



**A** בס"ד  
Intro  
Today we will learn בע"ה of דף כ מסכת ר"ה.

Some of the topics we will learn about today include:

A continuation of the discussion of קידוש החודש including

Which months we may be מחלל שבת in order to give over testimony regarding the new moon

and

Whether בית דין can manipulate the קידוש החודש for certain needs of Klal Yisrael.

**B** A מחלוקת whether the months are set as מלא and חסר or if בית דין can designate each month as מלא or חסר.

The concept of סוד העיבור and how that affects the calculations of the מולד and the new moon.

**C** Sources for how we know that the Jewish day goes from nightfall to nightfall.

**A**

*A discussion of*  
**קידוש החודש**

*Which months*  
*we may be מחלל שבת*  
*in order to give over testimony*  
*regarding the new moon*

*Whether בית דין can*  
*manipulate the קידוש החודש*  
*for certain needs of Klal Yisrael*

**B**

*Whether the months are set*  
*as מלא and חסר*  
*or if בית דין*  
*can designate each month*  
*as מלא or חסר*

*The concept of*  
**סוד העיבור**  
*How that affects*  
*the calculations of the מולד*  
*and the new moon*

**C**

*Sources for how we know*  
*the Jewish day goes*  
*from nightfall to nightfall*





**D** Some of the key topics and concepts that we will learn about include:

חודש מלא / חודש חסר

A Jewish month has either 29 days or 30 days. If it has 29 days, it is called a חודש חסר and if it has 30 days it is called a חודש מלא.

מולד הלבנה

The lunar cycle, the time it takes for the moon to complete its monthly cycle around the earth, is 29 days, 12 hours, 44 minute and 3.3 seconds. As a month cannot have ½ days, we alternate, with some months having 29 days and some months 30 days. However, because of the additional 44 minute and 3.3 seconds we need do occasionally make additional adjustments - as these extra minutes quickly add up to become hours and then days.

Which brings us to the

סוד העיבור

Again, If the lunar cycle was exactly 29 ½ days, the Jewish calendar could have one month as 29 days and one month of 30 days. However, as the lunar cycle contains an additional 44 minute and 3.3 seconds beyond the 29 ½ days, plus there are certain days in which Rosh HaShana cannot fall out, according to the כלל of ראשׁו לא אד״ו, on Sunday, Wednesday, or Friday, plus other issues, many adjustments must be made to the calendar.

This is but a small part of what is known as סוד העיבור, which forms the basis for the Jewish calendar as we know it today, which was composed by ר׳ הלל בן ר׳ יהודה נשיאה, known also as הלל השני, in the year קי״ט ד׳. Although the חכמים of the Sanhedrin knew the סוד העיבור, the months were נקבע based on testimony of witnesses, as the pasuk states הזה לכם, from where we learn כזה ראה וקדש, that it is a מצווה to sanctify the new moon based on personal sightings of the moon and testimony before Beis Din.

**D**

חודש מלא • חודש חסר

מולד הלבנה

סוד העיבור



**1** So let's review....  
 The gemara on the previous daf had been discussing various cases related to קידוש החודש, when witnesses would come to Beis Din to report on sightings of the new moon. The gemara continues that discussion.

שלחו ליה למר עוקבא אדר הסמוך לניסן לעולם חסר  
 The month of Adar immediately preceding Nissan, either Adar in a regular year, or Adar Sheni in a leap year, is always a חסר month, of only 29 days.

If so, asks Rav Nachman, why does the mishna teach us על שני חדשים מחללין את השבת על ניסן ועל תשרי that because of the importance of these two months, as they contain the Yomim Tovim of Pesach, Rosh HaShana, Yom Kippur and Sukkos, witnesses are allowed to even be מחלל שבת to come to the Sanhedrin and testify before Beis Din. Now, if indeed Adar is always a month of 29 days, why is there a necessity to be מחלל שבת in order to deliver testimony regarding the sighting of the moon?

**1** קידוש החודש  
 שלחו ליה למר עוקבא  
**אדר הסמוך לניסן לעולם חסר**  
*Only 29 days*

כי נמאן  
**על שני חדשים מחללין את השבת**  
**על ניסן - ועל תשרי**

ססו ראל פלאך יור"כ סוכה

*If Adar is always a month of 29 days why should we be מחלל שבת?*

**2** The gemara answers:  
 משום דמצוה לקדש על הראייה  
 Although we know which day Rosh Chodesh will fall out on, there is a special מצוה to be מקדש the month על פי עדים, as Rashi points out, as the pasuk says החדש הזה לכם, from where we learn out קדש על פי. That there is a special מצוה to be מקדש על פי - ראייה - to proclaim the new month based on the sighting of the new moon even though we might already know when the new month will begin, based on our calculations. Therefore, if these עדים need to be מחלל שבת in order to get to the Beis Din in Yerusholayim, they may do so.

