solstice and the vernal equinox, at which time the day is equal in length to the night. Pliny goes on to say that he reckoned 92 days and 12 hours until the autumnal equinox, and at this period the day are of equal length with the night.

The February equinox proponents are presenting a spring equinox on February 20 (or round about). From the winter solstice on December 21 to February 20 is 60 to 62 days. They are also presenting a Fall Equinox on October 23 (or round about). From the summer solstice of June 21 to October 23 is 123 to 125 days. Therefore the writings of Pliny, a man who lived from 23 A.D. to 79 A.D., disagrees with their assertions of his own writings. The February equinox proponents have suggested that Pliny actually held to an autumnal equinox in late October or early November, but such is not the case.

These proponents have suggested that the writings of Pliny prove a spring equinox in the Roman month of February. I believe they are incorrect in their assessment of Pliny's

writings. If you are interested in this subject, please take the time to read this short essay showing how Pliny believes nothing of the sort.

One February equinox proponent wrote the following on 10.29.2011:

"We have documented history, from **Pliny the Elder** who lived in the first century, and an expert on bees, says honeybees do not leave the hive **UNTIL** the **vernal equinox** and it is scientifically impossible for that to be March 20 because the almond trees in Israel and everywhere else would die because the pollen of the almond tree so heavy that the wind cannot carry it.

The almond trees in Israel are in full bloom in the middle of February and if the Vernal equinox was March 20 the trees would not produce almonds and eventually die out."

Before moving into examining this argument, let's go to the actual text in Pliny that he quotes from and do some serious examination of this first century author.

Found here:
http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D11%3Achapter%3D15

Pliny - Book XI, Chapter 15
(16.) **The third kind of honey**, which is the least esteemed of all, is the wild honey, known by the name of *ericeunm.* It **is collected by the bees after the first showers of autumn, when the heather alone is blooming in the woods, from which circumstance it derives its sandy appearance. It is mostly produced at the rising of Arcturus, beginning at the day before the ides of September. Some persons delay the gathering of the summer honey until the rising of Arcturus, because from then till the autumnal equinox there are fourteen days left, and it is from the equinox till the setting of the Vergiliæ, a period of forty-eight days, that the heather is in the greatest abundance.** The Athenians call this plant by the name of *tetralix,* and the Eubœans*sisirum,* and they look upon it as affording great pleasure to the bees to browse upon, probably because there are no other flowers for them to resort to. This gathering terminates at the end of the vintage and the setting of the Vergiliæ, mostly about the ides of November. Experience teaches us that we ought to leave for the bees two-thirds of this crop, and always that part of the combs as well, which contains the bee-bread.

I will deal with another portion from this text in Pliny's writings shortly.

Now, according to the above statement I believe Pliny placed a rising of Arcturus (see the essay titled *"Arcturus: What is it? When is it?"*) before the middle (Ides of September). Pliny stated very plainly:

" It is mostly produced at the rising of Arcturus, beginning at the day before the ides of September."

The February equinox proponents disagree with this as they state in the aforementioned email the following:

"He is not saying Arcturus rises September 14 because IT DON'T... Notice he is saying that from the rising of Arcturus, on October 22nd, to the equinox is 14 days, which is 29 days **PAST** the traditional equinox on September 23rd!"

I maintain that Pliny does place the rising of Arcturus before the middle (Ides) of September. Let's look at another of Pliny's writings found here: http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D18%3Achapter%3D74

Pliny - Book XVIII, Chapter 74
On the fifth before the calends of September, the Arrow sets in Assyria, and the Etesian winds cease to blow: **on the nones of September, the Vintager rises in Egypt, and in the morning of that day, Arcturus rises to the people of Attica**: on the same morning, too, the Arrow sets. **On the fifth before the ides of September, according to Cæsar, the She-Goat rises in the evening; and one half of Arcturus becomes visible on the day before the ides of September**, being portentous of boisterous weather for five days, both by land and sea.

The above quote shows that Pliny said that on the morning of the nones of September Arcturus rises to the people of Attica. The *nones* of the Roman Calendar were nine days before the *ides*, or middle of the month.

See the following about the "nones" http://ancienthistory.about.com/cs/time/f/nones.htm.

The *ides* of September was September 14, therefore the *nones* of September was September 5. **Thus Pliny dates a rising of Arcturus on September 5**. Pliny goes on to say that half of Arcturus becomes visible on the day before the ides of September. Once again, the ides of September is September 14, therefore the day before the ides of September was September 13. **Here Pliny dates a visible rising of Arcturus on September 13. This lines up perfectly with what Pliny stated concerning the honey called "ericeunm" being mostly produced at the rising of Arcturus, beginning the day before the ides (14) of September, i.e. September 13.** Pliny states in Book XI, Chapter 15 that from this rising of Arcturus until the autumnal equinox is 14 days. Counting from September 13 brings us to the date of September 26th, the autumnal equinox.

Now let me comment a little more on another term that is unknown in our language today. This term is Vergiliae, and is the Latin term used to denote the constellation Pleiades. http://latinlexicon.org/definition.php?p1=2062551&p2=v&p3=2

Pliny also stated the following in the already mentioned Book XI, Chapter 15 of his word Natural History:

"...and it is from the equinox till the setting of the Vergiliæ, a period of forty-eight days, that the heather is in the greatest abundance."

In context the equinox Pliny speaks of is the autumnal equinox. Therefore he says that from the autumnal equinox till the *setting* of the Vergiliae (i.e. Pleiades) is a period of forty-four days. So... does Pliny ever mention a date for the setting of the Vergiliae? Let's look at another of Pliny's writings found here: http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D18%3Achapter%3D74

Pliny - Boox XVIII, Chapter 74
On the fifth before the ides of November, Orion's Sword begins to set; and on the third before the ides the Vergiliæ set.

Pliny mentions that Orion's sword begins to set on the 5th day before the ides of November. This would be November 9th. He then says that the 3rd day before the ides of November the Vergiliae (Pleiades) set. This would be November 11th.

Now, remember Pliny's statement above says that from the autumnal equinox to the setting of the Vergiliae was a period of 44 days. When we count from September 26, autumnal equinox, for 44 days it brings us to November 9th or November 10th depending on how you count. But this is awful close to the date of November 11th, the date that Pliny stated to be the date for the setting of the Pleiades.

As far as I can tell, and I've looked intently at this, this is what Pliny was intending to relay to his audience in his Book XI, Chapter 15 of Natural History titled, "How Honey is Tested."

Now, let's move on to the next section the February equinox proponents made mention of:

Pliny - Book XI, Chapter 15
From the winter solstice to the rising of Arcturus the bees are buried in sleep for sixty days, and live without any nourishment. **Between the rising of Arcturus and the vernal equinox, they awake in the warmer climates, but even then they still keep within the hives, and have recourse to the provisions kept in reserve for this period.**

They make these comments concerning the above text in the email from them I mentioned earlier:

"According to Pliny the bees are asleep for 60 days, from the winter solstice, to the rising of Arcturus. Counting 60 days from the winter solstice is February 20. Remember Hesiod, 2700 years ago, also says Arcturus rises 60 days after the Winter solstice and calls it the **beginning of spring.** At any rate, Pliny specifically says the bees **do not leave the hive until the Vernal Equinox** and nature will not allow the bees to remain in the hive from the astronomical rising of Arcturus on October 22 until the traditional March

20 equinox which is another month before they go to work after waking up. Everyone should know that the honeybees are out working way before the traditional equinox on March 20. The bees are working very hard near the end of February pollinating the almond blossoms in Israel."

