

Frank W. Nelte

## **JEWISH 19-YEAR CYCLES WITH 6942 DAYS**

The Jewish calendar calculations are theoretically based on accurately calculating 19-year cycles. Those cycles are all reckoned as exactly 6939 days plus 16 hours plus 595 halakim (or parts) long. Since 19-year cycles in practical terms must consist of a complete number of days, therefore all the 19-year cycles in the Jewish calendar are supposed to be either 6939 days or 6940 days or 6941 days long. In other words, sometimes a cycle is rounded down by 16 hours to only 6939 days, and sometimes a cycle is rounded up by either approximately 8 hours to 6940 days, or it is rounded up by approximately 32 hours to 6941 days. But the intent of those who framed the present Jewish calendar with its postponement rules was that it would never be rounded up by 56 hours to 6942 days, or that it would never be rounded down by 40 hours to only 6938 days. Such extremes are deemed to get too far away from the astronomical realities, and postponement rules #3 and #4 are intended to keep the cycles within the desired confines.

And so, while it is not stated as a law for the calendar determination, it is usually claimed that a Jewish 19-year cycle may be only either 6939 days or 6940 days or 6941 days long.

But that is not really correct!

There is one condition under which the postponement rules would force a 6942 day 19-year cycle. And this condition comes in pairs exactly 13 full 19-year cycles apart.

A period of 13 full 19-year cycles amounts to exactly 247 years. And such a period of 247 years is in Jewish circles also known as "the cycle of Rabbi Nahshon", or as "the iggul of Rabbi Nahshon". The significance of such a 247-year period is that it is only 905 parts (i.e. 50 minutes and 16,6 seconds) short of a full number of weeks. What this means is that every 247 years the Molad of Tishri will occur on the same day of the week but 905 parts (less than 51 minutes) EARLIER than 247 years previously. Put another way, it will take just a shade over 7000 years for the Molad of Tishri to regress exactly 24 hours; the Molad of Tishri that was on a Sunday at exactly noon would just over 7000 years later (for the same year within a 19-year cycle) be on a Saturday at noon, exactly 24 hours earlier.

And this creates the following situation:

When the molad for the first year of a cycle falls on a Saturday later than about 690 Parts after 10:00 a.m., but still before noon, then this means that the molad for the first year of the next cycle will fall on a Tuesday at 204 Parts after 3:00 a.m. or later ... and according to the postponement rules it will therefore require a TWO day postponement, thus making the whole 19-year cycle 6942 days long.

So notice:

It is THE FIRST YEAR of a cycle that has this potential influence. If the Molad of Tishri occurs at noon or later, then a postponement is invoked and the previous year (and therefore the whole previous 19-year cycle) receives one more day. So even though the next 19-year cycle will be postponed by two days, one of those two days is offset by the current cycle also starting one day later for years where the molad is after 12:00 o'clock noon.

When that Molad of Tishri occurs earlier than 690 parts after 10:00 a.m. on a Saturday, then one 19-year

cycle later the Molad of Tishri will be too early (i.e. it will be on a Tuesday, but before 204 parts after 3:00 a.m.) to require a postponement.

It is only in the 86 minutes and 7 seconds window between 10:33:50 a.m. and 11:59:57 a.m. (i.e. one halak before noon) for a Saturday Molad of Tishri for the first year in the 19-year cycle that this phenomenon of a 6942-day 19-year cycle will arise. And it will ONLY arise because of the way the postponement rules work.

This phenomenon would have been extremely difficult for the framers of the postponement rules to foresee. It only appears in two places: first of all it appears when we extrapolate backwards to cycles #154 (starting in 854 B.C.) and #167 (starting in 607 B.C.); and then it does not appear again until we extrapolate forwards to cycles #547 (starting in 6614 A.D.) and #560 (starting in 6680 A.D.). Clearly the occasions more than 4600 years from now are meaningless to us; I mention them solely to illustrate the rarity of this occurrence.

But for those who wish to extrapolate the present Jewish calendar back "to the days of Moses", to claim that GOD authored the present Jewish calendar, cycles #154 and #167 should be a consideration.

The exact THEORETICAL details for these two situations are as follows:

#### 1) CYCLE #154

Year #1 = 854 B.C.

Molad of Tishri = Saturday, September 28 at H17 P519, which is 11:28:50 a.m.

Because this is on a Saturday before noon, therefore no postponements are applied, and Saturday, September 28 becomes Tishri 1 for 854 B.C.

Cycle #155, Year #1 = 835 B.C.

Molad of Tishri = Tuesday, September 28 at H10 P34, which is 4:01:53 a.m.

Because this is a common year and it is after 3:11:20 a.m., therefore a postponement is invoked to Thursday. Thus Thursday, September 30 becomes Tishri 1 ... AND THE PREVIOUS CYCLE WILL HAVE 6942 DAYS!

#### 2) CYCLE #167

Year #1 = 607 B.C.

Molad of Tishri = Saturday, September 27 at H16 P694, which is 10:38:33 a.m.

Because this is on a Saturday before noon, therefore no postponements are applied, and Saturday, September 27 becomes Tishri 1 for 607 B.C.

Cycle #168, Year #1 = 588 B.C.

Molad of Tishri = Tuesday, September 27 at H9 P209, which is 3:11:37 a.m.

Because this is a common year and it is after 3:11:20 a.m. (albeit by only 17 seconds!), therefore a postponement is invoked to Thursday. Thus Thursday, September 29 becomes Tishri 1 ... AND THE

## PREVIOUS CYCLE WILL ALSO HAVE 6942 DAYS!

For people who are not concerned with the length of a 19-year cycle this situation would go unnoticed. But for those who wish to claim some link between the Jewish calendar and the astronomical realities in the sky, there is the constraint to at least keep things from straying too far from reality. And allowing a 19-year cycle to have 6942 days, thereby allowing it to depart 56 hours from the astronomical facts, is indeed "straying just a bit further than is acceptable".

Would God have authored, or would God approve of a calendar system that strays 56 hours from the realities He Himself has created in the sky?

What this should tell us is this:

The complete calculations for predicting the lunar conjunctions (i.e. the Molad of Tishri calculations) were devised without any thoughts ever being given to possible postponement situations! The Greek astronomer Hipparchus devised the basic calculations in the 140's B.C. When these calculations were then later employed to determine comparisons between lunar cycles and Julian calendar years, then postponements didn't enter the picture. And so without any postponement situations to confuse the picture reasonably accurate averages could be established for use in the calculations. It is only after the whole set of calculations had been established, that then (either by Hillel II in the 350's A.D. or else at a later date) the four postponement rules were superimposed on the existing calculations.

Those who devised the postponements understood that such postponements would at times create some problems, and therefore they devised rules #3 and #4 to counter those problems that they could anticipate. The very existence of rules #3 and #4 tells us that they KNEW that postponements create some problems.

However, they did not anticipate the problem that would arise when the Molad of Tishri for the first year of a 19-year cycle fell into the 86 minutes and 7 seconds window period of a Saturday morning between 10:33:50 a.m. and 11:59:57 a.m. And so they did not make a provision for this situation.

The information on this page is not intended to somehow disprove the present Jewish calendar. That is achieved adequately enough on other pages on this website. This information here is not intended as proof for anything. It is provided simply to set the record straight. Yes, in our age the present Jewish 19-year cycles will always have only 6939 days or 6940 days or 6941 days. But there are potentially situations when such cycles could have 6942 days. We should be aware of that possibility.

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