**2** משום דמצוה לקדש על הראייה  
 מקדש על פי עדים  
 There's a special מצוה to be מקדש על פי עדים  
 רש"י  
**החדש הזה לכם**  
 כזה ראה וקדש

**3** Rav Kahana questions this from a Braisa:  
 כשהמקדש קיים מחללין אף על כולן מפני תקנת הקרבן  
 In the time of the Bais HaMikdash, witnesses were allowed to be מחלל שבת in order to give testimony regarding every month, to insure that the Korban Musaf of Rosh Chodesh was brought on time. This implies that the reason for allowing חילול שבת in order for עדים to get to Beis Din was not to be able to be מקדש על פי, but rather in order to set Rosh Chodesh on its proper day. And if the Adar preceding Nissan is always 29 days, this would not be necessary, as we already know when Rosh Chodesh Nissan will fall out.

**3** Rav Kahana questions this...  
 כר"ת א:  
**כשהמקדש קיים - מחללין אף על כולן**  
**מפני תקנת הקרבן**

*This implies...*  
**The reason for allowing חילול שבת was not to be able to be מקדש על פי ראייה, but rather to set Rosh Chodesh on its proper day?**



4 The gemara concludes תיובתא, this braisa does indeed refute the opinion of מר עוקבא that אדר הסמוך לניסן לעולם חסר - that Adar preceding Nissan was always 29 days, but rather some years it could be חסר and some times מלא.

4 תיובתא.  
Some years it could be חסר  
and some times מלא

5 The gemara continues:  
כי אתא עולא אמר עברוה לאלול  
When Ulla came from Eretz Yisrael he informed the בני הגולה that the month of Elul was made a חודש מלא, they added a 30th day to the month of Elul, and told them that טיבותא עבדינן בהדיהו - this was done as a benefit specifically for the בני הגולה in בבל - this was done as a benefit specifically for the בני הגולה.  
The gemara examines what this טיבותא, benefit, was.  
That year Yom Kippur was destined to come out on Sunday which means that there would be two days in a row which are אסור במלאכה.

5 כי אתא עולא אמר  
עברוה לאלול  
He told them  
טיבותא עבדינן בהדיהו  
The gemara examines  
what this benefit was...  
Yom Kippur was destined to be on Sunday  
and there would be 2 days in a row  
which are אסור במלאכה

6 עולא אמר משום ירקיא  
This would cause vegetables picked before Shabbos to wilt and not be fresh at the end of Yom Kippur. Therefore by adding a day to Elul, Yom Kippur would now only come out on Monday. Whereas  
רבי אחא בר חנינא אמר משום מתיא  
The benefit to the בני הגולה was that if someone passed away on the first day, they would not be able to bury him for two days.

6 רבי אחא בר חנינא אמר  
משום מתיא  
If someone passed away they would not be able to bury him for two days  
עולא אמר  
משום ירקיא  
Vegetables picked before Shabbos would wilt and not be fresh at the end of Yom Kippur  
By adding a day to Elul  
Yom Kippur would now be on Monday



7 The gemara asks, why was this a benefit only for בני הגולה and not for בני ארץ ישראל?

The gemara answers:

לדידן חביל לן עלמא לדידהו לא חביל להו עלמא

Bavel has an unusually hot climate, which would cause damage to unrefrigerated, picked vegetables as well as to a corpse, as opposed to Eretz Yisrael, where in Elul there is usually a mild climate, and therefore for the בני ארץ ישראל, having a two day Yom Tov would not cause any negative effects. The added day to the month of Elul, was therefore specifically to benefit the בני הגולה in the month.

7 Why was this a benefit only for בני הגולה and not for בני ארץ ישראל?

לדידן חביל לן עלמא לדידהו לא חביל להו עלמא

Bavel has an unusually hot climate

Eretz Yisrael, there is usually a mild climate

8 The gemara now examines the validity of adding a day to a month for special reasons, as we have learned:

תני רבה בר שמואל

יכול כשם שמעברין את השנה לצורך כך מעברין את החדש לצורך Rabbah Bar Shmuel taught that you might think that in the same way that Beis Din is commanded to be מעבר a year when necessary, to keep the Yom Tov of Pesach in the spring, you may also add days to a month as needed

ת"ל החדש הזה לכם ראש חדשים כזה ראה וקדש

Immediately upon seeing the new moon, we are to proclaim the new month, indicating that this process cannot be delayed - for any reason.

8 The validity of adding a day to a month for special reasons

תני רבה בר שמואל

יכול כשם שמעברין את השנה לצורך כך מעברין את החדש לצורך

ת"ל - החדש הזה לכם ראש חודשים

כזה ראה וקדש

9 אמר רבא לא קשיא כאן לעברו כאן לקדשו Rava answered that while we may not be מקדש a month without seeing the new moon - לקדשו - but we may delay hearing testimony if the chachamim see a valid reason to make the month מלא.

