



BS"D

Sofer mentions his personal custom in relation to this Blessing: 'Before the Blessing – Halelu Hashem Min Hashamayim (Psalms: Chapter 148) is recited. After the Blessing Kel Adon Al Kol Hamaasim until Vichayos Hakodesh, found in Shacharis of Shabbos is recited. After that Psalm 19 Hashamayim Misaprim followed by Aleinu and Kadish.

To: parsha@parsha.net
From: cshulman@gmail.com

INTERNET PARSHA SHEET
ON **BIRCHAS HACHAMA** -
Erev Pesach 5769

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WEDNESDAY MORNING

APR. 8 2009, 14 NISAN 5769

THE BLESSING ON THE SUN

(a once in 28 years occurrence):

The occurrence yesterday evening of the Tekufah of Nisan marks the end of the 206th (28 year) solar cycle and the beginning of the 207th solar cycle. This once in 28 year occurrence is accompanied by a special brachah, referred to as Birchas Hachama – the Blessing over the Sun. The Shulchan Aruch (Aruch Chaim Siman 229:2) states as follows: "One who sees the sun in its original position at the time of Creation, an event which coincides with the Tekufah of Nisan every 28 years on the fourth day of the week, says the following Blessing on the morning of the fourth day, when he sees the sun: "Blessed... is the One who has made the act of Creation" – Oseh Maaseh Bereishis. The Mishneh Brurah on this section states in subparagraph 6: "The exact place in the sky in which we see the sun at the moment of the Tekufah after 28 years is the place where the heavenly luminaries were first made to appear during the week of Creation. From that original moment began a series of solar circuits, each of which lasts for 28 years, and which ends exactly at the time of the Tekufah, which occurs at the beginning of Tuesday night leading into Wednesday, at which time the luminaries are in their original positions as at the moment of their creation." The Mishneh Brurah continues in subparagraph 8: "The best thing to do is to make this Blessing as early in the morning as possible. It is also beneficial to make this Blessing with a multitude of people. If one delayed making the Blessing, he can make it up until the end of the third hour of the day (Levush and Magen Avraham). However, many other authorities agree that in difficult circumstances the full Blessing can be made even until noon. If the sun is not visible because of cloud coverage, see Shaarei Teshuvah. In his Responsum #56, the Chasam Sofer wrote that if the sun were covered by clouds, but the image of the sun could be seen through the clouds, then we do make the Blessing. However, if the sun cannot be seen at all it is not proper to make the Blessing.

(In the Mishneh Brurah's reference work, the Shaarei Tzion, he further cites from this responsum of the Chasam Sofer and writes: "Look into Responsum #56 of the Chasam Sofer where it states that in the event of a cloudy day even a solitary individual should make the Blessing as early in the morning as he can see the sun.) And in that Responsum, the Chasam

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Here Comes the Sun by Rabbi Reuven Spolter

Mark your calendar for Judaism's once-in-28-year special event.

The fact that you're reading this article is a minor miracle. Think of all the things that needed to fall into place: the computer, the hard drive, the labyrinth of the Internet, the web browser -- even the electrical power driving it all.

There is incredible complexity built into the simple act of reading this article. And yet, we sit before these machines every day without giving them a moment's thought.

Until they stop working.

When that blue screen appears and the computer freezes, we hold our breath hoping that nothing has failed, that we haven't lost weeks of hard work. Only when we reset the computer and it functions properly again, do we let out a sigh of relief, return to work... and take it all for granted again.

The Talmud (Brachot 59b) teaches:

He who sees the sun at its season, the moon at its strength, the stars in their paths, and the constellations in their order, recites "Blessed is the One Who performs the act of creation." And when does this happen? Abaye says: Every 28 years, when the cycle returns and the season of Nissan falls in Saturn, on the fourth day of the week.

On April 8, 2009, the eve of Passover, Jews around the world will rise early, gaze at the sun and recite the least-frequently-recited blessing in Judaism: Birkat HaChama, the blessing on the sun. We recite this blessing once every 28 years, and it's coming to your neighborhood very soon. Assuming, of course, that the sun rises that fateful Wednesday the same way it has every day until now...

How-to

Ideally, one should recite the blessing as early as possible, and with as large a group as possible. Practically speaking, this means that people will get up early and pray Shacharit right at sunrise, and immediately after recite the blessing:

(Incidentally, this is the same blessing said upon seeing other natural phenomena such as awe-inspiring mountains deserts, lightning, earthquakes, hurricanes, astronomical phenomena and impressive bodies of water.)

Preferably, the blessing should be said by the third hour of the day. Adjusting for daylight savings time, this time is 9:42 a.m. in New York City, and 9:30 a.m. in Jerusalem. If necessary, the blessing can still be said up until midday (12:57 p.m. in New York and 12:41 in Jerusalem).

The blessing should be said where you can see the ball of the sun, or at least the silhouette of the sun behind a cloud. If it is a cloudy day and you cannot see the sun, you should say the blessing without including God's holy name.

According to the Mishnah Berurah (229:8), there are a number of other prayers to say that morning, in the following order:

1. Psalm 148 2. The blessing of "Oseh Ma'aseh Breishit" 3. "Kel Adone..." until "Chayot Hakodesh" (part of the first blessing of Shema on Shabbat morning) 4. Psalm 19 5. "Aleynu" 6. Kaddish (in the presence of a minyan)

Do the Math

On the Jewish calendar, Creation took place 5,769 years ago. Why recite this blessing now? Why only once every 28 years? And how can this blessing help us grow closer to G-d in our daily lives?

In order to understand Birkat HaChama, a bit of astronomy is necessary. The Torah teaches that on the fourth day of creation – that very first

Wednesday of world history -- G-d created the sun (Genesis 1:16). A solar year is 365 1/4 days long -- i.e. 52 complete weeks, plus 1 1/4 days left over. That means each year, the sun returns to its starting point 1 1/4 days later in the week. The sun resets to its original starting point -- at the first hour of Wednesday morning -- only once every 28 years. (Do the math.)

We recite the blessing, "Who performs the act of creation," because as we watch the sun rise that morning, we're witnessing the sun aligned at precisely the same spot -- and on the same day and same hour -- where it stood at the beginning of time. This represents the completion of another cycle of creation, as the solar system resets, renews, and begins again.

Spiritual Significance

The blessing on the sun reminds us to pause and wonder at the miraculous marvel of Creation. One of the great things about the sun -- its reliability -- also presents a great spiritual problem. It rises and sets every day, like clockwork, without fail. So we begin to take it for granted, and assume that just like it's always there, it always will be.

Nothing can be further from the truth.

Every morning during Shacharit, we describe G-d as "He who illuminates the earth... and in His goodness renews daily, perpetually the act of Creation." While the sun rises each day, it rises because G-d actively causes it and all of nature to function according to His divine and infinite will. In the harried rush of our busy lives, we allow ourselves to forget God's role in the majesty of Creation. We take Him for granted, precisely because He's always there, running the world in the background.

