

## **DETAILED ANALYSIS OF THE JEWISH CALENDAR DATA**

### **FOR THE PERIOD OF 1900 - 2020 A.D.**

On this page I present a detailed analysis of all the data for the 121-year period from 1900 to 2020. The actual data itself for this analysis is presented in the directory named "A Comparison of the Molads of Tishri and the Real New Moons".

By examining a continuous period of 121 years we can see a number of clear trends emerge. Collectively these trends prove beyond any doubts that the present Jewish calendar is only tied very loosely to the real new moons. The key determining factor for establishing the start of a Jewish calendar year is TRADITION, rather than strict new moon requirements. It is within the requirements imposed by Jewish traditions that the real new moons are pushed around within the Jewish calendar.

The start of the Seventh Month, and thus also the start of the whole year, is postponed away from days of the week deemed to be inconvenient. These facts are well known to Jewish scholars of the calendar, and they are perfectly acceptable for the Jewish religion and the Jewish customs. Jewish scholars have never attempted to hide or cover up the inconsistencies between the present Jewish calendar and the real new moons. And this is true whether by "real new moons" we mean the day of the lunar conjunction, or whether we mean the day after the lunar conjunction, or whether we mean the day of first visibility of the new moon crescent. The Jewish calendar, while at different times achieving all of these conditions, is in fact not consistently aligned with any one of them. It is aligned FIRST with the requirements of tradition, and after that comes a loose alignment to the proximity of the new moons.

Now what may be acceptable for Jewish religious purposes is not necessarily acceptable for observances by the churches of God. The problem we in the churches of God face is that initially the top leadership of the Church ASSUMED that the present Jewish calendar was an expression of God's instructions to Israel through Moses. The leadership of the Church assumed that the present Jewish calendar is in perfect agreement with the astronomical realities pertaining to new moons, at the very time when Jewish astronomers and Jewish scholars themselves were quite open in exposing the disparities between astronomical realities and their own present calendar.

Those initial wrong assumptions were passed on and then taken up by the entire membership of the Church of God, to the point that the Jewish calendar was never examined for agreement with biblical requirements. For example, it was commonly and repeatedly stated by the Church that "God starts the year IN THE SPRING and NOT IN THE WINTER", at the very time when 6 out of every 19 years in the present Jewish calendar actually start the year in the winter!

In the churches of God we need to get beyond our initial wrong assumptions about the present Jewish calendar, and we need to examine this calendar on its own merits, rather than on its assumed reputation of supposedly being an expression of God's instructions to Israel. We need to ask ourselves some probing questions about the calendar. Questions like:

Would God expect a correct calendar to have some CONSISTENT relationship to the new moons, or would God desire a correct calendar to constantly wander between being aligned to the day of the actual lunar conjunction, to being aligned to the day after the lunar conjunction, to

being aligned to two days after the lunar conjunction?

Would God expect a correct calendar to CONSISTENTLY start the year in the spring, or would God desire a correct calendar to only "mostly" start the year in the spring, while sometimes starting it in the winter?

Would God expect a correct calendar to be CONSISTENTLY linked to specific seasons, or would God establish a calendar where every single year within a 19-year cycle shifts to a date almost 5 days later in the seasons for every 1000 years that pass, thereby making early dates look much better with the passage of time, while making initially late dates look still later?

Would God in a correct calendar expect the start of the first month to have the same relationship to the new moon as the relationship the seventh month has to the new moon, or would God desire the start of the first month to be linked to the day of the lunar conjunction when the start of the seventh month is linked to the day of first visibility of the new crescent, and vice versa?

The analysis of the data for the period from 1900 to 2020 provides us with some interesting facts about the Jewish calendar. Let's look at those facts.

COMMENT: In the statistics below I have abbreviated "New Moon" as "N.M.".

## **STATISTICS FOR THE PERIOD FROM 1900 - 2020**

### **1) THE MOLAD OF TISHRI**

#### **A) ONE DAY BEFORE THE DAY OF THE N.M. CONJUNCTION**

3 in 121 years = 2,5%

#### **B) ON THE DAY OF THE N.M. CONJUNCTION**

84 in 121 years = 69,4%

#### **C) ONE DAY AFTER THE DAY OF THE N.M. CONJUNCTION**

34 in 121 years = 28,1 %

### **ASSESSMENT:**

The molad of Tishri calculations do not consistently achieve even the correct day of the lunar conjunction, which the molad calculation purports to achieve. About 30% of the time the molad calculations arrive at the wrong day, mostly the day after the lunar conjunction, though occasionally it is even the day before the lunar conjunction. We need to ask ourselves: is a calculation that achieves a 70% success rate acceptable to God?