As we have learned:

וכי הא דאמר רבי יהושע בן לוי מאימין על העדים על החדש שנראה בזמנו לעברו ואין מאימין על העדים על החדש שלא נראה בזמנו לקדשו

If the chachamim see a reason to be מעבר a month and witnesses come forward to testify to make the month חסר, the חכמים ask the witnesses to refrain from testifying, so that they can proclaim the month a מלא of 30 days.

9 לא קשיא כאן לעברו כאן לקדשו

We may not be מקדש without seeing the new moon

We may delay hearing testimony if the chachamim see a valid reason



**10** Rava offers yet another answer, that the statement of Rabbah Bar Shmuel, that one may not purposely delay the sanctifying of the moon, follows the opinion of אחרים, who taught elsewhere that any given year has one month מלא and the next month חסר and so on, as we have learned  
 אין בין עצרת לעצרת ואין בין ראש השנה לראש השנה אלא ד' ימים בלבד ואם היתה שנה מעוברת חמשה  
 On any given year, Rosh HaShana and Shavuot will fall out four days later than the previous year: as follows: 6 months of 29 days, and 6 months of 30 days, comes out to 354 days, which divides into 50 full weeks, with four days left over. Therefore, if Rosh HaShana or Shavuot falls on a Sunday one year, the following year it will fall on Thursday, 4 days forward. If that year is a leap year, in which case an additional month of 29 days is added, then they will fall out on Friday, 5 days forward from the previous year. And so the statement of Rabba Bar Shmuel, which says that one may not add a day to a month based on special needs, would follow this opinion of אחרים, that the months of the year are pre-designated and not open to change based on any communal needs.  
 =====

*Rava offers another answer*  
**רבה בר שמואל**  
*follows the opinion of*  
**אחרים**  
**אין בין עצרת לעצרת**  
**ואין בין ראש השנה לראש השנה**  
**אלא ד' ימים בלבד**  
**ואם היתה שנה מעוברת**  
**חמשה**

**11** The gemora continues...  
 אמר שמואל יכלנא לתקוני לכולה גולה  
 Shmuel stated, that based on his knowledge of תולדות הלבנה והילוכה וסדר המזלות,  
 he would be able to properly create a Jewish Calendar going forward for all the coming years into the future.

**11**  
**אמר שמואל יכלנא לתקוני לכולה גולה**  
*He could create a Jewish Calendar for all the coming years*  
**אמר איב אבא אבוב דרבי שמלאי אשמואל**  
**ידע מר האי מילתא דתניא בסוד העיבור**  
**נולד קודם חצות או נולד אחר חצות**  
*Shmuel answered that he did not*

אמר ליה אבא אבוב דרבי שמלאי לשמואל  
 Shmuel was challenged by אבא אבוב דרבי שמלאי  
 ידע מר האי מילתא דתניא בסוד העיבור  
 נולד קודם חצות או נולד אחר חצות  
 He asked Shmuel if he understood this Braisa called בסוד העיבור, which, as Rashi explains, was written ברמזים, in code and hints.

To which Shmuel answered that he did not.

**12** The gemara then presents several statements from Rebbe Zeira which will shed some light on the subject of סוד העיבור.

**12**  
**The First Statement by Reb Zeira**  
**כי סליק רבי זירא שלא להו**  
**צריך שיהא לילה ויום מן החדש**  
*The day, and the night preceding it must be in the same month*  
**כיון כאלק אמר כאלק**  
*just as with the Jewish calendar the day begins from the evening*

כי סליק רבי זירא שלא להו  
 When Rebbe Zeira went up to Eretz Yisrael, he sent back to his colleagues in Bavel three statements that he had learned about סוד העיבור

צריך שיהא לילה ויום מן החדש  
 The day, and the night preceding it must be from the same month. As Rashi explains היום הולך אחר הלילה, just as in the Jewish calendar the day begins from the evening, so too must the new month also begin from the evening.



13 The second statement by Rebbe Zeira addresses that which אבא אמר asked of Shmuel, נולד קודם חצות או נולד אחר חצות. Is explained as follows: מחשבין את תולדתו. We compute the מולד of a month, and if... נולד קודם חצות בידוע שנראה סמוך לשקיעת החמה לא נולד קודם חצות בידוע שלא נראה סמוך לשקיעת החמה