The sun provides so many miraculous benefits: Vitamin D and warmth for our bodies, photosynthesis that supports all life, and (according to the journal, *Nature*) more solar energy in one hour than all of mankind uses in one year. And all with great precision: Were the sun located just a bit further away or a bit closer than its distance of 92,960,000 miles, life on planet Earth would cease to exist.

As we recite the blessing on the sun, we contemplate the majesty of God's Universal Reset, appreciating God's amazing work that allows us to serve Him, as the sun rises, each and every day.

So... Twitter your friends and mark your calendar for the morning of April 8. Twenty-eight years from now, you'll probably be sitting with your grandchildren, reminiscing about where you were when you said the blessing on the sun in 2009.

Author Biography: Originally from Maryland, Rabbi Reuven Spolter is the director of recruiting and special projects at the Orot College in Elkana, Israel. He served as the rabbi of the Young Israel of Oak Park, Michigan from 2001 to 2008. He now lives with his family in Yad Binyamin, Israel. This article can also be read at: http://www.aish.com/literacy/mitzvahs/Here_Comes_the_Sun.asp

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Quick Guide to Birkat Hachama (Blessing on the Sun) [glossary](#) [contents](#)

Author: **Dr. Julian Schamroth** Date: 15 October, 2007

Overview [What is the Blessing on the Sun?](#)

Once every 28 years, the Sun returns to the position it occupied when it was created at the beginning of the fourth day of creation:

And Hashem made the two great lights: the greater light to rule the day, and the lesser light to rule the night and the stars. And Hashem placed them in the sky of the heavens to give light on the earth, and to rule over the day and over the night, and to divide the light from darkness; and Hashem saw that it was good. And it was evening and it was morning, a fourth day. [1]

Our Sages used this opportunity to institute a special prayer acknowledging God's might and His creation of the world. This Blessing is known as The Blessing on the Sun, or Birkat Hachama.

(Click here to download the Birkat Hachama prayer in English and Hebrew.) Are there any sources for reciting the Blessing?

The Talmud states:

The Rabbis taught: Anyone seeing the Sun at its turning point... should say "Blessed is He who made the Creation". And when is this? Abaya said: every 28th year. [2]

What is the 'turning point' mentioned in the above passage?

The first month of the Hebrew year - Nissan - begins at the time of the spring equinox. According to Hebrew tradition, the Sun was placed at the spring equinox at the beginning of the fourth day of creation i.e., Tuesday at 6:00pm. The change of season from winter into spring is the 'turning point'. Whenever the Sun again reaches this starting point at 6:00pm on a Tuesday, then Birkat Hachama is said. If Birkat Hachama is based on Nissan - the first month of the Hebrew year - why do we celebrate Rosh Hashanah in Tishrei?

After blowing the shofar on Rosh Hashanah we recite 'Today is the birthday of the world...'. This would indicate that the world was created in Tishrei, and not in Nissan.

This 6-month difference is due to a Talmudic debate as to whether one counts from God's conceiving of the Creation (Tishrei), or His actual act of Creation (Nissan). [3] When will the next Birkat Hachama take place?

Birkat Hachama will next be said on 8 April in the year 2009 (Hebrew date: 14 Nissan 5769). Is there anything special about this date, 14 Nissan 5769?

There might be: the Kadosh Elyon (the 'Ostrovster Admor') wrote that there are only 3 times in 6,000 years of Jewish history when Birkat Hachama falls on 14 Nissan. [4] These are:

1. Prior to being redeemed from Egypt. 2. Prior to the miracle of Purim. 3. In the year 5769.

Since the first 2 occurrences preceded miracles and redemption, the Admor wrote that in the year 5769 the same will occur: This will be last time ever and shortly afterwards, the redemption must come, b'h.

Note: The Ostrovster Admor wrote that Birkat Hachama falls on 14 Nissan only 3 times in history, when, in fact, the year 5769 will be the 11th time that this occurs! (The last time was on 8 April 1925). Perhaps he was referring only to those times when Birkat Hachama precedes a major redemption. Certainly 5769 will be the last time when this can happen.

Another interesting aspect of this date is that the Moshiach ben David will arrive at the end of a 7-year cycle. [5] The year 5768 is a shmitta (sabbatical) year, and is followed by 5769, the year in which we recite Birkat Hachama. What will I see on this date?

From an astronomic point of view, nothing unusual will happen. The Sun will set as usual on 7 April, and will rise as usual on 8 April. The Sun, moon, planets and stars will not be aligned in any specific pattern. In fact, the arrangement of the heavenly bodies will not even resemble the way they were at the time of creation. Rather, Birkat Hachama is a meta-physical event allowing us the opportunity to thank G-d for his creations.

Calculations Why does Birkat Hachama take place only every 28 years?

The starting point is Tuesday at 6:00 pm. Now, since a year lasts 365 1/4 days - or 52 weeks plus a remainder of 1 1/4 days - it follows that after one year, the Sun will return to the spring equinox, but will fall 1 1/4 days later in the week: Wednesday at midnight. [6] After two years, the Sun will return to the spring equinox, but it will now be 2 x 1 1/4 days later in the week: Thursday at 6:00 am. Only after 28 years, will the Sun return to the spring equinox on Tuesday at 6:00 pm. Is the year really 365 1/4 days long?

A tropical year is the time taken by the Sun to complete one circuit of the celestial sphere from its position at one spring equinox to the next. The current value is:

365 days, 5 hours, 48 minutes, and 45 seconds = 365.24219 days.

The Hebrew calendar is based on two different measurements for a year:

1. According to Mar Shmuel (Shmuel Yarchinai), the duration of a

year is considerably shorter than a tropical year: $4 \times (91 \text{ d } 7 \text{ h } 30 \text{ m}) = 365.25000$ days.

2. According to Rav Adda bar Ahava, the duration of a year is slightly longer than a tropical year: $365 \text{ d } 5 \text{ h } 55 \text{ m } 25.4 \text{ s} = 365.24682$ days.

The Mar Shmuel year is only used for determining when to say Birkat Hachamah and the Prayer for Dew and Rain (Tal U'matar). Why use the inaccurate Mar Shmuel year of $365 \frac{1}{4}$ days for Birkat Hachama?

According to Mar Shmuel, each season lasts 91 days 7 1/2 hours (therefore 4 seasons last $365 \frac{1}{4}$ days):

Shmuel said... and between the beginning of one season and another there are only 91 days and 7 1/2 hours. [7]

Mar Shmuel was a prominent Talmudic scholar, physician and astronomer who was no doubt aware of the more accurate duration of a tropical year. Nevertheless, he used the less accurate figure of $365 \frac{1}{4}$ days since:

1. The figure of $365 \frac{1}{4}$ days is much easier to work with, especially for the general populace who were not proficient in mathematics, and needed to make computations for the performance of various religious precepts. [8]

2. The figure of $365 \frac{1}{4}$ days was already being used at that time by the Romans.

What is the Rav Adda year used for?