### **2) THE DAY TISHRI 1**

#### **A) ON THE DAY OF THE N.M. CONJUNCTION**

27 in 121 years = 22,3%

#### **B) ONE DAY AFTER THE DAY OF THE N.M. CONJUNCTION**

68 in 121 years = 56,2%

### C) TWO DAYS AFTER THE DAY OF THE N.M. CONJUNCTION

26 in 121 years = 21,5%

#### **ASSESSMENT:**

The date of Tishri 1 is established after the date of the molad of Tishri has been evaluated against the 4 postponement rules of the Jewish calendar.

The 22,3% of times when Tishri 1 is on the day of the new moon conjunction make clear that in many instances when the molad of Tishri is on the day of the new moon conjunction no postponements at all are applied, and Tishri 1 will conclude before first visibility of the new crescent will be possible (first visibility is only possible immediately AFTER sunset, thus only at the start of a new day).

The 21,5% of times when Tishri 1 is two days after the lunar conjunction make clear that of those occasions when the molad of Tishri arrives at one day after the new moon conjunction then many times a one day postponement is still applied to that date, in addition to sometimes a two day postponement being applied to a molad date that was on the day of the new moon conjunction. So there will also be many occasions when Tishri 1 will only be on the day AFTER first visibility of the new crescent was possible.

The 56,2% of times when Tishri 1 is one day after the lunar conjunction make clear that most of the time when the molad of Tishri arrives on the day of the new moon conjunction then a one day postponement is applied to that date. In practice this will often, though not always, be the day of first visibility of the new crescent.

The determination of Tishri 1 is important to us, in that it is one of God's annual Holy Days (the Day of Trumpets). So the spread of this day being placed on one of three different days, in its relationship to the new moon, should be of concern to God's people who wish to observe God's Holy Days on the correct days.

### **3) THE DAY NISAN 1**

#### A) ON THE DAY BEFORE THE N.M. CONJUNCTION

2 in 121 years = 1,6%

#### B) ON THE DAY OF THE N.M. CONJUNCTION

41 in 121 years = 33,9%

#### C) ONE DAY AFTER THE DAY OF THE N.M. CONJUNCTION

57 in 121 years = 47,1%

#### D) TWO DAYS AFTER THE DAY OF THE N.M. CONJUNCTION

21 in 121 years = 17,4%

#### **ASSESSMENT:**

The rare occasions (i.e. 1,6% of the time) when Nisan 1 concludes BEFORE the lunar conjunction has even taken place illustrates the problem in assuming that the first new moon must be exactly 177 days before the seventh new moon. In this situation the first day of Nisan starts at least 48 hours before first visibility of the new crescent is a possibility. Clearly this situation shows a total disregard for the actual new moon, be that the day of the conjunction or be that the day of first visibility.

For the remainder, day one of the first month of the year (Nisan 1) is scattered over three different days, with each of those three days having a sizable representation, ranging from 17% to 47% of occurrences. This makes clear that the Jewish calendar determinations are completely unconcerned with which of those three days the first month should ideally start. It really makes no difference to the Jewish calendar that the first month can in fact start on FOUR DIFFERENT DAYS, as far as its relationship to the new moon is concerned. This should also be of concern to God's people, since it directly affects when people will observe the Passover and the Days of Unleavened Bread.

#### **4) THE START OF THE YEAR**

##### **A) IN THE SPRING**

84 in 121 years = 69,4%

##### **B) IN THE WINTER**

37 in 121 years = 30,6%

#### **ASSESSMENT:**

In our age the Jewish calendar starts 6 out of every 19 years in the winter. Because of the fact that a Jewish 19-year cycle is 1 hour and 26 minutes and 56,6 seconds shorter than 19 solar years, therefore there is a gradual shift in the Jewish calendar, where every year in a 19-year cycle will start one day later in relationship to the vernal equinox for every approximately 216 years that pass.

To illustrate this: Hillel II established the present Jewish calendar in the late 350's A.D. The first full 19-year cycle after that was Cycle #218, which went from 363 to 381 inclusive. In that cycle there were ELEVEN YEARS THAT STARTED IN THE WINTER. Those 11 years were: 364, 365, 367, 368, 370, 373, 375, 376, 378, 379, and 381.