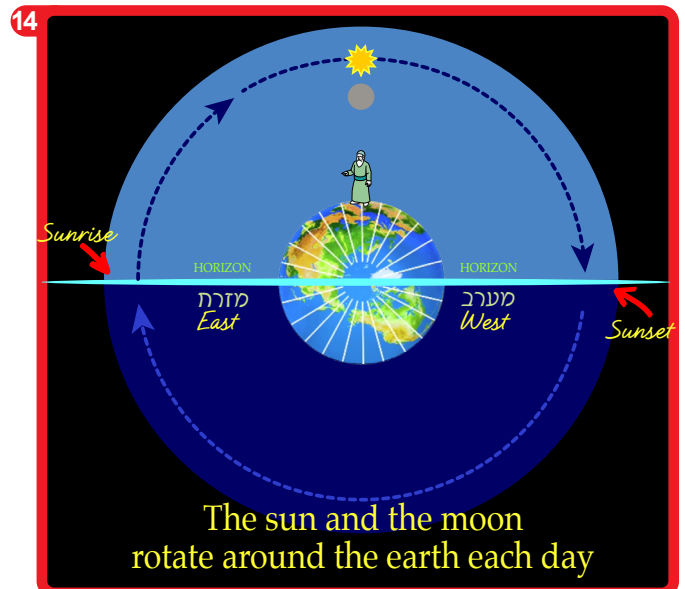
13 **The Second Statement by Reb Zeira**

וְזוֹ שֶׁאָמַר אַבָּא אֲבוּהַ דְר' שְׁמַלַאי  
מַחֲשָׁבִין אֶת תּוֹלְדָתוֹ  
**נוֹלַד קוֹדֵם חֲצוֹת אוֹ נוֹלַד אַחֵר חֲצוֹת**

<p>בִּידוּעַ שֶׁלֹא נִרְאָה סָמוּךְ לְשִׁקְיעַת הַחֲמָה</p>	<p>בִּידוּעַ שֶׁנִּרְאָה סָמוּךְ לְשִׁקְיעַת הַחֲמָה</p>
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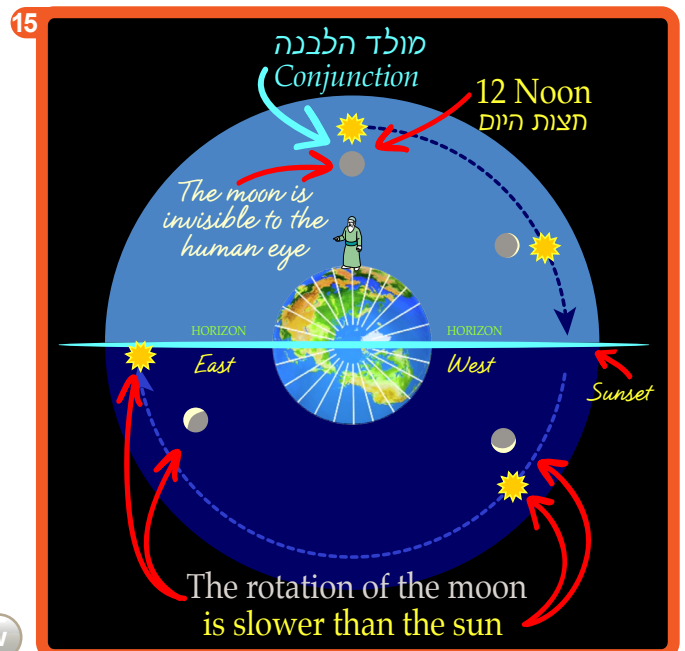
14 As a bit of an introduction to this and the following statements we need to understand the basic motions of the sun and moon.

From our point of view here on earth we observe the sun rotating around earth every 24 hour which gives us our day. But, not only does the sun rotate around earth each day, so does the moon.



15 The sun and the moon rotate around the earth each day, but with one minor difference. The rotation of the moon is a bit slower than that of the sun. At the starting point of the beginning of a month the sun and moon are perfectly aligned - which is the moment of conjunction - or מולד הלבנה - or 12 Noon חצות היום.

Also at that moment of conjunction the moon is completely invisible to the human eye.

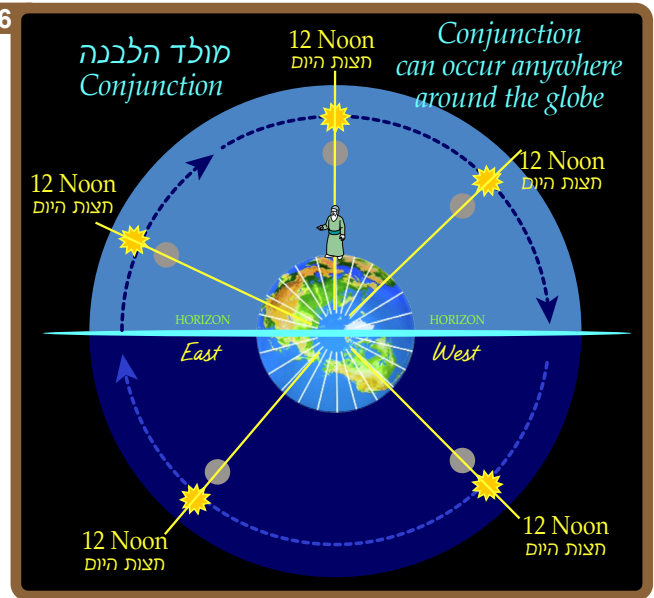


16

Now if a month consisted of only complete days then מולד הלבנה would always take place over the same place each month. In other words at the end of the month the sun and moon would once again meet up at the exact same location. However since a month consists of 29 days, plus 12 hours, 44 minutes and 3.3 seconds, this causes the conjunction to occur over different locations each month.