I agree with what they state regarding the 60 day period mentioned by both Pliny and the other ancient author Hesiod (see essay titled: *"Arcturus: What is it? When is it?"*) **I even agree that Hesiod calls this the commencement of Spring, although he never calls this date the Spring Equinox.** However, I disagree with their understanding of Pliny's next statement. Observe the difference between Pliny and the February equinox proponents:

Pliny: "...Between the rising of Arcturus and the vernal equinox, they awake in the warmer climates, but even then they still keep within the hives, and have recourse to the provisions kept in reserve for this period.

February equinox proponents: "...Pliny specifically says the bees do not leave the hive until the Vernal Equinox..."

Pliny never makes the claim that they attempt to say he makes. Pliny never specifically says that the bees do not leave their hive until the Vernal Equinox. All Pliny says is that there is a time period between the rising of Arcturus in the Spring and the Vernal Equinox in which the bees awake in the warmer weather, but stay within their hives and have recourse by their provisions they've reserved. **Pliny nowhere states that the bees wait till the Vernal Equinox to exit their hives.**

Pliny the Elder certainly gives no support for the dates of February 20 or October 23rd for the Spring and Fall Equinoxes.

Ancient Evidence for the Timing of the Equinox

It has been suggested that Julius Caesar changed the equinox to the one that is recognized today in 2011. **There has been no evidence to support this hypothesis, and it is not wise to accept something just because you hear or read someone say it forthrightly.** It doesn't matter how many times they say it or how loud they speak it, there must be evidence given, and there has been **NONE** given whatsoever. Julius Caesar doesn't have **ANYTHING** to do with today's equinox.

This essay will show that Julius Caesar DID NOT change the equinox from the supposed date of February 20 to the current date of March 20. There have been peoples marking the date we now call March 20 / 21 as well as what we now call September 22 / 23, for literally thousands of years. **Many of them marked these dates 2 to 3 thousand years before Julius Caesar was ever born.** Therefore to make a claim that he somehow is to blame for changing the equinox to the date it occurs on today is entirely bogus.

Throughout the world there exists many hand-built monuments that are constructed in such a way as to highlight the equinoxes (both spring and fall) as well as the solstices. **Almost all peoples, if not all peoples, in the B.C. era observed the path and positions of the sun as well as the revolutions of the moon.** This is just simply the way the ancients told time. We know this is the way the ancient Hebrews told time based upon Genesis 1:14-18 which states:

And God said, **Let there be lights in the firmament of heaven to divide the day from the night; and let them be for signs, and for seasons, and for days and years:** and let them be for lights in the firmament of heaven to give light upon the earth: and it was so. And God made the two great lights; the greater light to rule the day, and the lesser light to rule the night: *he made* the stars also. And God set them in the firmament of heaven to give light upon the earth, and to rule over the day and over the night, and to divide the light from the darkness: and God saw that it was good. (ASV)

Now let's read these verses in one of the existing Aramaic Targums available to us:

Genesis 1:14 (*Targum of Jonathan Ben Uzziel*) | And the Lord said, Let there be lights in the expanse of the heavens, to distinguish between the day and the night; and **let them be for signs and for festival times, and for the numbering by them the account of days, and for the sanctifying of the beginning of months, and the beginning of years, the passing away of months, and the passing away of years, the revolutions of the sun, the birth of the moon, and the revolvings (of seasons)**.

You can access this Targum at the following location:
http://targum.info/targumic-texts/pentateuchal-targumim/

Why even take the time to look at the following information? Well, one reason is because of the above text of Genesis 1:14-18, not to mention the many other texts in Scripture that reveal the sun and moon as time-keepers for the true calendar (Psalm 8:3; 19:1-6; 104:19; 136:7-9; Jeremiah 31:35-36; etc.). Another reason is found in the work of the Israelite historian named Philo. Philo was born in 20 B.C. in the city of Alexandria which was the chief home of the Judahite Diaspora. **Philo actually lived through the time period of Yeshua Messiah.** Philo gave a record in his writings of many aspects of the worship of his people during this time period. He simply recorded how the many Israelites of that day worshiped, **and in doing so made multiple mentions of how the sun and moon were used in calculating the calendar**. Notice, very briefly, how Philo spoke of the sun in relation to the calendar:

On the Creation XXXIX.
(116) And the sun, the ruler of the day, **making two equinoxes every year, both in spring and autumn. The spring equinox in the constellation of Aries, and the autumnal one in Libra**, gives the most evident demonstration possible of the divine dignity of the number seven. **For each of the equinoxes takes place in the seventh month, at which time men are expressly commanded by law to celebrate the greatest and most popular and comprehensive festivals**; since it is owing to both these seasons,

that all the fruits of the earth are engendered and brought to perfection; the fruit of corn, and all other things which are sown, being owing to **the vernal equinox**; and that of the vine, and of all the other plants which bear hard berries, of which there are great numbers, to **the autumnal one**.

On the Life Of Moses II, XLI
(222) **Moses puts down the beginning of the vernal equinox as the first month of the year**, attributing the chief honour, not as some persons do to the periodical revolutions of the year in regard of time, but rather to the graces and beauties of nature which it has caused to shine upon men; for it is through the bounty of nature that the seeds which are sown to produce the necessary food of mankind are brought to perfection.

The Decalogue XXX
(161) But to the seventh day of the week he has assigned the greatest festivals, those of the longest duration**, at the periods of the equinox both vernal and autumnal in each year; appointing two festivals for these two epochs, each lasting seven days; the one which takes place in the spring being for the perfection of what is being sown, and the one which falls in autumn being a feast of thanksgiving for the bringing home of all the fruits which the trees have produced. And seven days have very appropriately been appointed to the seventh month of each equinox**, so that each month might receive an especial honour of one sacred day of festival, for the purpose of refreshing and cheering the mind with its holiday.

The Special Laws I, XXXV
(181) **In the first season--he calls springtime and its equinox the first season--he ordered that a feast which is called "the feast of unleavened bread" be celebrated for seven days** and declared that every day was equal in honor in religious services. For he commanded that each day ten whole burnt offerings should be sacrificed just as they are for the new moons, making the total number of whole burnt offerings apart from those dealing with the trespass offerings seventy. (182) For he thought that the same reason governed the relation of the new moon to the month which governed the relation **of the seven days of the feast to the equinox that took place in the seventh month.**

The Special Laws I, XXXV
(186) **When the third season takes place in the seventh month at the autumnal equinox**, at the beginning of the month, the feast which begins the sacred month named "the feast of trumpets" and which was discussed earlier is celebrated.
The Special Laws II, XXVIII
(151) on which account it is also **called the first in the sacred scriptures**. And the reason, as I imagine, is as follows. **The vernal equinox is an imitation and representation of that beginning** in accordance with which this world was created. Accordingly, every year, God reminds men of the creation of the world, and with this view puts forward the spring, in which season all plants flourish and bloom; (152) **for which reason this is very correctly set down in the law as the first month**, since, in a manner, it may be said to be an impression of the first beginning of all, being stamped by it as by an archetypal Seal.

The Special Laws II, XXXIII.
(204) **The last of all the annual festivals is that which is called the feast of tabernacles, which is fixed for the season of the autumnal equinox**.

Flaccus XIV.
(116) This was the unexampled misfortune which befell Flaccus in the country of which he was governor, being taken prisoner like an enemy on account of the Jews, as it appears to me, whom he had determined to destroy utterly in his desire for glory. And a manifest proof of this is to be found in the time of his arrest, **for it was the general festival of the Jews at the time of the autumnal equinox, during which it is the custom of the Jews to live in tents...**

We learn the following about the Israelites of Philo's day from reading these writings (you can access the writings of Philo online here:
http://www.earlyjewishwritings.com/philo.html

(1) The vernal (spring) equinox was used to determine the first month of the year.