According to Rav Adda bar Ahava, a year is defined as one-nineteenth of a 19-year solar cycle. [9] The source of the Rav Adda year is unknown, but may be based on a statement of Rabbi Yochanan in the Jerusalem Talmud. [10]

The Rav Adda year is about 5 minutes shorter than the Mar Shmuel year, and is the more accurate of the two systems. It is used for all civil and religious calendar calculations apart from the two prayers mentioned above.

The next Birkat Hachama will be said in the Hebrew year 5769, but 5769 is not divisible by 28!

Since the next Birkat Hachama will be the 206th cycle, it follows that the Hebrew year should be $206 \times 28 = 5768$, and not 5769! This discrepancy arises because there was no year '0'. The first 12 months from creation was labeled year '1', hence the first Birkat Hachama was said 28 years later in the year 29. All cycles are thus divisible by 28 with a remainder of 1. When will Birkat Hachama next be said?

Birkat Hachama was last said on 8 Nissan 5741 (corresponding to 8 April 1981). This was the 205th 28-year cycle of the Sun. It will be said again on 8 April in the years 2009, 2037, 2065 and 2093. In the 22nd century, the date will advance to 9 April for the years 2121, 2149 and 2177. Why will the next 4 Birkat Hachama events always occur on 8th April?

As mentioned above, Birkat Hachama is based on the Mar Shmuel year of $365 \frac{1}{4}$ days. The Gregorian calendar that is used today in most parts of the world also has its origins in a year of $365 \frac{1}{4}$ days. It thus follows that any date based on the Mar Shmuel will correspond very closely to a date on the Gregorian calendar. In the 22nd century, why will Birkat Hachama always occur on 9 April rather than 8 April?

In the 22nd century, Birkat Hachama will occur on 9 April for the years 2121, 2149, and 2177. Recall that according to the Gregorian calendar, a centenary year not divisible by 400 is not a leap year. The year 2100 is not divisible by 400 and will thus not be a leap year, the Gregorian Calendar will be a day later than the Mar Shmuel calendar, and Birkat Hachama in the 22nd century will thus occur 1 day later, on 9 April. Why say Birkat Hachama on 8th April when the spring equinox really falls 18 days earlier on the 21st of March?

To understand this, let us briefly look at the origins of the Gregorian calendar:

The 'Julian' calendar was introduced by Julius Caesar in 46 b.c.e., and - like that of Mar Shmuel - was based on a year of $365 \frac{1}{4}$ days. Its structure was as follows:

1. To correct previous inaccuracies, the year 46 b.c.e. was made to last 445 days... the so-called Year of Confusion (annus confusionis). That year ran from 13th October 47 b.c.e. to 31st December 46 b.c.e.. 2.

The spring equinox was set as occurring on the 25th of March at 6:00 pm. (Since the Hebrew day begins at 6:00pm, this date corresponded to the beginning of 26th March.) 3.

All future years were to consist of 365 days in a normal year, and 366 days in a leap year. 4.

A leap year would occur every 4th year.

Now, in each 1,000 Julian year period, there are:

250 leap years = $250 \times 366 = 91,500$ days

750 normal years = $750 \times 365 = 273,750$ days

There are thus a total of 365,250 days every 1,000 Julian years compared with 365,242.19 days every 1,000 tropical years. The Julian year (as does the year of Mar Shmuel) thus gains on the tropical year by:

$365,250 - 365,242.19 = 7.81$ days every 1,000 years.

By the year 1582, the Julian calendar was about 10 days ahead of the tropical year, and an adjustment was again necessary. Pope Gregory XIII introduced two adjustments to the calendar, and the 'Gregorian' calendar was established. These two adjustments were as follows:

1. Ten days were removed from the calendar in 1582. This was immediately accepted in Spain, Portugal and Italy and 5 October of that year was thus followed by 15 October. Germany, Sweden and Denmark accepted the changes in 1700. England accepted the Gregorian calendar in 1752, by which time the Julian calendar was 12 days ahead of the tropical year: 2 September of that year was thus followed by 14 September. In Russia, the Gregorian calendar was finally accepted on 14 February 1918, by which time 13 days had to be dropped. 2.

A centenary year not divisible by 400 is not a leap year. The years 1700, 1800, and 1900 are therefore not leap years, whereas the years 1600 and 2000 are.

It follows that the Gregorian calendar is currently 13 days ahead of the Julian calendar: 10 days for the initial correction, plus 1 day each for the three 'skipped' leap years in 1700, 1800, and 1900. And the Gregorian calendar is 18 days ahead of the Mar Shmuel year: the extra 5 days due to Caesar having established the spring equinox as occurring on 26 March instead of 21 March.

A second way of looking at this 18-day difference is to consider that the Mar Shmuel year gains on the Rav Adda year by:

$365.25000 - 365.24682 = 0.00318$ days per year.

The Mar Shmuel year 5760 is thus ahead of the Rav Adda year by: $0.00318 \times 5,760 = 18.32$ days.

Laws and Customs Announcing the Blessing

The night before the event, it is customary make an announcement in the synagogue about the Blessing that will take place the next morning. This is to encourage more people to attend:

'The glory of the King is in the multitudes of the people' [11]

When do we say the Blessing?

From the moment the upper arc of the Sun first appears until the full disc of the Sun is visible takes about 2 1/2 minutes. The Blessing should preferably be said during this time.

The Blessing should be said after morning prayers, standing, and preferably with a minyan (quorum of 10). Some authorities hold that the Blessing can be said until the end of the 3rd hour of the day. Yet others hold that it can be said until chatzot (midday). If said after midday, then the appellation 'melech ha'olam' should be omitted from the blessing.

The 'shechyanu' blessing is not said prior to reciting Birkat Hachama. What if the sky is overcast?

If clouds threaten to obscure the Sun, then the Blessing should be said straight away, even if it is said before morning prayers, and even if it means saying the Blessing without a minyan. Some authorities permit the saying of Birkat Hachama even if the sky is overcast. One should simply look at the place where the Sun would appear and say the Blessing, since one is saying the Blessing at the time of the event, and not necessarily upon seeing the actual event.

If reciting the Blessing when the Sun is partially, or completely obscured,

then only the Blessing (and not the accompanying prayers) should be recited. Who may or may not recite the Blessing?

Most communities permit the Blessing to be recited by women and by minors who have reached the age of understanding. Mourners who have not yet buried their relatives are exempt from saying the Blessing.