The time of מולד that is announced in shuls refers to the time it is in Yerusholayim at the moment of conjunction. However the conjunction itself is not necessarily occurring in Yerusholayim.

16



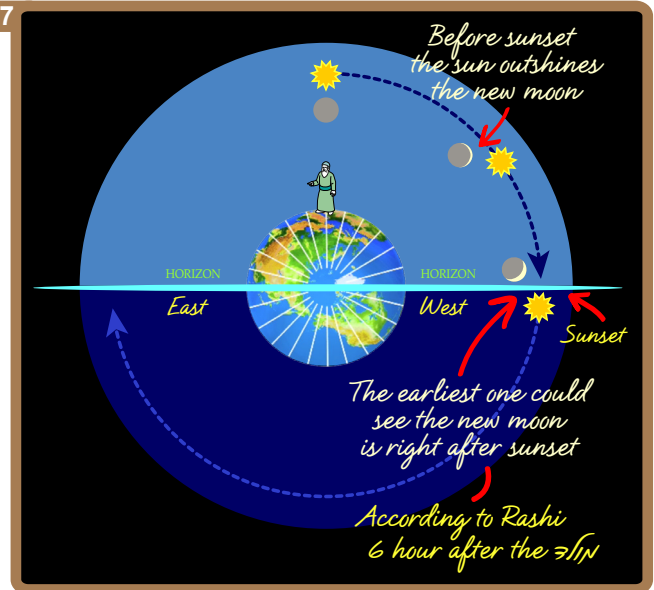
17

As they both continue to rotate around earth, and the moon begins to fall back, so to speak, a gap is created between the sun and the moon, thus allowing the new moon to become visible.

On the first or second days of the month the earliest one could actually see the new moon would be right after sunset, close to the western horizon. Whereas before sunset, the brightness of the sun completely outshines the little bit of light reflected off the new moon.

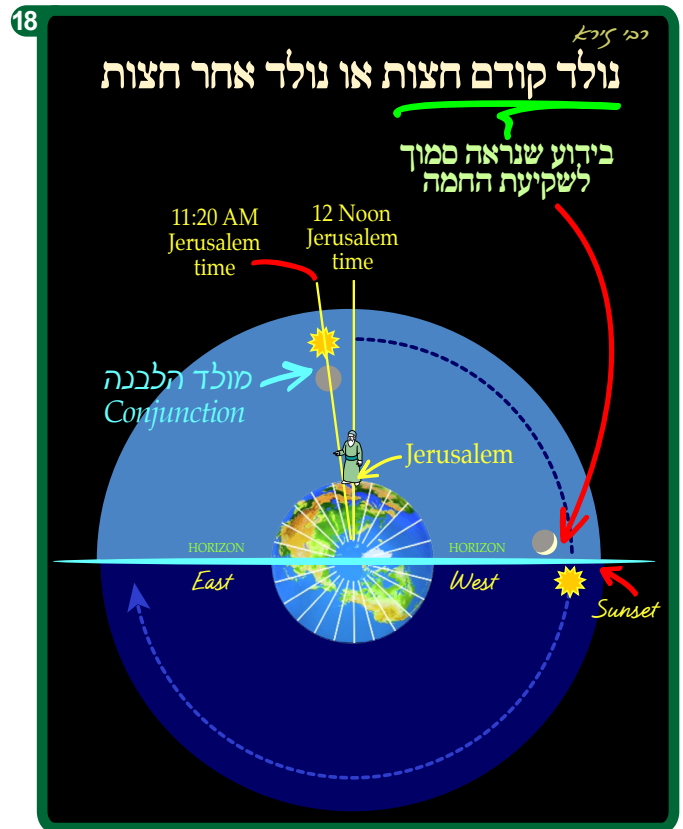
According to Rashi the earliest possible moment to see the new moon would be 6 hour after conjunction - מולד. This of course is based on a perfect 12 hour day and 12 hour night, with the שקיעת being 6 pm.