(2) The vernal (spring) equinox was called the first season of the year.

(3) The autumnal (fall) equinox was called the third season of the year.

(4) The two greatest festivals in Israel (Unleavened Bread and Tabernacles) were tied to the seasons of the vernal and autumnal equinoxes.

What follows now is a collation of many of the monuments built thousands of years ago that still to this day mark the equinoxes and the solstices throughout the year. The equinoxes these ancient monuments mark are at the end of March and end of September. The solstices these monuments mark are at the end of June and end of December. It is remarkable to actually read about and watch these things take place. **In studying about this I have come to realize that people today only *think* they are smarter than the primitive people that lived in the B.C. era.**

Let me say from the out set that many of these monuments were used the worship to other gods; i.e. false worship. **However, that does not make the sun or the moon itself pagan objects.** The path of the sun and moon are created by Almighty Yahweh. What heathen people do on specific days of the sun and moons path is concocted by them. But they are not the ones that have made up the paths of the heavenly lights.

We recognize today that Yahweh's calendar has much to do with the moon. The new moon is very special in Yahweh's calendar as it marks the beginning of each Scriptural month. **It is a fact that we can find that many heathen cultures, not in service to Yahweh, had a special day on the day of the new moon and even the full moon. This does not make the new and full moon erroneous.** All this shows is that heathens took

what Yahweh created and applied it to their heathen worship of other gods. The exact same thing applies to the path of the sun.

I will give links to each of these monuments and actual videos to some of them. People throughout the years have visited these sites and shot video on the days of the equinoxes and solstices. If you are interested in knowing how the path of the sun was studied anciently, and how the equinoxes and solstices were viewed by ancient peoples, this information will be well worth the time to look at.

Anciently the equinoxes and solstices were determined by watching the path of the sun throughout the year. The sun always rises in the east and sets in the west, but there are only two days in the year when the sun rises due east and sets due west. These are the days of the equinoxes. The summer solstice is the day when the sun rises the furthest northeast, and the winter solstice is the day the sun rises the furthest southeast.

Here is an explanation of the equinoxes and solstices as well as a brief commentary on monuments around the world that are aligned to show these dates.
http://video.nationalgeographic.com/video/player/science/space-sci/solar-system/equinoxes-sci.html

Here is what takes place at the North Pole on the days of the equinoxes and solstices. The sun actually rises at the North Pole on March 21 (spring equinox) and stays in the sky all spring and all summer. Then around September 21 (fall equinox) it drops below the horizon and stays below the horizon all fall and winter. The brightest day of the year at the North Pole is June 21 (summer solstice) and the darkest day of the year at the North Pole is December 21 (winter solstice).
http://www.arctic.noaa.gov/gallery_np_seasons.html
http://www.athropolis.com/sunrise/def-sol2.htm

Here is how it takes place at the South Pole where the seasons are reversed. At the South Pole spring begins at what we call the Fall equinox (around September 21). **The penguins at this point in time are very excited to see the sun peak above the horizon in Antarctica on this date.**
http://science.nasa.gov/science-news/science-at-nasa/1999/ast23sep99_1/

Here are all the ancient monuments and rock formations that show the ancients thousands of years ago dating the spring equinox on what we call the end of March and the fall equinox on what we call the end of September. Likewise these monuments date the solstices on what we call June 21 and December 21. It is truly amazing.

This video is a collation of all the ones I could find video for:
http://www.youtube.com/watch?v=znIpnveRlkc

Chaco Canyon (New Mexico)
http://www.youtube.com/watch?v=RS_YutGF06Y
http://www.solsticeproject.org/science.htm

The Gossan Stones (Ireland)
http://www.knowth.com/gossan-equinox.htm

The Great Sphinx (Egypt)
http://www.revealer.com/review.htm

Machu Picchu (Peru)
http://www.crystalinks.com/machu.html
http://sacredsites.com/americas/peru/machu_picchu.html

Megalithic Monuments (New England; *Phoenicians in America 2,500 years ago.*)
http://planetvermont.com/pvq/v9n2/megaliths.html

Mnajdra (Malta)
http://www.ancient-wisdom.co.uk/maltamnajdra.htm

Denying the Monuments

Some February equinox proponents outright deny that these monuments prove when the equinoxes really occur. They instead say that these monuments do not call these days the equinox. They also say that this does not prove that all these ancient peoples acknowledged this is the first day of the year. If this is you I offer the following.

First of all, I would just ask everyone to go and *carefully* read and study my paper titled, "Ancient Monumental Evidence." It thoroughly proves this new found February "equinox" wrong. At the same time, it disproves the hypothesis that Julius Caesar somehow changed the equinoxes.

These monuments show that what we call equinox today was originally determined by following the path of the sun in the sky. The sun always rises in the east and sets in the west, but only two days a year does the sun rise directly due east and set directly due west. After the sun rises and sets due east and west in the Spring, it then begins to rise in the east more northerly all the way until the Summer Solstice at which point it rises at its most extreme north-east. Then it goes back to due east and west in the Fall, and then in the winter it is at its extreme rising in the south-east.

The reason we can know beyond a shadow of a doubt that these monuments are set to the date of the equinoxes is because many of these same monuments also tell the day of the solstices (or either have other monuments close by that do) as well as have pictures of the constellations drawn on them. They are clearly calendar time pieces. ***Please take the time to read about several of these at this link:***

http://www.crystalinks.com/observa.html

Consider the Mayan Temple in Mexico. It shows the two equinoxes and the two solstices, and has 91 steps going up to the top for each of the four seasons. 91x4 equals 364. It then has a final top step totaling the steps to 365 days, the amount of days in the year.

In the paper I wrote about these monuments, I give internet links where you can go and check all this out for your self. ***Please do not take my word for it. Go and study it for yourself. It is truly amazing.***

It is equally amazing that these monuments are scattered throughout the entire earth. They are located in Ireland, Egypt, Mexico, America, etc. yet they all show forth the **EXACT SAME TIME PERIODS**. These ancient people had no way to communicate with people located in different countries and even continents. Truly amazing.

One February equinox proponent wrote me the following:

"According to the Encyclopedia, the Egyptians were the first to abandon the solar calendar for strictly a solar calendar, possibly because of Sun worship. At any rate this does not disprove a different understanding of equinox than the one we have today. Here's a Temple in Egypt that shows some religious people, recognize the true light and darkness. They marked February 20 and October 22 Hmmmmm Philo worshiped here. This is found at this website. http://en.wikipedia.org/wiki/Abu_Simbel_temples
Solar phenomena
It is believed that the axis of the temple was positioned by the ancient Egyptian architects in such a way that on October 21 and February 21 (61 days before and 61 days after the Winter Solstice), the rays of the sun would penetrate the sanctuary and illuminate the sculptures on the back wall, except for the statue of Ptah, the god connected with the Underworld, who always remained in the dark.[5][6]
These dates are allegedly the king's birthday and coronation day respectively, but there is no evidence to support this, though it is quite logical to assume that these dates had some relation to a great event, such as the jubilee celebrating the thirtieth anniversary of the pharaoh's rule.
In fact, according to calculations made on the basis of the heliacal rising of the star Sirius (Sothis) and inscriptions found by archaeologists, this date must have been October 22.This image of the king was enhanced and revitalized by the energy of the solar star, and the deified Ramesses Great could take his place next to Amun Ra and Ra-Horakhty.[5]
Due to the displacement of the temple and/or the accumulated drift of the Tropic of Cancer during the past 3,280 years, it is widely believed that each of these two events has moved one day closer to the Solstice, so they would be occurring on October 22 and February 20 (60 days before and 60 days after the Solstice, respectively).
The NOAA Solar Position Calculator [7] may be used to verify the declination of the Sun for any location on Earth, at any particular date and time. For the latitude of Abu Simbel 22°20′13″N31°37′32″E / 22.33694°N 31.62556°E / , the calculator will yield values close to -11º for both Oct 22 and Feb
20. http://en.wikipedia.org/wiki/Abu_Simbel_temples"

This temple mentioned by this February equinox proponent is not one which shows the dates for the equinoxes, but rather these dates are most likely for the birthday and coronation of an Egyptian Pharaoh, possibly Rameses the II. This makes sense because **(1)** other monuments like the Great Sphinx and the Egyptian Pyramids are aligned to calculate the equinoxes and solstices, and **(2)** the image that would be lit up on the days in February and October at this temple was an image of two Sun gods and of Pharaoh himself, not any lines, markings, or picture of the sun.