It is the passage of over 1600 years that has reduced the number of years that start in the winter from 11 down to only 6 today. And it is the passage of more millennia that would eventually result in no years ever starting in the winter. However, that theoretical time is still a long way off ... in the year 3742 A.D. the month Nisan is still scheduled to start on Monday evening, March 19, just before the end of winter. But from basically that time onwards (i.e. over 1700 years into the future from today) all the years in the Jewish calendar would theoretically always start in the spring.

However, for a Church that consistently taught that "with God the year starts in the spring", it is simply not right that it would take about 3400 years from the time the present calendar was established until it would finally consistently meet the condition of never starting the year in the winter.

The fact is that for those years that the Jewish calendar starts in the winter, they are simply using THE WRONG NEW MOON for the start of the year. In each of those cases the year should really start with the following new moon, giving the previous year a 13th month. Now the fact that today still 6 years start in the winter tells us that the Jewish calendar employs AN INCORRECT SEQUENCE of leap years in its 19-year cycles.

## 5) THE APPLICATION OF POSTPONEMENTS

### A) POSTPONEMENTS ARE APPLIED

72 in 121 years = 59,5%

### B) NO POSTPONEMENTS ARE APPLIED

49 in 121 years = 40,5%

## ASSESSMENT:

The application of postponements to the date of the molad of Tishri has nothing whatsoever to do with any astronomical requirements, be it in the autumn or be it in the spring. That should be immediately apparent when we consider that there are 84 years in this period when the date of the molad is the same as the date of the new moon conjunction ... but only 72 years in total have either a one-day or a two-day postponement added to them, and some of those 72 years are situations where the molad was one day after the new moon conjunction day.

It is also clear that postponing is the rule, and no postponements being added is the exception to the rule, since about 60% of the time postponements are in fact applied. This tells us that the postponement rules are in fact more important in determining the Jewish calendar than the results themselves that are achieved by the molad calculations, since about 60% of the time those results are not acceptable for the date of the Day of Trumpets.

One of the clearest ways to illustrate the priority the postponement rules have over the actual new moon facts is seen in the data for the following three years:

In 2000 the molad was already over 15 hours AFTER the actual time of the new moon conjunction, but the postponement rules imposed a two-day postponement on top of this late molad time, placing Tishri 1 even further away from the time of the new moon.

In 2002 the molad was only one hour and 24 minutes AFTER the time of the actual new moon conjunction, and no postponements were imposed, thereby making the sunset that preceded the lunar conjunction the start of Tishri 1.

In 1977 the molad was about 3 hours and 40 minutes BEFORE the actual new moon conjunction, and again no postponements were enacted, thereby again making the sunset that preceded the lunar conjunction the start of Tishri 1.

So sometimes the molad is either early or it is almost on time, and no postponements are invoked; then at other times when the molad is over 15 hours late a two-day postponement is invoked, removing the date for Tishri 1 even further from the new moon. Postponements have nothing at all to do with astronomy, and everything to do with unbiblical traditions.

## 6) NEW MOON RELATIONSHIPS WITHIN THE JEWISH YEAR

When we examine the start of the first month and the start of the seventh month in the Jewish calendar in relationship to the actual days of the respective new moon conjunctions, then 8 different relationships emerge. The annual Feasts and Holy Days, when observed according to the present Jewish calendar, are observed with:

A) BOTH, NISAN AND TISHRI, STARTING ON THE RESPECTIVE DAYS OF THE N.M. CONJUNCTIONS

15 in 121 years = 12,4%

B) BOTH, NISAN AND TISHRI, STARTING ONE DAY AFTER THE RESPECTIVE N.M. CONJUNCTIONS

32 in 121 years = 26,5%

C) BOTH, NISAN AND TISHRI, STARTING TWO DAYS AFTER THE RESPECTIVE N.M. CONJUNCTIONS

12 in 121 years = 9,9%

D) NISAN STARTING ON THE N.M. DAY, AND TISHRI STARTING ONE DAY AFTER THE N.M. DAY

27 in 121 years = 22,3%

E) NISAN STARTING ONE DAY AFTER THE N.M. DAY, AND TISHRI STARTING ON THE N.M. DAY

10 in 121 years = 8,3%

F) NISAN STARTING ONE DAY BEFORE THE N.M. DAY, AND TISHRI STARTING ON THE N.M. DAY

2 in 121 years = 1,6%

G) NISAN STARTING ONE DAY AFTER THE N.M. DAY, AND TISHRI STARTING TWO DAYS AFTER THE N.M. DAY

14 in 121 years = 11,6%

H) NISAN STARTING TWO DAYS AFTER THE N.M. DAY, AND TISHRI STARTING ONE DAY AFTER THE N.M. DAY

9 in 121 years = 7,4%

### **ASSESSMENT:**

Theoretically Nisan 1 is the day of the first new moon in the year, and Tishri 1 is the day of the seventh new moon in the year. Whether they should be the days of the actual (i.e. invisible) new moon conjunctions, or whether they should be the days that start with the sunsets that follow those conjunctions, or whether they should be the days when first visibility of the new crescents is possible, is not nearly as important a consideration as the fact that, whatever format they follow, THEY SHOULD BE CONSISTENT and totally independent of the requirements of human traditions.

Reasonable sound arguments could be presented for any of the three possibilities mentioned in the previous paragraph, but NOTHING CAN JUSTIFY the inconsistencies expressed in the 8 DIFFERENT CONFIGURATIONS expressed in the above data!

And the last 5 of the above 8 configurations express inconsistencies WITHIN THE SAME YEAR! That is the degree to which Jewish traditions manipulate the real new moons in the Jewish calendar.

The above statistics for the 8 different configurations, found in the 121-year period from 1900 to 2020, should suffice to establish beyond any doubts or questions that the Jewish calendar with its postponement rules is not based on following the real new moons, as falsely claimed by some of the people who seek to present support for wanting the people in God's Church to use the present Jewish calendar for determining the dates for our annual observances.

## 7) ATTRIBUTING THE MOLAD TO THE WRONG DAY

1 in 121 years = 0,8%

### **ASSESSMENT:**

In 1994 the molad of Tishri was determined to be Monday, September 5 at 6:13:03 p.m.

Because the molad calculations ALWAYS assume a 6:00 p.m. sunset time, therefore in 1994 the molad was reckoned to be within the first 14 minutes of September 6.

However, in actual fact on September 5 in 1994 sunset, expressed in local Jerusalem time (i.e. 2 hours 21 minutes ahead of Greenwich) was only at 6:19 p.m. Thus the time of the molad was in fact still on September 5, about 6 minutes before sunset, and NOT after sunset, at the start of September 6, as the Jewish calendar falsely assumed.

Now in actual practice this would not have changed anything for the Jewish calendar, because of the postponement rule that requires any molad which falls between noon and 6:00 p.m. to automatically be postponed to the following day. And based on that postponement rule, in 1994 September 6 would have been pronounced as Tishri 1 whether the molad was September 5 at 12:01 p.m. or at 3:00 p.m. or at 5:00 p.m. or at 9:00 p.m. or at 11:00 p.m. or whether it was on September 6 at 2:00 a.m. or at 6:00 a.m. or even at 11:59 a.m. ... all those molad times would have resulted in the same date of September 6 for Tishri 1.

Since the postponement rules always assign the same date to Tishri 1 for any molad that is between noon and midnight (and even later), therefore it is totally inconsequential to the Jewish calendar determinations whether sunset is at 5:30 p.m. or whether it is at 6:30 p.m. So it is immaterial to the Jewish calendar that in 1994 the time of the molad was in fact still about 6 minutes before sunset.

HOWEVER, for anyone who does not accept the Jewish postponement rules as being valid, knowing whether 6:13 p.m. is before or after sunset can make the difference of one day. And 1994 is one example of the molad of Tishri, based on its own calculations, being assigned to the wrong day.

As it happened, the real new moon conjunction in 1994 was only at 8:52 p.m., and thus clearly on September 6. And the Jewish calendar calculations assigned the molad to the actual day of the lunar conjunction based on using incorrect data (i.e. using 6:00 p.m. instead of the real sunset to determine the start of a day), a lucky coincidence of one error wiping out the effect of a second error (i.e. placing the molad about 2 hours 39 minutes too early).

### **IN CONCLUSION**

An analysis of the data for the years from 1900 to 2020 shows quite vividly how commonly the Jewish calendar disregards the actual new moons in favour of adhering to traditions. Jewish religious authorities

don't see that as a problem. But that does not mean it should also be acceptable for the churches of God to use the Jewish calendar to determine the dates for our annual observances.

Frank W. Nelte