

# Inside the Gearbox of the Hebrew Calendar

Over the past thirty years or so, many people rejected the calculated Hebrew calendar in favor of sighted calendars, solar calendars, and probably others as well. But of all those who reject the Hebrew calendar, very few understand it.

It seems to me that if people wish to reject the Hebrew calendar, they should at least understand it first. God's Word tells us, "He who answers a matter before he hears it, it is folly and shame to him" (Prov. 18:13).

This post isn't meant to wade into the calculated calendar vs. sighted calendar issue, but simply to show what the Hebrew calendar seeks to accomplish, and how it works.

## What Type of Calendar?

Today, most of the world follows a solar calendar, the Gregorian calendar. In this system, the sun determines years, and the moon plays no role at all. Each time the earth completes one trip around the sun, that marks roughly one year. The calendar divides the year into twelve parts that are still called "months," even though they have nothing to do with the moon.

On the other hand, lunar calendars, such as the Muslim calendar, keep time by the moon and ignore the sun. Each time the moon completes one trip around the earth, that marks roughly one month. Each year has 12 months, so when the moon completes 12 trips around the earth, the lunar calendar's year ends.

Importantly, a lunar year of 12 lunar months falls well short of a solar year. The months of a lunar calendar float from one season to another. The Muslim month of Ramadan, for example, may fall in spring, summer, fall, or winter.

But what type of calendar did God establish? In Gen. 1:14-16, we read,

14 Then God said, "Let there be lights in the firmament of the heavens to divide the day from the night; and let them be for signs and seasons, and for days and years;

15 "and let them be for lights in the firmament of the heavens to give light on the earth"; and it was so.

16 Then God made two great lights: the greater light to rule the day, and the lesser light to rule the night. He made the stars also.

In v. 14, the word translated “seasons” is the Hebrew *moedim* (Strong’s # H4150), or “appointed times.” God’s Word often speaks of His Holy Days as *moedim*, that is “appointed times” or, as translated in Lev. 23:2, “feasts.”

So God created the heavenly bodies to, among other things, determine His appointed times. But how does that work?

Psa. 104:19 tells us, “He appointed the moon for seasons [*moedim*]; the sun knows its going down.” So God appointed the moon for determining His appointed times, His Holy Days. God’s calendar obviously isn’t a solar calendar.

But that’s not all. In Ex. 13:10, God said, concerning the Feast of Unleavened Bread, “You shall therefore keep this ordinance in its season [*moed*] from year to year.” The Hebrew word for “season” here is simply the singular of *moedim*; it means “appointed time.”

So God’s Holy Days must land in their appointed time each year. Passover, for example, must not float throughout the year, but remain in the spring. God’s calendar obviously isn’t a lunar calendar, either!

Instead, God’s calendar is a lunisolar calendar. It uses both the sun and the moon to keep track of time: the moon for months, the sun for seasons and years. So how does the calculated Hebrew calendar accomplish this?

## **Lunar Months and Solar Years**

Using both the sun and moon for timekeeping is tricky. No matter which way you look at it, solar years and lunar months just don’t line up. You have to make adjustments.

For those who don’t like numbers, the following may be a little daunting. But don’t worry, the basic concept is pretty simple.

Here’s the heart of the issue, the two numbers that give us a riddle to solve. A lunar month, or one of the moon’s trips around the earth, averages 29.53059 days. A solar year averages 365.2422 days.

If we take that average lunar month, we find that 12 lunar months are 354.36708 days. That’s 11 days shorter than a solar year, which is why months on the Muslim calendar drift from one season to another.

To prevent this drift, a lunisolar calendar adds leap years of 13 months. A 13-month leap year, then, is 383.89767 days.

As you can see, common years fall short of and leap years last longer than a solar year, so you have to alternate between common and leap years at a rate that averages one solar year. Over time, they balance out.

It just so happens that 19 solar years closely match 235 lunar months. Those 235 lunar months equal 12 common years of 12 months each, and 7 leap years of 13 months each. Thus, every 19 years, the lunar and solar cycles come back into sync.