Please read the paper I sent out titled "Ancient Monumental Evidence" very carefully. Watch the videos on YouTube where people today have visited some of these ancient sites. Often times at these sights when the light of the sun enters into a tunnel, the portion of rock that is lit up will have a picture of the sun on the rock. These were basically ancient calendars. The temple at Abu Simbel does not light up such pictures, it rather lights up two Egyptian gods, and one Pharaoh.

Consider this information that comes from a work titled "*The Dawn of Astronomy*" by Sir Norman Lockyer. It is available for free at this location.

www.books.google.com

He states on page 333 of his writing that, "*It is a matter of common knowledge that the pyramids in Egypt are oriented east and west.*" He continues on page 337 to write, "*Associated with the cities with east and west walls and these pyramids are temples facing due east fit, therefore, to receive the rays from a star on the equator or of the morning sun rising at an equinox.*" In the same work, on page 63-64 Lockyer notes:

...suppose an ancient Egyptian wished to determine the time of an equinox. We know from the Egyptian tombs that their stock-in-trade, so far as building went, was very considerable; they had squares, they had plumb-lines, they had scales, and all that sort of thing, just as we have. He would first of all make a platform quite flat; he could do that by means of the square or plumb-line; then he would get a ruler with pretty sharp edges... **and in the morning of any day he would direct this ruler to the position of the sun when it was rising, and he would from a given point draw a line towards the sun; he would do the same thing in the evening when the sun set; he would bisect the angle made by these two lines, and it would give him naturally a north and south line, and a right angle to this would give him east and west. So that from observations of the sun on any one day in the year he would practically be in a position to determine the points at which the sun would rise and set at an equinox - that is, the true east and west points.**

Suppose that the sun is rising, let a rod throw a shadow; mark the position of the shadow; at sunset we again note where the shadow falls. **If the sun rises exactly in the east and sets exactly in the west, those two shadows will be continuous, and we shall have made an observation at the absolute equinox.** But suppose the sun not at the equinox, a line joining the ends of the shadows equally long before and afternoon will be an east and

west line.

It is true that there may be a slight error unless we are very careful about the time of the year at which we make the observations, because when the sun is exactly east or west at the time of rising or setting it changes its declination most quickly. So it is better to make the above observations of the sun nearer the solstices than the equinoxes, for the reason stated.

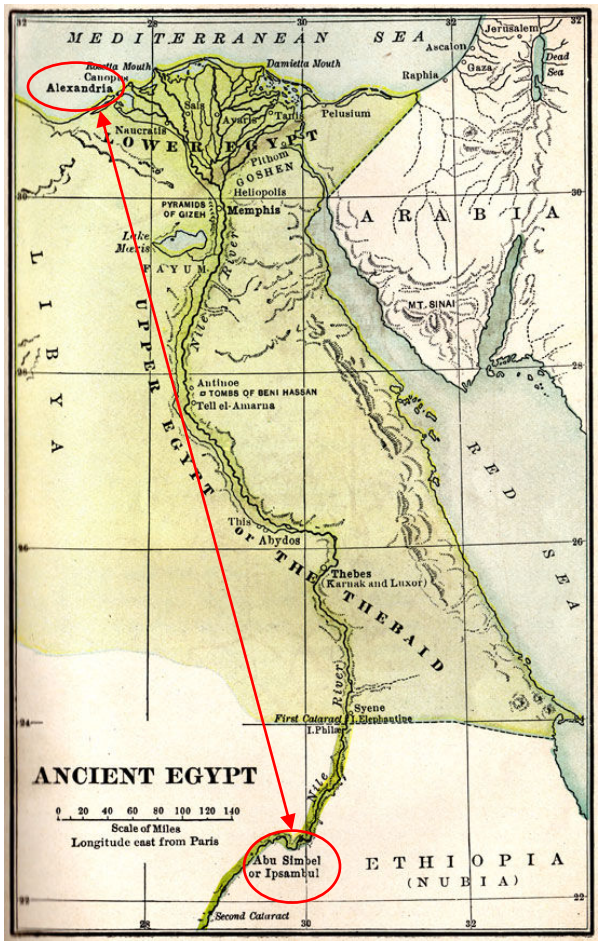
My point is that in Egypt, the Great Pyramids are set up in such a way to determine directly east-west (what we call equinox) and directly north-south (what we call solstice). These were the Egyptian monuments for tracking the sun, therefore the Abu Simbel Temple most likely depicts days of great honor for the Pharaoh.

Also, this February equinox proponent spoke of Philo very briefly in their above quote after mentioning this Abu Simbel Temple. His words were:

"Hmmmmm Philo worshiped here."

Philo actually did not live in the location of Abu Simbel as the map below of ancient Egypt which shows Alexandria, Egypt (Philo's home) extreme North. Abu Simbel is actually extreme South Egypt. Following the chart on the map these two location are about 550 miles apart "as the crow flies."

Furthermore, Philo believed that the Feast of Passover / Unleavened Bread took place at the Spring Equinox, and the Feast of Tabernacles took place at the Fall Equinox (On the Creation XXXIX.116; The Decalogue XXX.161; The Special Laws II, XXXIII.204; The Special Laws IV, XLII. 231). **This is an impossibility if the equinoxes are spread out to fall on February 20 and October 22nd on today's calendar.** Please see my paper titled, "Philo on the Spring and Fall Equinox."



Josephus Dates the Passover

The writings of Josephus give us a clue as to when the Passover and Feast of Unleavened Bread fell out to be on the Julian Calendar of his day. In 46 B.C. Julius Caesar discarded the moon from the Roman Calendar, and began to count the Roman new year from a fixed January 1 date. It had previously began on March 1 which prior to Julius was an actual day of the new moon.

This newly fixed, strictly solar calendar began to be used in 46 B.C. by the Romans and was in use (by the Romans) during the time of Yeshua the Messiah. The Judahite historian Josephus was familiar with this calendar as well as the calendars of Alexandria Egypt and the Macedonians. We find several places in the works of Josephus were he mentions the names of Egyptian and Macedonian months in relation to the month of Nisan, or more correctly from the Hebrew, the month of Abib. Abib and Nisan are equivalent months in Scripture (Exodus 12:2; 13:4; Nehemiah 2:1; Esther 3:7).

Look at these portions from Josephus:

Josephus - Antiquities 2.14.6

But when God had signified, that with one plague he would compel the Egyptians to let Hebrews go, he commanded Moses to tell the people that they should have a sacrifice ready, **and they should prepare themselves on the tenth day of the month Xanthicus, against the fourteenth, (which month is called by the Egyptians Pharmuth, Nisan by the Hebrews; but the Macedonians call it Xanthicus,)** and that he should carry the Hebrews with all they had.