1 Genesis: 1:14-19 2 Talmud, Tractate Berachot 59b 3 Interestingly, the Christian calendar was at one time also based on an imaginary epoch date. Originally, their calendar was fixed from the 1st day in January prior to the birth of their founder (ab annunciatione), whereas in the present era, the year is still counted from 1st day in January, but one year later (a nativitate). 4 Me'ir Enei Chachamim 5 Talmud, Tractate Sanhedrin 97a 6 The Earth revolves around the Sun, but for convenience we will refer to the Sun's apparent motion around the Earth. 7

Talmud, Tractate Eruvin 56a 8 Similarly, we find that the Talmud gives a value of 3 for pi instead of 3.141592 (Talmud, Tractate Eruvin 13b). The astronomer Ptolemy acknowledged that he too used multiples of 60 in order to avoid dealing with fractions. (Ptolemy, Almagest 1:10) 9 To ensure that the month of Nissan always occurs in the spring (see: Deuteronomy 16:1), additional months are added to the Hebrew calendar. The result is a 19-year cycle comprising 12 normal years of 12 lunar months, and 7 leap years of 13 lunar months. This cycle is known as the 'small cycle' (machzor katan) 10 Jerusalem Talmud, Tractate Avodah Zarah 1:2 11 Proverbs, 14:28

<http://www.aishdas.org/avodah/vol25/v25n168.shtml#11>

From: **Micha Berger** <micha@aishdas.org>

Date: Tue, 6 May 2008 11:03:22 -0400

Subject: Re: [Avodah] Birkhas HaChama

On Tue, May 06, 2008 at 08:08:40AM -0400,

R' Yaakov Feldman yfel912928@aim.com wrote to Areivim: :

Someone told me that he heard that next year's Birkhas HaChama will occur on Erev Pesach, which is such a rarity that it only happened twice before in all of history: at yetzias mitsraim and on Purim. He was also : told that that?would bode well for a geulah sh'leima.

Birkhas haChamah is also always the year after shemittah (at least, since the loss of Yovel, depending upon whether yovel is counted) which makes birkhas hachamah fit the Gra's words (Safra diTznusa) about the the extra chessed Hashem bestows after shemittah is good for ge'ulah.

The claim is written in Qadosh Elyon (jumping from the Gra to the Ostrovster Rebbe), but unfortunately it doesn't work.

1- The QE writes that there was a Birkhas haChamah on erev Pesach 2447, the year before yetzi'as Mitzrayim according to the Seder Olam. And that the second time was the Pesach in which we all fasted on Esther's order, prior to the ge'ulah. Using the seider olam, that was in 3403.

Birkhas haChamah will be in 5769, which tells me that it's in years that leave a remainder of 1 when divided by 28. (Modulo 28 arithmetic.) 2447 was in year 11 of the cycle, and 3403 in year 15. Even +/- a bit because the question of whether Adam was created in year 0 or year 1 (or year 2, with the preceding week being all that existed of year 1), and you're still nowhere near birkhas hachamah. So, never mind happening on erev Pesach, there was no birkhas hachamah those years at all!

2- The QE then says that 5769 would be the third time it would ever happen, and shortly after, the ge'ulah must arrive.

But BhC fell out on EP far more than three times. Playing with hebc al a bit, I find that it happened a couple of cycles ago in 5685 AM (1925 CE).

Maybe he means without dechuyos. This would require computing not only the BhC's 28 yr cycle but a 532 yr cycle -- $28 * 19$ for the 19 yr cycle the months are on. Then we would compute the returns to erev Pesach that are only caused by the lunar and solar cycles.

This might get the number down to 2, but we're still left with the first problem.

Maybe rather than getting involved in lachashov es haqzeit, we should go back to just lachashov velaavod lehavi es haqzeit. And then it certainly could be in 5769 -- or before.

Tir'u baTov! -Micha

-- Micha Berger

<http://www.aishdas.org> Gevurah sheb'Tifferes: What type of discipline
Fax: (270) 514-1507 does harmony promote?

From: "Eli Turkel" <eliturkel@gmail.com> Date: Fri, 29 Aug 2008
12:08:17 -0700 Subject: [Avodah] birkhas hachama

2- Tequfas Shemu'el is simply an approximation to the nearest 5 digits for computing the March Equinox. And birkhas hachamah IS when that approximate date is on Wed. I'm missing why you insist that we either figure out when it was to more digits precision, or there is no point to the berakahah at all.>>

For a measurement there is the error in the small and the accumulation of error. Using 3 for pi is reasonable for small objects. When giving the circumference of yam shel shelmoa the difference between 30 amot and 31+ amot is quite measurable.

Similarly five digit accuracy can be reasonable for small periods of time. Over the years and centuries the accumulated error is large. Thus the starting date for saying tal umatar is noticeably off. Similarly as we have discussed the dates for Pesach are occasionally getting very late because of error accumulation

As an aside in the courses I teach we make a big deal of the difference between local computer errors and error accumulation. If a problem is ill-conditioned then a small round off error can lead to catastrophic global errors -- Eli Turkel

From: Zev Sero <zev@sero.name> Date: Fri, 29 Aug 2008 15:38:44 -
0400 Subject: Re: [Avodah] birkhas hachama

Eli Turkel wrote:

> For a measurement there is the error in the small and the accumulation of > error. Using 3 for pi is reasonable for small objects. When giving the > circumference of yam shel shelmoa the difference between 30 amot and 31+ > amot is quite measurable.

You're assuming the diameter was exactly 10, and therefore that the circumference must have been 31.4, and not roundable to 30. But who tells you that? It seems obvious to me that the circumference was between 29.85 and 30.5, which rounds to 30, and the diameter was between 9.5 and 9.7, which rounds to 10.

-- Zev Sero Something has gone seriously awry with this Court's zev@sero.name interpretation of the Constitution.- Clarence Thomas

From: Micha Berger <micha@aishdas.org> Date: Tue, 2 Sep 2008
17:34:03 -0400 Subject: Re: [Avodah] birkhas hachama

On Fri, Aug 29, 2008 at 12:08:17PM -0700, Eli Turkel wrote: : Similarly five digit accuracy can be reasonable for small periods of time. : Over the years and centuries the accumulated error is large. Thus the : starting date for saying tal umatar is noticeably off. : Similarly as we have discussed the dates for Pesach are occasionally : getting very late because of error accumulation

Again, given that we say the very same berakhah on lightning, I don't know why you assume astronomy is the defining feature. Lightning's brief and startling flash reminds us of day 1 and the "or zarua' latzadiq" the or ganuz. The rough approximation of getting the sun back to where it was on a Wed is enough to remember yom revi'i.

But perhaps Abayei did assume there would be a Sanhedrin updating his pesaq by now.

Tir'u baTov! -Micha

<http://www.thecooljew.net/2008/10/very-interesting-mashiach-coming-in.html>

....