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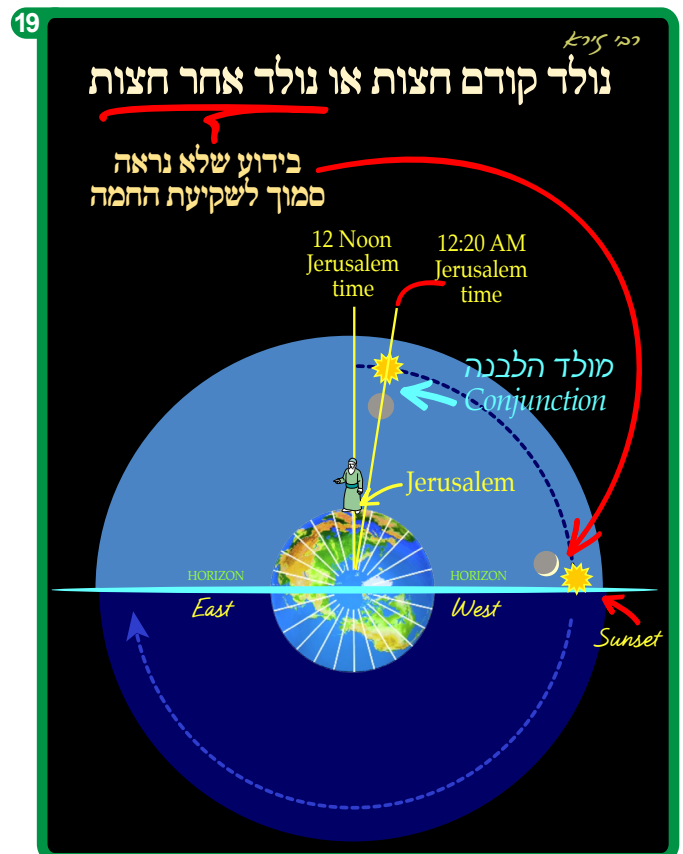




**18** So therefore, Reb Zeira teaches that נולד קודם חצות בידוע שנראה סמוך לשקיעת החמה  
If the calculated מולד falls out before noon Yerusholayim time, then it is possible for people living in Eretz Yisrael to see the moon a little more than 6 hours later, immediately after שקיעת החמה.  
החמה.



**19** לא נולד קודם חצות בידוע שלא נראה סמוך לשקיעת החמה  
However, if the מולד falls out after midday Yerusholayim time, then the sun together with the moon will set before 6 hours have passed, and the new moon will not be able to be seen that evening.



20 למאי נפקא מינה  
 What is the practical application of knowing this?  
 אמר רב אשי לאכחושי סהדי  
 To be able to cross-examine witnesses, as if in a case such as described above, a witness will come forth having claimed to have seen the moon before החמה, and we know that the calculated מולד is after noon of that day, then we know that he is not telling the truth.

Rebbe Zeira then makes a third point about the מולד which can also be used to challenge the testimony of witnesses.

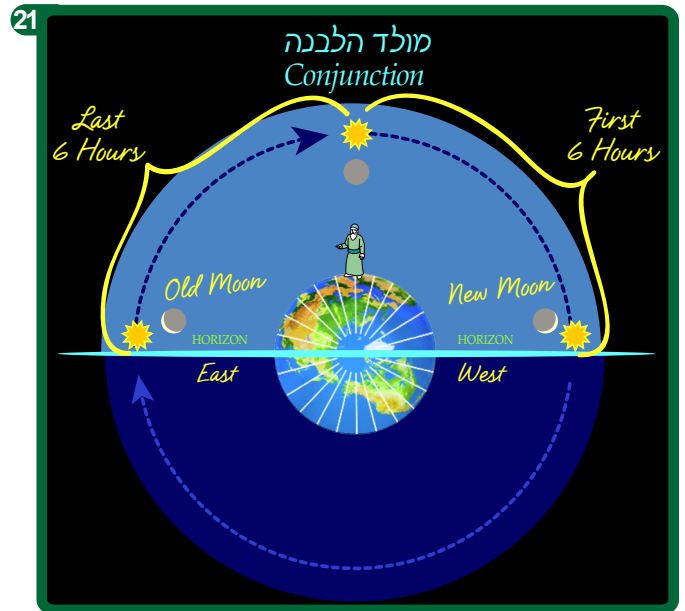
אמר רבי זירא אמר רב נחמן כ"ד שעי מכסי סיהרא  
 Between one month and another, there is a 24 hour period where the moon is hidden.

לדין שית מעתיקא ותמני סרי מחדתא  
 לדיהו שית מחדתא ותמני סרי מעתיקא  
 Just as we explained earlier, the new moon cannot be seen before 6 hours have passed from conjunction, so too the old moon cannot be seen during its last 6 hours, both for the same reason - they are too small, and too close to the sun.