Josephus - Antiquities 3.10.5
In the month of Xanthicus, which is by us called *Nisan,* and is the beginning of our year, on the fourteenth day of the lunar month, when the sun is in Aries, (for in this month it was that we were delivered from bondage under the Egyptians,) the law ordained that we should every year slay that sacrifice which I before told you we slew when we came out of Egypt, and which was called the *Passover;* and so we do celebrate this passover in companies, leaving nothing of what we sacrifice till the day following.

These quotes are a lot to comprehend all at once, but let's look intently at a few of them. To begin with let's examine this one from Antiquities 2.14.6.

Josephus - Antiquities 2.14.6
But when God had signified, that with one plague he would compel the Egyptians to let Hebrews go, he commanded Moses to tell the people that they should have a sacrifice ready, **and they should prepare themselves on the tenth day of the month Xanthicus, against the fourteenth, (which month is called by the Egyptians Pharmuth, Nisan by the Hebrews; but the Macedonians call it Xanthicus,)** and that he should carry the Hebrews with all they had.

Here Josephus writes of the 10th and 14th days of a particular month. We now that Josephus here is speaking of what Scripture calls the month of Abib (Exodus 12:2; 13:4) because he mentions a sacrifice being ready on the 10th and then he mentions the 14th in conjunction with the 10th. The 10th of Abib was the day the passover lamb was to be put up, and the 14th was the day the passover lamb was to be slaughtered (Exodus 12).

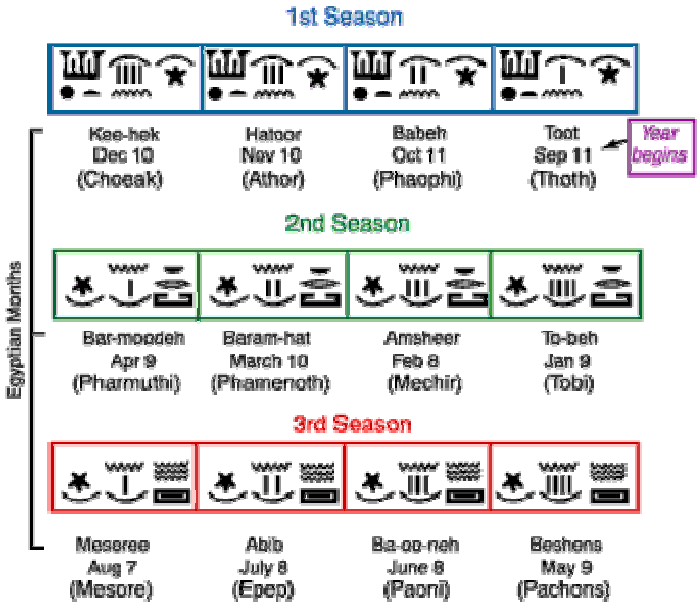
Josephus says here that the Hebrews call this month Nisan (Nehemiah 2:1; Esther 3:7), but the Egyptians and Macedonians have a different name for this month. The Egyptians call the month Pharmuth, while the Macedonians call the month Xanthicus.

If we can determine when the Egyptian month Pharmuth began and / or the Macedonian month Xanthicus began it will aid in determining when the Passover was slaughtered. In turn this will help us understand when the Israelites of the first century A.D. kept the Feast of the Passover / Unleavened Bread.

According to this site, the Egyptian month Pharmuth (or Pharmuthi) began on the Julian date March 27.

http://www.ortelius.de/kalender/egypt_en.php

This next site (http://www.egypt-tehuti.org/articles/egyptian-calendar.html) gives us a seasonal chart of the Egyptian month names with there equivalent seasons.



Notice that the month Pharmuthi has the Julian date of April 9 above it.

Next I would like to quote from a book titled, "*A Select Library of Nicene and Post-Nicene Fathers of the Christian Church*" edited by Philip Schaff and Henry Wace. You can get the book for free at google books.

Beginning on page 500 we have a section titled, "The Festal Letters and Their Index." What is recorded here are letters from Athanasius of Alexandria, Egypt who lived from around 296 A.D. to 373 A.D. This location is where the Alexandrian-Egyptian Calendar was in use, an off-shoot from the ancient Egyptian calendar.

On page 501 we see a table of the Alexandrian-Egyptian year. Again, this table gives the Julian date of March 27 as the beginning of the month Pharmuthi.

On page 504 we see letter XVII which reads in part:

"Give notice therefore in all those districts, that Easter-day will be on the vii Id. April, or according to the Alexandrian reckoning on the 12th of Pharmuthi."

He then writes in Letter XVIII the following:

"Therefore, after the conclusion of this feast, which is now drawing to its close, on the 12th of the month Pharmuthi, which is on the vii Id. April, Easter day will be on the iii Kal. April; the 4th of Pharmuthi, according to the Alexandrians... Easter Sunday is on the iii Kal. April, which is the 4th of Pharmuthi, according to the Alexandrian reckoning."

There is much more in the writings of Athanasius than this, but this is enough to show that the month of Pharmuthi 1 on the Alexandrian-Egyptian calendar was not equivalent to March 1 on the Julian calendar which existed at the same time.

In another book titled, "*Origines Kalendariae Italicae: Nundinal Calendars of Ancient Italy*" Volume 4, by Edward Greswell (which can also be obtained free at google books) we read the following on page 226:

"In the first place April 14 Julian was the stated date of Pharmuthi 19 in the Alexandrine calendar..."

If we walk back from April 14 a total of 19 days it will bring us to March 27 which is once again Pharmuthi 1 on the Alexandrian-Egyptian calendar.

The following is taken from the *Cyclopaedia of Biblical, Theological, and Ecclesiastical Literature* 1876, Vol. 6 which can also be obtained for free from google books.

Month

The identification of the Jewish months with our own cannot be effected with precision on account of the variations that must inevitably exist between the lunar and the solar month, each of the former ranging over portions of two of the latter. It must therefore be understood that the following remarks apply to the general identity on an average of years. As the Jews still retain the names Nisan, etc. it may appear at the first sight needless to do more than refer the reader to a modern almanac, and this would have been the case if it were not evident that the modern Nisan does not correspond to the ancient one. - Smith. We are indebted to J.D. Michaelis for discovering the true state of this case, after the rabbinical writers had so universally established an erroneous opinion that it has not even yet disappeared from our popular books. His dissertation... proceeds on the following chief arguments: **First, that if the first month began with the new moon of March, as was commonly asserted, the climate of Palestine would not in that month permit the oblation of the sheaf of barley, which is ordered on the second day of the Paschal Feast (Lev. xxiii, 10); nor could the harvest be finished before the Feast of Weeks, which would then fall in May; nor could the Feast of Tabernacles, which was after the gathering of all fruits, accord with the month of September, because all these feasts depend on certain stages in the agricultural year, which, as he shows from the observations of travellers, solely coincide with the states of vegetation which are found, in that climate, in the months of April, June, and October.** This has been confirmed by later accounts; for the barley harvest does not take place even in the warm district about Jericho till the middle of April, and in the upland districts not before the end of that month (Robinson's Researches, i. 551; iii, 102, 145). **Secondly, that the Syrian calendar, which has essentially the same names for the months, makes its Nisan absolutely parallel with our April**. **Lastly, that Josephus (Ant. ii, 14, 6) synchronizes Nisan with the Egyptian Pharmuth, which commenced on the 27th of March (Wilkinson, l.c.), and with the Macedonian Xanthicus, which answers generally to the early part of April, though considerable variation occurs in**

the local calendars as to its place (com. Ideler, i, 435, 442). He further informs us (iii, 10, 5) that the Passover took place when the sun was in Aries, which it does not enter until near the end of March. Michaelis concludes **that the later Jews fell into this departure from their ancient order either through some mistake in the intercalation, or because they wished to imitate the Romans, whose year began in March.** Ideler says, "So much is certain that in the time of Moses the month of ears cannot have commenced before the first days of our April, which was then the period of the vernal equinox" ... As Nisan, then, began with the new moon of April, we have a scale for fixing the commencement of all the other months with reference to our calendar; and we must accordingly date their commencement one whole month later than is commonly done: allowing, of course, for the circumstance that, as the new moon varies in its place in our solar months, the Jewish months will almost invariably consist of portions of two of ours.