Accordingly, the Hebrew calendar follows 19-year cycles, each composed of 12 common years and 7 leap years. In each cycle, the 3rd, 6th, 8th, 11th, 14th, 17th, and 19th years are leap years.

But so far, we've overlooked an important point: you can't have partial days in either a month or a year; you have to round off to whole days. Thus, months alternate between 29 and 30 days.

So, for a lunisolar calendar to work, you have to have a system of determining how many months will have 29 days and how many will have 30 days. This, in turn, will determine exactly how many days a year will have. And, finally, this will also determine exactly how many days each 19-year cycle will have.

So what system does the Hebrew calendar use for accomplishing these things? Enter the so-called "postponements."

### **Postponements?**

Ah yes, the dreaded postponements. The very idea of postponements has prompted more people to abandon the Hebrew calendar than probably any other factor.

Why? Because few understand them.

"Postponements" is an unfortunate term for a simple concept, which is that months and years have to be flexible in order to keep proper time. Months need to vary between 29 and 30 days in a ratio that averages 29.53059 days, and years need to vary accordingly.

When you're driving your car, you need to make continual, minute adjustments to avoid drifting off the road. So it is with the calendar.

The postponements make these continual, minute adjustments, and that's their only practical purpose. Here's how.

The Hebrew calendar allows six possible year lengths. A common year can be 353, 354, or 355 days. A leap year can be 383, 384, or 385 days. The "postponements" determine which it's to be.

Now, the Hebrew calendar is calculated by the Day of Trumpets, the first day of the seventh month. (Many have rejected the Hebrew calendar over this as well, but more on that in a moment.) So when postponements apply, this is where they're applied.

Here's a basic summary of the Hebrew calendar's four postponement rules:

1. If the *molad* (calculated average start of a lunar cycle) of Trumpets falls after noon, then Trumpets will be "postponed" to the following day.
2. If the *molad* of Trumpets falls on a Sunday, Wednesday, or Friday, then Trumpets will be "postponed" to the following day.
3. If, in a common year, the *molad* of Trumpets falls after 3 AM on a Tuesday, then Trumpets will be "postponed" to Thursday.
4. If, in a common year following a leap year, the *molad* of Trumpets falls on Monday between mid-morning and noon, then Trumpets will be "postponed" to Tuesday.

Folks get heated over these postponement rules and exclaim, "How can the Jews postpone God's Holy Days?!"

They can't. These are simply corrections or adjustments to prevent the calendar from drifting off the road.

The first rule, the Noon Rule, is common sense. If the day is more than half over when the lunar cycle begins, then it's only sensible to postpone Trumpets to the next day. And it should be noted that, since days begin and end at sunset, a 24-hour day would be three-quarters finished at this point.

Most people have no issue with the Noon Rule because rounding fractions off to whole numbers is basic math. Even sighted calendars use a similar concept: if its devotees don't see the new moon on a certain night, during the first half of a 24-hour day, then they postpone the start of the month until at least the following day.

The second rule, the Sunday-Wednesday-Friday Rule, stirs up the most controversy. Most explanations are ludicrous, especially those found in the Talmud. But the renowned 12th-century Jewish scholar Maimonides offered a straightforward, mathematical explanation:

Why is [the Day of Trumpets] not established [on the day of the conjunction] when it falls on Sunday, Wednesday, or Friday? Because these calculations determine the conjunction of the sun and the moon only according to their mean [rate of] progress, and do not [necessarily] reflect the true position [of the sun and the moon in the celestial sphere], as explained. Therefore, they instituted that [on] one day [the first of the month] would be established and on the following day it would be postponed, so that they would ascertain the day when the true conjunction takes place.

What is implied? [When according to our calculations, the conjunction occurs on] Tuesday, we establish [the month]. [When it occurs] on Wednesday, we postpone it. [When it occurs] on Thursday, we establish [it]. [When it occurs] on Friday, we postpone it. [When it occurs] on the Sabbath, we establish [it]. [When it occurs] on Sunday, we postpone it. [When it occurs] on Monday, we establish [it].