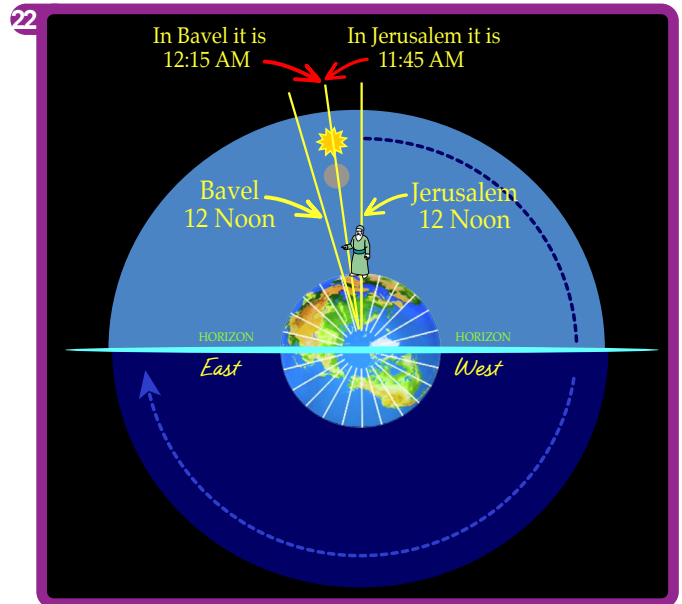
21 Therefore, depending on the position on earth where the conjunction - מולד - takes place, various locations will be able to see the old or new moon differently. In other words since conjunction does not occur each month over the same location, but rather occurs over a different location around the globe every month, conjunction could obviously also occur directly above Yerusholayim or above Bavel which is about 36° - or in a 36 minutes earlier time zone - to the east of Yerusholayim.

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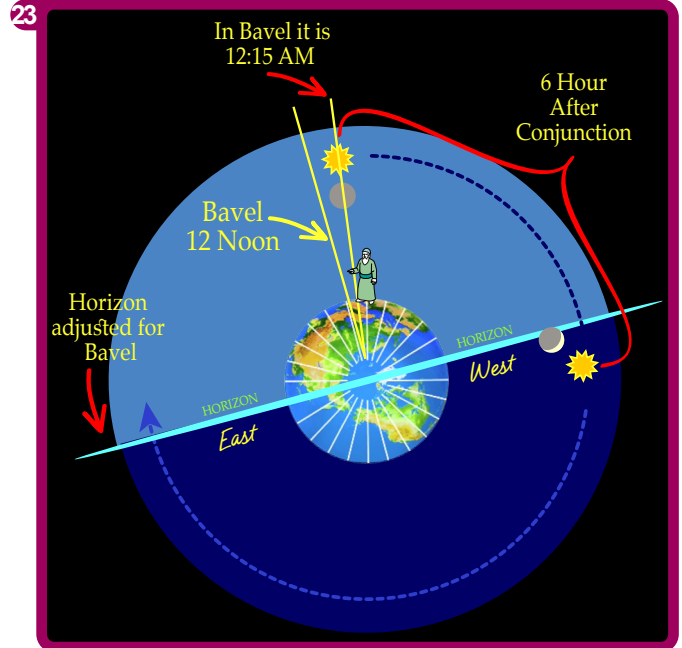
למאי נפקא מינה  
 אמר רב אשי  
 לאכחושי סהדי  
 The Third Statement by Reb Zeira  
 אמר רבי זירא אמר רב נחמן  
 כ"ד שעי מכסי סיהרא  
 לדיהו שית מעתיקא ותמני סרי מחדתא  
 לדיהו שית מעתיקא ותמני סרי מחדתא



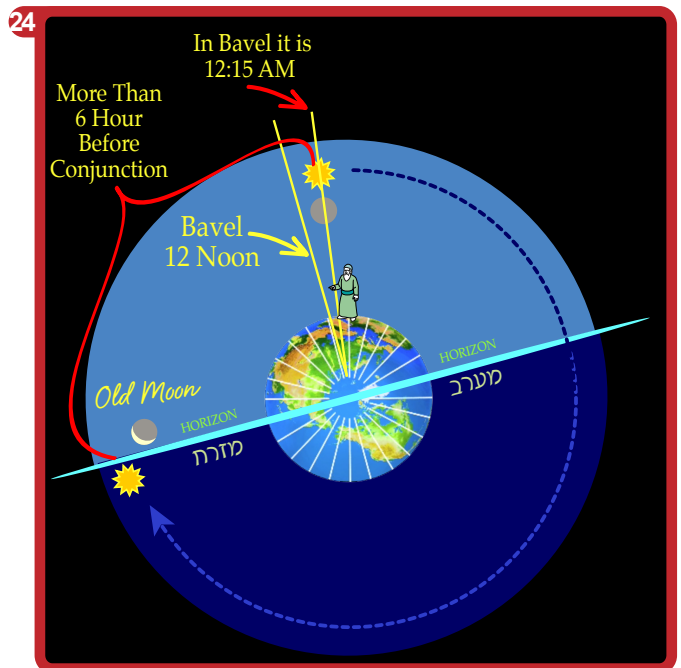
22 Our gemora is discussing a case where the מולד occurred somewhere between Bavel and Yerusholayim. Since, at the point of the מולד it is always 12 noon, in ירושלים, which is to the west, it is still before noon. Therefore, when the sun sets more than 6 hours later they will be able to see the NEW moon.