The Macedonian month of Xanthicus is more difficult to track down in my estimation. We must remember that calendars were often changed and months may have fallen at different times or seasons of the year because of the lack of intercalation or solar-lunar harmony in the year.

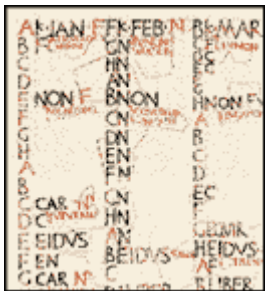
What the above information lets us know is that the Hebrew month Abib (called Nisan in Josephus) did not begin until the end of the then Julian month of March. There is no way that the Hebrews believed in a so-called February "equinox." Such does not even exist in antiquity.

Comprehensive History of the Roman Calendar taken from:
http://www.webexhibits.org/calendars/calendar-roman.html

NOTE: I believe the following will help aid the reader to understand why Julius Caesar had zero to do with changing any equinox.

The Romans borrowed parts of their earliest known calendar from the Greeks. The calendar consisted of 10 months in a year of 304 days. The Romans seem to have ignored the remaining 61 days, which fell in the middle of winter. The 10 months were named Martius, Aprilis, Maius, Junius, Quintilis, Sextilis, September, October, November, and December. The last six names were taken from the words for five, six, seven, eight, nine, and ten. Romulus, the legendary first ruler of Rome, is supposed to have introduced this calendar in the 700s B.C.E.

According to tradition, the Roman ruler Numa Pompilius added January and February to the calendar. This made the Roman year 355 days long. To make the calendar correspond approximately to the solar year, Numa also ordered the addition every other year of a month called Mercedinus. Mercedinus was inserted after February 23 or 24, and the last days of February were moved to the end of Mercedinus. In years when it was inserted, Mercedinus added 22 or 23 days to the year.



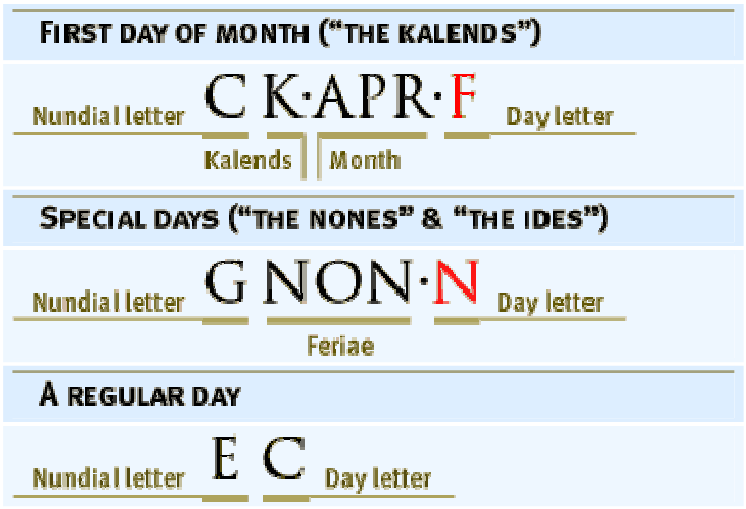
Roman Fasti
Some 200 fragments of Roman calendars have been found so far, and they are collectively known as *Fasti*.

What did a Roman calendar look like?
The Roman calendar used a system of months, and special days in each month. Some calendars were carved in marble or stone, but many were painted on walls for decoration. Different geographical areas often held different gods in special esteem, and this led to regional variations in calendars. This doesn't seem so strange when one considers that even within the US, Mardi Gras often appears only on Southern calendars, and Lincoln's birthday sometimes does not.

In 45 B.C.E., Romans modified their method of marking time to keep it in phase with seasons, but not require intercalation of an extra month. They accomplished this with the Julian Calendar. Month lengths were extended to bring the calendar's total to 365 days, making it truly solar. This change was accompanied by addition of an extra day every fourth year (after February 23rd) because of the almost six extra hours beyond 365 days in a tropical year.

How do you read the calendar?
In the calendar of the ancient Romans, the months contained three primary markers – the Kalends, the Nones and the Ides. The Kalends were always the first day of the month. The Nones were usually the 5th but sometimes the 7th, and the Ides were the 15th but sometimes the 13th. All the days after the Ides were numbered by counting down towards the next month's Kalends. The holidays were generally bunched together to form continuous celebrations, and the remaining days of the month were usually nondescript workdays.

The days were each identified with certain letters and names. The Kalends were always identified as shown in the diagram at right. The archaic form of the K, for Kalends, was used in front of the name of the month. The first letter was called the Nundinae ("nine day") , or the Nundinal letter, and it represented the market day. Every 9th day (counting inclusively) was a market day, but as it shifted every year, a designated letter between A and H would represent the market day for that year. The final letter identifies the type of day for purposes of religious observance or legal business.



The top diagram shows a typical non-holiday. The first letter is the nundinal letter for the market day. If the market day for this year was E then this would be a market day. The second letter signifies the type of religious or legal observance required or permitted on this day. In this case the letter C represents *dies comitiales*, days when committees of citizens could vote on political or criminal matters. The other letter designations :

F stands for *dies fasti*, days on which legal action is permitted.

N stands for *dies nefasti*, which meant that no legal action or public voting could take place on this day.

EN stands for *endotercisus*, or *intercisus*, which were "in-between" F or C days in which mornings and afternoons had different designations.

NP, the combination of N and P, represented some important type of religious observance of which all records have disappeared. However, they all seem to be directly associated with major holidays.

FP also represented some religious holiday, but no definition survives for this abbreviation.

The center diagram is a typical festival, or feriae. On these days the day letter follows the holiday name, which is abbreviated in these calendars. These holidays are explained in the write-up for each day.

The Romans enjoyed more holidays than the number of our holidays and weekends combined. Roman taxes were also only a *tithe*, or 10%. One of the hallmarks of progress seems to be that the populace is always made to work longer and, on top of it all, they are taxed more.

What were the Roman weekdays?
The Romans did not have weekdays in the same sense as our Monday, Tuesday, etc., however, they did have a defined markers within each month. Originally, the month and the markers were based on the moon.

At the time of their early kings, Roman months were of a length identical to the lunar cycle. Each month was divided into sections that ended on the day of one of the first three phases of the moon: new, first quarter or full. All days were referred to in terms of one of these three moon phase names, Kalends, Nones or Ides.

At that time a *pontifex* (priest) was assigned to observe the sky. When he first sighted a thin lunar crescent he called out that there was a new moon and declared the next month had started. For centuries afterward, Romans referred to the first day of each month as *Kalendae* or *Kalends* from the Latin word *calare* (to announce solemnly, to call out). The word **calendar** was derived from this custom.