This same principle, that the calculations are based on the mean rate of progress, is also the motivating factor for the other four reasons for the postponement. As proof of this, there are times when [according to the calculations] the conjunction takes place on Tuesday, and [it] is postponed until Thursday, and yet the moon will not be seen Thursday night, nor even Friday night. This indicates that the true conjunction of the sun and the moon did not take place until Thursday.<sup>1</sup>

In other words, since a lunar cycle only *averages* 29.53059 days, and can be slightly longer or slightly shorter, there'd be times that the Day of Trumpets could fall before the conjunction of the moon. The Sunday-Wednesday-Friday Rule, along with the other postponement rules, prevents that from happening.

As for the last two postponement rules, Rules 3 and 4, they're seldom applied. Their only purpose is to prevent the year from having an improper number of days and getting out of sync with the lunar cycle. They ensure that common years can only have 353, 354, or 355 days, and that leap years can only have 383, 384, or 385 days.

It must be noted that the Hebrew calendar employs postponements more often than not. These continual, minute adjustments keep the calendar from drifting off the road.

Does it work?

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<sup>1</sup> Moshe ben Maimon (Maimonides), *Mishneh Torah: The Book of Times*, ch. 7, sect. 7-8. Translated by Eliyahu Touger. Accessed 4/12/2023 at [https://www.chabad.org/library/article\\_cdo/aid/947925/jewish/Kiddush-HaChodesh-Chapter-Seven.htm](https://www.chabad.org/library/article_cdo/aid/947925/jewish/Kiddush-HaChodesh-Chapter-Seven.htm)

Yes it does! Every year, if you go outside and look up at the night sky on the first day of the Feast of Unleavened Bread and on the first day of the Feast of Tabernacles, you'll see a big, beautiful full moon. (Assuming the sky isn't cloudy, of course.) If the postponement rules didn't work, and if the month started before the conjunction of the moon, you wouldn't see a full moon on those nights.

Perhaps the postponements would've been less of a stumbling block for people if they'd simply been called what they are: corrections or adjustments. But, alas, they weren't named that.

### **Why Calculate From Trumpets?**

So why, then, does the Hebrew calendar calculate the year from the Day of Trumpets? After all, God's Word clearly tells us that Nisan (also called Abib), the month of Passover, is the first month of the year: "Now the LORD spoke to Moses and Aaron in the land of Egypt, saying, 'This month shall be your beginning of months; it shall be the first month of the year to you'" (Ex. 12:1-2).

There are several reasons for calculating from Trumpets, most of which are beyond the scope of this blog post. But the most important thing to know is that it changes nothing.

On the Hebrew calendar, the first 7 months always total 207 days, without exception. These are the months in which all of God's Holy Days land. The only months that can vary in length are the 8th and 9th months, which can each be either 29 or 30 days, depending on how long the year needs to be.

The first month, Nisan or Abib, is always 30 days. The second month is always 29 days; the third, 30; the fourth, 29; and so on, through the first seven months.

Whether you calculate from the Day of Trumpets or from Nisan 1, you'll arrive at the same dates because the first seven months never vary in length. You could calculate from the first day of the 2nd, 3rd, 4th, 5th, or 6th months, and your results would still be the same.

And whether you choose to apply the postponements from a Nisan 1 calculation or a Tishri 1 calculation doesn't matter either, because if one month is postponed, all will be postponed. The first 7 months of the Hebrew calendar form one, inseparable unit.

So calculating the calendar from the Day of Trumpets, or from any other day in the first seven months, has no practical effect on the calendar. It doesn't change the fact that Nisan is

the first month of the sacred calendar. The Feast of Passover / Unleavened Bread is always the first feast of the year.

## **Summary**

As we can see, the calculated Hebrew calendar is a complex mechanism with three simple goals:

1. To stay in sync with the lunar and solar cycles
2. To ensure that God's Holy Days remain in their proper seasons each year
3. To enable God's people, no matter where they are in the world, to assemble before Him on His Holy Days

Though a complex system with many gears and moving parts, it all works together in harmony to accomplish these goals. It would be difficult for anyone to argue that it doesn't work, or that it doesn't accomplish these goals.

Whether each of us chooses to accept or reject it, hopefully we all now have a little better understanding of what it does and how it works!

Written by Brett Gray (2023)