Rabbi Elya Svei -- Mashiach 2009, told to him from his Rebbe, Rabbi Elchonon Wasserman

In 2004 at a funeral of a Rebbe of Mirrer Yeshiva, Rabbi Elya Svei said that Mashiach is coming in 2009. He said it was told to him and calculated by his Rebbe, Rabbi Elchonon Wasserman, who was the top student of the Chofetz Chaim. Incidentally Rabbi Elchonon Wasserman wrote books and spoke about that the timing of Mashiach is comparable to a pregnant lady in her 9th month, which at any moment can give birth. Rabbi Elchonon Wasserman was murdered in the Holocaust, over 70 years ago, so in his times if Mashiach was so close, how much more so in our times more than 70 years later.

[see 36 MINUTES into <http://video.google.com/videoplay?docid=-8045533956953563939&hl=en> and <http://www.youtube.com/watch?v=gJ-sWdW0J4&feature=related>]

From: <PANDABKLYN82@aol.com>

**Bircas HaChammah -(Not) Just like every other Brocho
By Rabbi Dr. Doniel Steinberg**

By the time this article is being read, perhaps all observant Jewry the world-over, will know of the upcoming, greatly anticipated, once-in-twenty-eight-years-recitation of Bircas HaChammah- the Blessing of the Sun.

On the one hand, this blessing is truly unique: the most infrequent ritual in Judaism. The same brocho that is commonly said upon seeing lightning, with little or no fanfare (at least on our part), will now be the cause of hundreds, if not thousands of people waking up early to daven K'vasikin, at sunrise, in order to say this same brocho, with alacrity, B'Rov Am, in the presence of large assemblages.

On the other hand, Bircas HaChammah, Oseh Maaseh Beraishis, is just like every other brocho that we are required to recite.

The Shulchan Aruch, Orach Chayim (5) states that "one should have in mind, when he is saying blessings, the meaning of the words. When one mentions the Name (of Hashem), he should have in mind the meaning of God's name (as alluded to by the way it is read and enunciated, Loshon Adnus)-referring to His Mastery- that He is the Master of all Creation. One should also have in mind the meaning, derived from the way that the Divine name is written (Yud, Kay, Vov...)-alluding to the fact that He was, He is, and He will always be in existence. When he mentions the word "Elokin" (God), he should bear in mind that He is overpowering, omnipotent and almighty. (This is a Halachic requirement that is seemingly agreed to by all and there is no dissenting or qualifying Ramoh, which is sometimes the case)

The Mishneh Berurah, commenting on "the meaning of the words", adds the following uncharacteristic directive: "One should not 'throw' the blessing out his mouth. Rather, one should have its meaning in mind and say it calmly, deliberately.... When one utters a blessing.. which is commonly said by everyone.. he should concentrate on the blessing, so that he says it for the sake of his Creator who was exceedingly kind to him... by giving him the fruit to enjoy, or the commandment to perform. He should not say it like a person who acts out of habit, and articulates words without contemplating their meaning. For this type of (rote, robotic) behavior, the anger of Hashem flared up against His people, and he sent Yeshaya, the prophet, to inform us. (Yeshaya 29:13, 14): 'Inasmuch as this people has approached (Me)-'with its mouth and its lips it has honored Me, yet its heart is far from Me. Their fulfillment of the commandment to fear Me, resembled the habitual, mechanical performance of a human decree. Therefore, behold, I will continue performing more wonders against this people -wonder upon wonder' (i.e., one terrible, awesome punishment after another).

The Chofetz Chayim then concludes his remarks by suggesting to further investigate the words of the Sefer Chasidim (Siman 46) where he speaks at great length regarding the great punishments meted out for this impropriety.

The box printed alongside this article illustrates the required intentions as delineated by the Shulchan Aruch -denoted by an asterisk(*)- as well as some additional, optional, potentially inspiring and thought-provoking Kavonos, as suggested by our Chazal. It is quite a daunting challenge to have these proper concentrations for all the one hundred blessings that we are supposed to recite every day. It might also be difficult to have proper brocho intentions for the entire Shmoneh Esrai or for all Bircas HaShachar. But what about for this one, special, eagerly awaited brocho? Can't we all muster up the fortitude to say the entire brocho as prescribed by the Shulchan Aruch -maybe even BiHiddur -"beyond the call of duty"!

To paraphrase the known idiom, let today be "the first day of the rest of your life" -let this brocho, said with inspired Kavono, be "the first brocho of the rest of our brochos"- and may we be Zocheh to see the end to all our Tzoros, the coming of Mashiach Tzidkainu, and the rebuilding of the Bais HaMikdash-Bim'hairei U'Vyameinu, Amen.

<http://www.star-k.org/kashrus/kk-BirchasHachama.htm>
BIRCHAS HACHAMA 5769 Rabbi Dovid Heber, Kashrus Administrator Star K

If one would visit the numerous day schools, chadarim, mesivtos and batei midrashim throughout the world, one would find that every child, almost every bochur and most Kollel Yungeleit have never performed the mitzvah of reciting Birchas Hachama (the blessing of the sun). This is because this mitzvah is performed only once every 28 years. The last time it was recited was in 5741 (1981) and b'ezras Hashem the next time will be this coming Erev Pesach, 5769 - Wednesday April 8, 2009. What is this special mitzvah and why is it recited so infrequently?

I. Birchas Hachama – A Simple Explanation

The Amora (Talmudic scholar), Abaye, said that every time that "Tekufas Nissan" (the beginning of spring, as calculated by Chazal) occurs at 6:00 p.m. on Tuesday evening (when the halachic day of Wednesday begins) one should go outside the next morning and recite the brocha, "Osei maaseh braishis." This occurs once every 28 years.

II. The Halachos

On Wednesday morning (the day after Tekufas Nissan), one goes outside and quickly gazes towards the sun and says, "Baruch atah Hashem Elokainu Melech haolam oseh maaseh braishis," – "Blessed are You, Hashem, our G-d, King of the universe, Who re-enacts the structure of the creation. 2 Additional tefillos praising the Ribono Shel Olam are also recited. Before the bracha Hallelu es Hashem min Hashamayim 3 is recited. After the bracha Kail Adon, 4 Mizmor HaShamayim Mesaprim 5 and Aleinu 6 are recited. If there is a minyan, Kaddish 7 is recited after Aleinu.

Ideally, Birchas Hachama should be recited before the third hour of the day. 8 B'dieved, one has until chatzos (midday) to recite Birchas Hachama. It is preferably recited while standing - "b'rov am", with a group of other people. 9 Women and children should recite the bracha, as well. A blind person should be yotzai (fulfill his obligation) through hearing someone else make the bracha.

If it is cloudy, the following halachos apply: If one can see the lines of the sun behind the clouds, one may say Birchas Hachama. If it is so cloudy that the sun is not visible, one may not say Birchas Hachama with the name of Hashem. 10 Rather, shortly before chatzos (or when it is obviously going to stay cloudy until chatzos) one would say, "Baruch oseh maaseh braishis" without the name of Hashem.