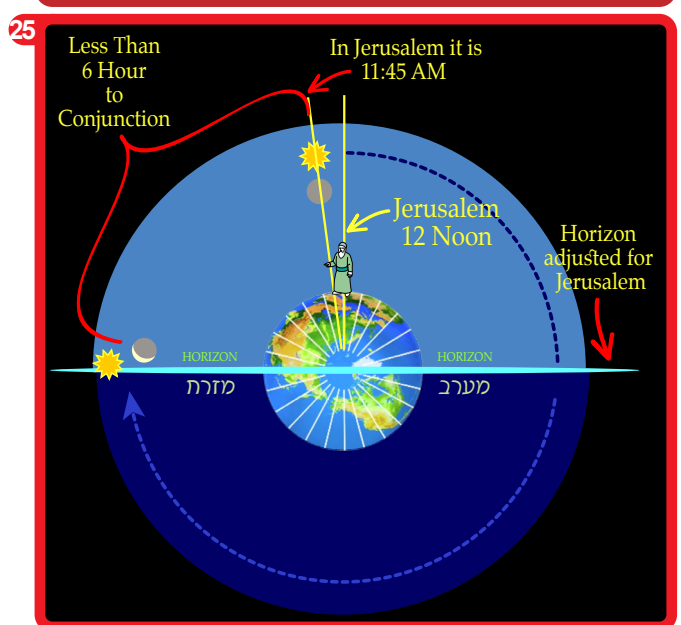
23 However in Bavel, which is to the east, it is already past noon at the time of מולד. Therefore, since for them the sun along with the moon will set in less than 6 hours, they will not be able to see the NEW moon on that first day. Rather, they will have to wait another 12 hours to possibly see the new moon rise in the morning on the eastern horizon. Which means that all together the NEW moon will not have been visible to them for a total of 18 hours.



**24** On the other hand, the בני בבל would have been able to see the OLD moon in the early hours of the morning, right before sunrise, as there was still more than 6 hours until conjunction.



**25** Whereas the בני ירושלים were not able to see the old moon before morning because it was already within 6 hours of conjunction. Add this to the 12 hours from when the moon set the previous evening- and we have 18 hours that the moon was invisible to בני ירושלים.



**26** This is what Reb Zeira means when he said לדידן שית מעתיקא ותמני סרי מחדתא - meaning to the people of Bavel לדידהו שית מעתיקא ותמני סרי מחדתא - meaning to the people of Yerusholayim

And so, if witnesses come forth and claim that they saw the previous month's moon, and the new month's moon, within a 24 hour period, here too we know that they are not telling the truth.

**26** This is what Reb Zeira means...

ירושלים	(לדידהו)	(לדידן)	בבל
6 hours new moon	שית מחדתא	שית מעתיקא	6 hours old moon
18 hours old moon	ותמני סרי מעתיקא	ותמני סרי מחדתא	18 hours new moon



27 We had mentioned above, that in the Jewish calendar, the day follows the night and the Jewish day begins at night.

Rav Yochanan brings the source for this from a pasuk in Parshas Emor by the laws of Yom Yippur where the pasuk states

וענייתם את נפשותיכם בתשעה לחודש בערב מערב עד ערב תשבתו שבתכם

Since the Torah states מערב עד ערב, we see that the day begins at nightfall and goes until the following nightfall.

Whereas Raish Lakish brings the pasuk from the Yom Tov of Pesach

בראשון בארבעה עשר יום לחודש תאכלו מצות עד יום האחד ועשרים לחודש בערב

Meaning that Pesach ends at nightfall of the 21st of Nissan and does not continue until the morning of the 22nd, which shows that the Jewish day is from nightfall until nightfall.

27

### Sources for the Jewish day that begins at night

<p>ראש לקיש</p> <p>בראשון</p> <p>בארבעה עשר יום</p> <p>לחודש</p> <p>תאכלו מצות</p> <p>עד יום האחד ועשרים</p> <p>לחודש בערב</p>	<p>רבי יוחנן</p> <p>וענייתם</p> <p>את נפשותיכם</p> <p>בתשעה לחודש</p> <p>בערב</p> <p>מערב עד ערב</p> <p>תשבתו שבתכם</p>
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*Pesach ends at nightfall of the 21st of Nissan and does not continue to the morning of the 22nd*