Day of Kalends
Of the three sections, Kalends was the longest – it had more days than the other two combined. That's because it spanned more than two lunar phases, starting from the day after full moon and continuing thru its last quarter and waning period, then past the dark new moon until another lunar crescent was sighted. The day of Kalends itself began a new month. It was dedicated to Juno, a principal goddess of the Roman Pantheon. Unnamed days in the early Roman month were assigned a number by counting down following the day of each named phase, day by day, ending with the next of those three phases. The first numbered day in each section had the section's highest value. Each succeeding day was one number lower than that of the day before. (Similar to the modern count-down when coordination of a group of people is required for a complicated activity such as launching a rocket.)

Latin for "the evening before" is "*Pridie*," a word that was used to refer to the day before each of these named phases. So *Pridie*was always the day that would otherwise have been numbered two. The count-down was inclusive; the day from which they started as well as that of the moon phase to which they were counting down, day one, were both included.

Day of Nones
Nones (Latin *nonus* or ninth) was originally the day when the moon reached its first quarter phase. When the *pontifex* initially saw the lunar crescent he noted its width and, using empirical knowledge, calculated the number of days that were expected to elapse

between then and the first quarter moon. He then specified that number after he announced the new crescent. If he called out the number six, the day following Kalends would be referred to as the sixth day before Nones.

In any given year, the second day of *Martius* might well have been designated as the sixth of the Nones of March: "*ante diem VI Non. Mart.*" If this were the case, Nones would be the seventh day and Ides would be the 15th day of that month. The difference between these two dates, eight days, was always the length of the Ides section.

Use of the word "Nones" (nine) was intended to express the inclusive number of elapsed days between first quarter and full moons. Actually, the time between moon phases now averages about 7.4 days, but they sometimes occur eight days apart. Eight-day separations of first quarter and full moons now usually come grouped in consecutive lunations. They then give way to mostly seven-day periods.

Six of the first seven lunations of 1997, for instance, had their first quarter and full moon phases eight days apart (inclusive nine-day spans). Also, July 1 of 1998 had a first-quarter moon followed by a new moon on July 9, a nine-day period. This helps explain why the unlikely term of Nones, meaning ninth, was used to designate one fourth of the moon's period that now averages about 29.53 days.

Day of Ides
Ides, dedicated to Jupiter, was originally the time of the full moon. Because a full moon comes halfway thru each lunation, its day was called Idus in Latin from an Etruscan word meaning "divide."

After Ides, the next new moon was expected to appear in from 15 to 17 days. Variations in the length of time before another new moon can be sighted is due to constantly changing positions of moon and Earth relative to the sun.

When did they stop using the moon for months?
Romans separated their months from the lunar cycle in the fifth century B.C.E. Month lengths then became fixed. At that time, Ides was assigned as the 15th day in all months given 31 days in length – March, May, July and October. It was designated as the 13th day in all other months. As a result, from then on the Kalends section had from 16 to 19 days, the Nones section had either four or six days and the Ides section, as before, always had eight days.

Sometime after Kalends, Nones and Ides were fixed on predetermined days of the month rather than being defined by phases of the moon, Romans used letters A thru H on the left side of each month's calendar column to indicate days of their eight-day marketing week. The first day of each new year was represented by the letter "A."

When did the early Roman calendar begin?
The early Roman calendar originated as a local calendar in the city of Rome, supposedly drawn up by Romulus some seven or eight centuries before the Christian Era. The year

began in March and consisted of 10 months, six of 30 days and four of 31 days, making a total of 304 days: it ended in December, to be followed by what seems to have been an uncounted winter gap. Numa Pompilius, according to tradition the second king of Rome (715?-673? B.C.E.), is supposed to have added two extra months, January and February, to fill the gap and to have increased the total number of days by 50, making 354. To obtain sufficient days for his new months, he is then said to have deducted one day from the 30-day months, thus having 56 days to divide between January and February. But since the Romans had, or had developed, a superstitious dread of even numbers, January was given an extra day; February was still left with an even number of days, but as that month was given over to the infernal gods, this was considered appropriate. The system allowed the year of 12 months to have 355 days, an uneven number.

When did the Roman republican calendar begin?

The so-called Roman republican calendar was supposedly introduced by the Etruscan Tarquinius Priscus (616-579 B.C.E.), according to tradition the fifth king of Rome. The Roman republican calendar was a dating system that evolved in Rome prior to the Christian era. According to legend, Romulus, the founder of Rome, instituted the calendar in about 738 B.C.E. This dating system, however, was probably a product of evolution from the Greek lunar calendar, which in turn was derived from the Babylonian. The original Roman calendar appears to have consisted only of 10 months and of a year of 304 days. The remaining 61¼ days were apparently ignored, resulting in a gap during the winter season. The months bore the names Martius, Aprilis, Maius, Juniius, Quintilis, Sextilis, September, October, November, and December–the last six names correspond to the Latin words for the numbers 5 through 10. The Roman ruler Numa Pompilius is credited with adding January at the beginning and February at the end of the calendar to create the 12-month year. In 452 B.C.E., February was moved between January and March.

By the 1st century B.C.E., the Roman calendar had become hopelessly confused. The year, based on cycles and phases of the moon, totaled 355 days, about 10¼ days shorter than the solar year. The occasional intercalation of an extra month of 27 or 28 days, called Mercedonius, kept the calendar in step with the seasons. The confusion was compounded by political maneuvers. The Pontifex Maximus and the College of Pontiffs had the authority to alter the calendar, and they sometimes did so to reduce or extend the term of a particular magistrate or other public official. Finally, in 46 B.C.E., Julius Caesar initiated a thorough reform that resulted in the establishment of a new dating system, the Julian calendar.

He wanted the year to begin in January since it contained the festival of the god of gates (later the god of all beginnings), but expulsion of the Etruscan dynasty in 510 B.C.E. led to this particular reform's being dropped. The Roman republican calendar still contained only 355 days, with February having 28 days; March, May, July, and October 31 days each; January, April, June, August, September, November, and December 29 days. It was basically a lunar calendar and short by 10¼ days of a 365¼ -day tropical year. In order to prevent it from becoming too far out of step with the seasons, an intercalary month, Intercalans, or Mercedonius (from merces, meaning wages, since workers were paid at

this time of year), was inserted between February 23 and 24. It consisted of 27 or 28 days, added once every two years, and in historical times at least, the remaining five days of February were omitted. The intercalation was therefore equivalent to an additional 22 or 23 days, so that in a four-year period the total days in the calendar amounted to (4 x 355) + 22 + 23, or 1,465: this gave an average of 366.25 days per year.
Intercalation was the duty of the Pontifices, a board that assisted the chief magistrate in his sacrificial functions. The reasons for their decisions were kept secret, but, because of some negligence and a measure of ignorance and corruption, the intercalations were irregular, and seasonal chaos resulted. In spite of this and the fact that it was over a day too long compared with the tropical year, much of the modified Roman republican calendar was carried over into the Gregorian calendar now in general use.

What were the Roman months?
Much of the knowledge we now have about early Roman calendars came from Ovid, a Roman born in 43 B.C.E., and from Plutarch, a Greek biographer who wrote between C.E. 105 and 115. Both of them had access to historical documents that are no longer extant. Ovid claimed that his information was "dug up in archaic calendars," so it was already ancient over two thousand years ago.

We can assume that the Roman calendar was brought from their birthplace by Rome's original citizens. Initially, it contained only ten months. It has been suggested that those month lengths reflected growth cycles of crops and cattle. When compared with the solar year, it had an uncounted winter period of approximately sixty days.

Plutarch said that months at the time of Rome's founding were of varying lengths, some as short as twenty days and others with thirty-five or more in what early Romans believed was a year of three hundred and sixty days. Romulus, the legendary first king, was said to have made extensive changes to those month lengths, assigning twenty-nine days to some and thirty-one to others.