III. Why Every 28 Years?

When the world was created, the sun and moon were created on the Wednesday of the week of bri'as haolam (creation of the world). On that day, the beginning of spring 11 (known as "Tekufas Nissan") was at 6:00 p.m., on Tuesday the beginning of the halachic day Wednesday. 12

It takes approximately 365 days and 6 hours 13 for the Earth to completely revolve one time around the sun. This is equal to 52 weeks, 1 day and 6

hours. Therefore, in the following year (after the world was created) spring began early Thursday at midnight (midnight early Thursday is one day of the week and 6 hours after Tuesday at 6:00 p.m.). The following year it began at 6:00 a.m. on Friday, the following year at noon on Shabbos and the year after that at 6:00 p.m. on Sunday. Every four years, the time of the tekufa moved five days of the week later (e.g. from 6:00 p.m. Tuesday to 6:00 p.m. Sunday). After 28 years,¹⁴ it returned to the same time that it was at Brias Haolam, 6:00 p.m. Tuesday the beginning of “Lail Revi’i” (halachically Wednesday). So, in year 29 (counting from the creation), 57, 85, 113 and every 28th year after that, including most recently in 5713 (1953) and 5741 (1981) the tekufa was at 6:00 p.m. on Tuesday and Birchas Hachama was recited the next day. Once again, it will be at 6:00 p.m. on Tuesday this year. After this year, the next time Birchas Hachama will be recited will be in 5797 (2037) and then again in 5825 (2065).

IV. The Date

Birchas Hachama is always recited on a Wednesday. In the 20th and 21st Centuries, it is recited on April 8.¹⁵ The Hebrew date can vary. In the past 400 years, Birchas Hachama has been said as early as the 27th of Adar II (in 5461 [1701]) and as late as the 26th of Nissan (in 5545 [1785] and 5629 [1869]).¹⁶

Birchas Hachama can be recited on Yom Tov. It will be recited on the seventh day of Pesach (scheduled for 5881 [2121]) and was said on the second day of Pesach – Yom Tov outside of Israel (in 5601 [1841]). It cannot be recited on the first or eighth day of Pesach, as these days never occur on Wednesday. This year, 5769 (2009), Birchas Hachama will be recited on Erev Pesach¹⁷ and in 5797 (2037), according to the calculations of the calendar,¹⁸ it will be recited on Isru Chag Pesach. In 5825 (2065), it will be said on the 2nd of Nissan.

Klal Yisroel is zoche (merits) to have two types of mitzvos. Some mitzvos are performed frequently, on a daily or weekly basis; other mitzvos are performed infrequently. Both types of mitzvos, are done to better serve the Ribono Shel Olam. One purpose of frequently performed mitzvos is to become more consistent in our connection to Hashem. How beautiful it is when Yidden daven “day in and day out,” or when the Nashim Tzidkaniyos (righteous women) faithfully light candles every single Erev Shabbos and Yom Tov.

Infrequently performed mitzvos such as Birchas Hachama offer Klal Yisroel the opportunity to serve Hashem with special “hischadshus,” renewed anticipation and excitement in serving the Borai Olam (Creator) with a mitzvah performed by Yidden throughout the world – usually only three times in ones lifetime! May we merit the recitation of Birchas Hachama with Moshiach Tzidkainu who should come bimhaira b’yamainu, speedily in our days.

Footnotes:

1. Berachos 59b. The halacha is addressed in Shulchan Aruch - Orach Chaim 229:2.

2. This is the same brocha recited upon seeing lightning, very tall mountains or the Mediterranean Sea (the brocha recited upon seeing an ocean is different).

3. Tehillim 148

4. This is from the Shabbos morning davening.

5. Tehillim 19

6. Mishna Brura 229:8. See also Teshuvos Chasam Sofer 1:56. There are various other customs as to which psukim and tefillos are recited before and after the bracha.

7. “Kaddish Yasom”/Mourner’s Kaddish

8. Sof z’man K’rias Shma, according to the opinion of the Gra.

9. “B’rov Am Hadras Melech”. We honor Hashem when a group of people perform the mitzvos together. Of course, one can say Birchas Hachama alone, but it should ideally be said with a minyan or with at least two other people (the minimum “rov am” is three – see Chaye Adam 68:11).

10. Mishna Brura 229:8, who quotes the Teshuvos Chasam Sofer 1:56. Note the Panim Meiros 2:30 states that it is enough to see the light of the sun as opposed to the actual sun. Therefore, even if it is cloudy, one may say Birchas Hachama by going outside and seeing “sunlight”. The Mishna Brura rejects this view. Alternatively, one could go to a tall mountain or very large body of water and recite, “Oseh maaseh braishis,” having in mind Birchas Hachama (see Sefer Shaarei Zmanim, Siman 3, footnote 4. See also Siman 3, Section 3 regarding whether Birchas Hachama can be

said in countries west of Eretz Yisroel on Tuesday if the weather forecasters predict that on Wednesday it will be very cloudy).

11. This goes according to the opinion of Rebbi Yehoshua (Rosh Hashana 11a) that “B’Nissan Nivra Ha’olam” – the world was created at the beginning of spring. In regards to molados (new moon) and in the davening of Rosh Hashana (when we say, “Zeh Hayom Techilas Ma’asecha”) we follow the opinion of Rebbi Eliezer, who holds “B’Tishrei Nivra Ha’olam,” the world was created at the beginning of autumn. For a detailed discussion of this topic, see Tosfos Rosh Hashana (8a-L’tkufos and 27a-K’mahn), Sefer Shaarei Zmanim Siman 2 and Sefer Mayim Rabin Siman 1.

12. The Jewish day begins at night. Hence, at the beginning of spring, the new day begins at 6:00 p.m. when the sun sets and night begins. “Sunday” begins at 6:00 p.m. Saturday. “Monday” begins at 6:00 p.m. Sunday, etc. It should be noted that the “fixed” time of 6:00 p.m. for the beginning of any day of the year only relates to tekufos and molados (new moon). Regarding Shabbos and Yom Tov, the day begins at sunset and ends the next day when the stars come out. In the winter, this will be before 6:00 p.m., and in the summer after 6:00 p.m. Davening times also vary depending upon the season.

13. In reality, the earth takes 365 days, 5 hours 48 minutes 46 seconds to revolve around the sun. As will be discussed, Shmuel sacrificed accuracy for simplicity, and used the rounded number of 365 ¼ days.

14. Every four years, the tekufa is once again at 6:00 p.m., five days of the week later than the last time the tekufa occurred. After seven sets of four years (i.e. 28 years), it returns to 6:00 p.m. Tuesday.

15. Birchas Hachama and the secular date are both based on the seasons which are based only on the sun. Therefore, the secular date of Birchas Hachama is the same every time it is recited. The date changes every century when the Gregorian calendar skips a leap date (i.e. when there is no February 29 in years ending in “00”, not divisible by 400). Therefore, in the 19th Century Birchas Hachama was said on April 7. It switched to April 8 when there was no February 29, 1900. After 2100, when February 29 will not occur, it will switch to April 9. It should be noted that V’sain Tal U’matar also begins at the same time on the solar calendar every year (either December 4th or 5th at Maariv) because Tal U’matar is also based on the tekufos (60th day of Tekufas Tishrei/Fall). Every century, when there is no February 29, Tal U’matar also shifts a day. In the 19th Century, it began December 3 or 4 at Maariv. In the 22nd century, it will begin on December 5th or 6th at Maariv.

16. An obvious question arises. If Pesach must occur in the Spring (Tekufas Nissan) and Birchas Hachama occurs on the morning after Tekufas Nissan, how is it possible for Birchas Hachama to occur after Pesach (e.g. in 2037)? Birchas Hachama after Pesach means that the first day of Tekufas Nissan is after Pesach and, therefore, Pesach is before Tekufas Nissan and is still in the winter?

The answer is that there are two different ways of calculating the tekufa, one according to Shmuel and the other according to Rav Ada. As previously indicated Shmuel’s tekufa is based on a year that is 365 days 6 hours and is the tekufa used for Birchas Hachama and Tal U’matar (60th day of Tekufas Tishrei/Fall). Rosh Hashanah, Yomim Tovim, and the calendar are based on the Tekufa as calculated by Rav Ada, which is closer to the scientific calculation of the beginning of spring. Since these two times are slowly drifting away from each other (Tekufas Shmuel is moving later in relationship to Tekufas Rav Ada), it is possible to say Birchas Hachama after Pesach since Pesach is calculated according to Tekufas Rav Ada, while Birchas Hachama is based on Tekufas Shmuel.

Tekufas Rav Ada is based on 235 lunar months (the 19 year cycle, with seven leap years to ensure that Pesach remains in the spring) divided by 19. This calculates the “average” lunar year. It is 365 days, 5 hours, 997 chalakim and 48 regaim (997 chalakim and 48 regaim are equal to 55 minutes and 2.1 seconds, as each chalek is 3 1/3 seconds and each “rega” is 1/76 of a chalek).

The Chazon Ish (OC Siman 138, se’if katan 4) explains that the calculations of Chazal are slightly different from the calculations of science to make them more simple to use. This concept of sacrificing precision for simplicity is also found in the Gemara including Sukka 8a (in regards to square roots in calculating the hypotenuse of a triangle - see Tosfos). The purpose of mitzvos is to accept the Heavenly yoke and to fulfill the “chochmas haTorah” (wisdom of the Torah). These must also be performed by “chaluhei hada’as”, individuals who may be academically and mathematically weak. Therefore, in certain cases as determined by Chazal, mitzvos can be performed based on calculations that have been rounded off for simplicity and do not require precise calculations. In other words, since all of Klal Yisroel must perform these mitzvos, we must utilize a simple calculation to avoid mass confusion. Tekufas Rav Ada is closer to the scientific calculation but is also not precise. Once again, a small degree of accuracy was sacrificed to achieve the “simplicity” of basing the calendar on the average lunar year. It should also be noted that using a precise solar calculation would mean an inaccurate average of the lunar months. For a detailed discussion of this issue, see Sefer Shaarei Zmanim Siman 1.

17. The Ostrovtzah Rebbe, zt"l, as quoted in Sefer Me'ir Aini Chachamim, says that since the creation of the world, Birchas Hachama was recited on Erev Pesach on three occasions – the day before the exodus from Egypt, at the time Mordechai and Esther fasted after the decree of Haman, and “very soon”, referring to 5685 (1925) as the Rebbe discussed in the early 1900's. There are two questions on this explanation: 1) If Birchas Hachama is recited every 28 years, it was recited in 2437 and 2465, and the exodus from Egypt was during or next to the year 2448, when Birchas Hachama was not said. The story of Purim took place during or near 3405, which is nowhere near 3389 and 3417, the years of Birchas Hachama. 2) Furthermore, Birchas Hachama was recited on several occasions on Erev Pesach (after the stories Pesach and Purim), including the following years: 4369 (609), 4453 (693) and 5069 (1309). Therefore, the Ostrovtzah Rebbe's statement needs further clarification, v'tzarich iyun. See Sefer Shaarei Zmanim 1:8. [It should be noted that this year, Erev Pesach will be only the third time in the last 1300 years that both the preparation of an Eruv Tavshilin and the recitation of Birchas Hachama will occur on the same day.]

18. When Moshiach comes, bimhaira b'yameinu, we will establish Rosh Chodesh based on witnesses and there may be slight variations in the Jewish calendar that is currently based on calculations.

http://en.wikipedia.org/wiki/Birkat_HaHammah

Birchat Hachammah

From Wikipedia, the free encyclopedia

User:KosherJava and others - 17 February 2009

Birchat Hachammah (ברכת החמה, "Blessing of the Sun") refers to a Jewish blessing that is recited on the Sun once every twenty-eight years. According to Judaism, the Sun has a 28 year solar cycle known as *machzor gadol* (מחזור גדול, "the large cycle"). A solar year is 365.25 days long and the "Blessing of the Sun", being said at the beginning of this cycle, is therefore recited every 10,227 (28 times 365.25) days. The next time that it will be recited will be on April 8, 2009 (14 Nisan 5769). The same blessing is recited upon experiencing numerous natural phenomena, including but not limited to [lightning](#), [comets](#), [meteor showers](#) as well as wondrous natural topography, such as great [mountains](#), [rivers](#) and vast [wildernesses](#).^[1] When recited for these other experiences, the blessing is recited alone without additional verses or Psalms etc. The text of the blessing itself is as follows: "ברוך אתה ה' אלוהינו מלך העולם עשה מעשה "בראשית" "Blessed are You, LORD, our God, King of the Universe who makes the works of Creation."