March (the first month)
Both Ovid and Plutarch said that *Martius*, originally the first month, was named after Mars, the Roman god of war. Six of the other original ten were simply numbered as *Quintilis* thru *Decembris* (fifth thru tenth) but there were already disagreements when Ovid wrote, two thousand years ago, as to the sources of names for what were originally the second thru fourth, *Aprilis*, *Maius* and*Junius*. These disagreements continue to the present time.

April
When writing about April, Ovid said "I have come to the fourth month, full of honor for you; Venus, you know both the poet and the month are yours." It was later said that "April was sacred to Venus, and her festival – the Festum Veneris and Fortuna Virilis – occurred on the first day of this month." Apparently *Aprilis* stems from aphrilis, corrupted from Aphrodite, a Greek name for Venus. Jakob Grimm, a later authority, opposed this stating it may have originated from the name of a god or hero named Aper or Aprus."

May
Maius was said by some to be named after the goddess *Maia*, a daughter of Atlas, and *Junius* "is indirectly named after the goddess *Juno*, the Roman equivalent of Frigga." But Ovid suggested that names of months we now call May and June possibly refer not to sky-gods but rather to elders and young men.

January (at the end of the year)
There was also disagreement in Ovid's day as to the sequence and time at which *Januarius* and *Februarius* were added to the original ten months. *Januarius* became part of the calendar within half a century after Rome was founded because Plutarch said that Numa, the king who followed Romulus, made it the first month of the year and made February the last. One historian assigns that action an exact date by stating that "January and February were added to an original Roman calendar of only ten months in 713 B.C.E."

January was named after Janus, a sky-god who was ancient even at the time of Rome's founding. Ovid quoted Janus as saying "The ancients called me chaos, for a being from of old am I." After describing the world's creation, he again quoted Janus: "It was then that I, till that time a mere ball, a shapeless lump, assumed the face and members of a god." A Lydian named Joannes identified Janus as a planet when he wrote: "Our own Philadelphia still preserves a trace of the ancient belief. On the first day of the month there goes in procession no less a personage than Janus himself, dressed up in a two-faced mask, and people call him Saturnus, identifying him with Kronos."

Early Romans believed that the beginning of each day, month and year were sacred to Janus. They thought he opened the gates of heaven at dawn to let out the morning, and that he closed them at dusk. This eventually led to his worship as the god of all doors, gates, and entrances.

Some say *Februarius* got its name from a goatskin thong called a *februa* ("means of purification.") On the 15th day of this month Romans observed the festival of Lupercalia. During the festival, a *februa* was wielded by priests who used it to beat women in the belief that it would make a barren woman fertile. However, there's a Latin verb *februare*, meaning to "expiate" or "purify." It seems more reasonable to assume the purification people had in mind when naming the month was that of the calendar year's length, not that of women upon whom the thong was applied.

Februrary (at the end of the year)
Apparently *Februarius*, when adopted, had but 23 days – traditionally the 23rd day of that month was the end of the calendar year. That indicates *Februarius* was observed in pre-Romulan times when months had as few as twenty days. Also, adding five days at year-end (to extend February's length to 28) is similar to the change made by many other peoples who, around the time of Rome's founding, added five days to their own calendar, but considered them to be unlucky and not part of the normal year.

Why is our leap day in Februrary, not the end of the year?
Romans always reconciled differences between calendar and solar year lengths during the "Month of Purification." Whenever and however Roman calendars were modified to correspond to year length, it was always done after the 23rd day of February, traditionally the last day of the year. Even in our time, leap year is observed with a 29-day February. To purists, "leap day" is February 24, not the 29th.

Plutarch wrote: "Numa...added an intercalary month, to follow February, consisting of twenty-two days, and called by the Romans the month *Mercedinus*. This amendment, however, itself, in course of time, came to need other amendments." (When observed, that leap month always immediately followed February 23.)

According to historian Livy, Numa divided the year into twelve months, corresponding to the moon's revolutions. But as the moon does not complete thirty days in each month, and so there are fewer days in the lunar year than in that measured by the course of the sun, he interpolated intercalary months and so arranged them that every twentieth year the days should coincide with the same position of the sun as when they started, the whole twenty years being thus complete. He also established a distinction between the days on which legal business could be transacted and those on which it could not, because it would sometimes be advisable that there should be no business transacted with the people.

Others claim that it wasn't until 452 B.C.E. that a month named *Intercalaris* was added to the Roman calendar in order to add those days required to bring calendar length back into phase with the solar year. This month also began after the 23rd day of*Februarius*. It was observed every second year and was said to have had a length of either 22 or 23 days, with the remaining five days of *Februarius* added after them.

Beware the Ides of March!

SOOTHSAYER.	Caesar!
CAESAR.	Ha! Who calls?
CASCA.	Bid every noise be still.–Peace yet again!
	[Music ceases.]
CAESAR.	Who is it in the press that calls on me? I hear a tongue, shriller than all the music, Cry "Caesar"! Speak, Caesar is turn'd to hear.
SOOTHSAYER.	Beware the Ides of March.
CAESAR.	What man is that?
BRUTUS.	A soothsayer bids you beware the Ides of March.
CAESAR.	Set him before me; let me see his face.
CASSIUS.	Fellow, come from the throng; look upon Caesar.
CAESAR.	What say'st thou to me now? Speak once again.
SOOTHSAYER.	Beware the Ides of March.

CAESAR.	He is a dreamer; let us leave him. Pass.
	[Sennet. Exeunt all but BRUTUS and CASSIUS.]

If you've heard the warning, "Beware the Ides of March," then it's probably due to the works of William Shakespeare. The Roman ruler, Julius Caesar, was assassinated on the Ides of March - March 15, 44 B.C.E. In Shakespeare's play *Julius Caesar*, (I, ii, 33), a soothsayer tells Caesar who is already on his way to the Senate (and his death), "Beware the Ides of March."

Caesar asks him to come closer and repeat what he has just said. He studies the man's face, listens to the warning again, but decIdes, "He is a dreamer, let us leave him. Pass." There is irony here, because the audience knows (from history) that Caesar will be killed on the Ides, and that he is exercising poor judgement in dismissing this prophecy. Later, when he meets the Soothsayer again on the way to the Senate, he confidently says to him, "The Ides of March have come." But the Soothsayer reminds him, "Ay, Caesar, but not gone." There will be other warnings to Caesar from different people, which he will ignore, and go off to meet his death. The phrase "Beware the Ides of March" is one of the most remembered lines of Shakespeare's plays.

The unidentified soothsayer from Shakespeare's play may have been a Roman astrologer by the name of Spurinna. According to to historical writer C.J.S. Thompson (and confirmed in Plutarch's account of the story written in 75 C.E.) it was reportedly sometime prior to the fateful day of March 15 that Spurinna had first given Caesar the famous warning to "beware of the Ides of March." The astrologer, Spurinna, had previously warned Caesar that on the Ides of March, he would be in great danger. If, however, Julius Caesar took care on that one day - then all would be well.

According to Plutarch, Caesar had previously made the wise decision to stay within the safety of his bedroom chambers on the 15th of March. However, Caesar's "friend" Decimus (Albinus) Brutus (not Marcus Brutus) managed to convince him that the astrologer's warnings were nothing more than superstitious foolishness. So Julius Caesar decided to attend the Senate on the 15th of March. On his way to the Senate, Caesar "accidentally" met up with the astrologer, Spurinna. Caesar then told the astrologer "The Ides of March are come." Spurinna answered, "Yes, they are come, but they are not past." Later that day - on March 15, 44 B.C.E - Caesar's enemies assassinated him in the Pompey theater, at the foot of Pompey's statue, where the Roman Senate was meeting that day in the temple of Venus.