Primary sourcing - The primary source for the institution of *Birchat Hachammah* is a [Beraita](#) mentioned in the [Talmud](#).^[2] "תנו רבנן הריאה חמה" "Our rabbis taught: He who sees the sun at its turning point...recites the blessing of 'the maker of works of creation.'" The edited portion speaks of other astronomical phenomena, the interpretation of which is ambiguous. The *Beraita* continues on to clarify when this 'turning point' occurs: "ואימת הוי אמר אביי כל כ"ח שנין" "And when does this happen? [Abaye](#) answers: every 28 years..." Next, the *Beraita* explains the basis of the 28 years: "והדר מחזור ונפלה תקופת ניסן" "...when the cycle renews and the 'season of Nissan' (i.e. [vernal equinox](#)) falls in [Saturn](#), on the evening of Tuesday going into Wednesday." This explanation provided by [Abaye](#) is based on a ruling of [Shmuel](#) also mentioned in the *Talmud*:^[3] "Shmuel stated: The vernal equinox occurs only at the beginning of one of the four quarters of the day, either at the beginning of the day or at the beginning of the night, or midday or midnight. The [summer solstice](#) only occurs at either at the end of 1.5 or at the end of 7.5 hours of the day or the night. The [autumnal equinox](#) only occurs at the end of 3 or 9 hours of the day or the night. The [winter solstice](#) only occurs at the end of 4.5 or 10.5 hours of the day or the night. The duration of a season of the year is no longer than 91 days and 7.5 hours." Shmuel's calculations, however, are incorrect because the earth does not travel around the sun with a constant speed.^[4] His imprecision, according to [Abraham ibn Ezra](#), was a function of the desire of the time to avoid the necessity of manipulating fractions.^{[5][6]}

Codification in Jewish law - The [Shulchan Aruch](#) states that this blessing, generally said upon experiencing natural phenomena, should also be recited upon witnessing the *chammah b'tekufatah* (חמה בתקופתה). This term, quoted from a [Beraita](#), is explained by the [Chofetz Chaim](#) as referring to the point in time at which the Sun returns to the start of its cycle, similar to when it was created.^[7] As explained below, the blessing is recited on the morning after the Sun completes its cycle; ideally, it should be recited at sunrise,^[8] referred to in Jewish law as *haneitz hachammah* (הניץ החמה). It is preferred to recite the blessing with a multitude of people, in keeping with the principle of *b'rov am hadrat melech*.^[9] The [Magen Avraham](#) and the [Levush](#) insist that it be recited within the first three hours after sunrise.^[10] The [Mishnah Brurah](#), however, states on behalf of numerous [Achronim](#) that it is permitted the blessing to be recited until *halachic* noon.^[11] According to most opinions, the blessing may only be recited if the Sun can be seen.^[12] However, if the Sun is completely blocked by clouds, there is a minority view that allows the blessing to be recited nevertheless, because essentially the blessing is on the concurrence of the Sun's physical position with the timing of the day.^[13]

Overview - According to the [Babylonian Talmud](#),^[14] the Sun makes a 28 year cycle to return to the position that it was in when the Universe was first [created](#). According to Jewish tradition, the Sun was created^[15] on the fourth day (יום רביעי, *yom rivi'i*) of the week of Creation. Because [Jewish law](#), considers the time unit of a day to span from evening to evening,^[16] the beginning of the *halachic* fourth day, so to speak, is on Tuesday evening at sundown. The 28 year cycle therefore begins and ends at the point in time when the Sun was created, this being sundown on Tuesday.^[17] The Sun only returns to this exact position at sundown on a Tuesday once every 28 years. Despite the rigorous calculations that follow, there is no synchronization of this prayer and the actual astronomical point in time when the sun crosses the celestial equator; the symbolism is no different than a situation in which the *molad* for *Tishrei* would fall out by day on a Saturday and *Rosh Hashanah* falls out on Sunday.

The vernal equinox - As explained in the [Talmud](#), there is a tradition that the Sun was created in its [vernal equinox](#) position at the beginning of the springtime Jewish [lunar month](#) of *Nissan*.^[18] [The sages of the Talmud](#) settled disputes over the *halachic* definition of the vernal equinox by establishing it on March 25 of the [Julian calendar](#). Because both the Julian calendar and Jewish tradition define a solar year as exactly 365.25 days, the *halachic* vernal equinox historically fell out on March 25th every year. In summary, *Birchat Hachammah* is recited when the vernal equinox (the position at which the Sun was created) occurs at sundown on a Tuesday (the time at which the sun was created).

The solar calendar - This method of marking the cycle of *machzor gadol* was invalidated in 1582 when the [Julian calendar](#) was replaced by the [Gregorian calendar](#) by decree of [Pope Gregory XIII](#). The calendar was adjusted to allow for [Easter](#) to be celebrated in the appropriate time according to an agreement reached at the [First Council of Nicaea](#) in 325 CE. To recalibrate the calendar, two adjustments were made: Ten days were removed in order to compensate for the incorporation of excess days since the establishment of the Julian calendar. A method to avoid further incorporation of excess days was put into place, whereby February 29th would be skipped according to a particular [algorithm](#). The last day of the Julian calendar was Thursday, 4 October 1582 and this was followed by the first day of the Gregorian calendar, Friday, 15 October. According to Jewish tradition, though, this modification was unjustified and remains unrecognized by *halacha* (Jewish law). Thus, according to *halacha*, while the vernal equinox occurred on March 25, 1581, it occurred on April 4, 1582 (March 25, 1582 according to Jewish law). In order to compensate for the second modification instituted by the Gregorian calendar, the *halachic* vernal equinox has been shifting slightly forward in the year ever since 1582. In 1609, the vernal equinox was on April 4 (considered March 25 by Jewish law) In 1709, the vernal equinox was on April 5 (considered March 25 by Jewish law) In 1809, the vernal equinox was on April 6

(considered March 25 by Jewish law) In 1909, the vernal equinox was on April 7 (considered March 25 by Jewish law) In 2009, the vernal equinox will be on April 7 (considered March 25 by Jewish law) The *halachic* equinox jumps a day every century because the algorithm that established the Gregorian calendar dictates that leap years do not occur in years divisible by 100. Jewish law denies the validity of what this algorithm is trying to accomplish and compensates for it by moving the date of the equinox each century. There was no shift between 1909 and 2009, however, because the algorithm states that an exception to this 'divisible by 100' rule is a 'divisible by 400' rule, at which time a leap year will occur even though the year is also divisible by 100; thus, the year 2000 did contain a February 29th and no compensation was necessary. The table at right depicts all the vernal equinoxes from 1981 to 2009, two years in which *Birchat Hachammah* occurs; note that the equinox does not occur at sunset (time=0) on the fourth day (Tuesday) in the entire 28 year cycle. The *halachic* year of 365.25 days is equivalent to 52 weeks, 1 day and 6 hours. This means that any given date will appear a day later in the calendar week in a subsequent year. For example: July 3, 1932 was on Sunday July 3, 1933 was on Monday July 3, 1934 was on Tuesday July 3, 1935 was on Wednesday July 3, 1936, however, was on a Friday and not a Thursday because the 6 hours that accrued over each of the four years effectively adds another calendar day (i.e. 6 hours x 4 years = 24 hours = 1 day). *Halacha* maintains that the Sun was created in the position of the vernal equinox immediately after sundown on the fourth day of the week of Creation, which is equivalent to sunset on Tuesday of that week. If that is considered time zero (t=0), and subsequent years' vernal equinoxes occur 1 day and 6 hours later, it would appear as follows: Year 1: Day 4 at sunset (Tuesday) Year 2: Day 5 at midnight (Thursday) Year 3: Day 6 at sunrise (Friday) Year 4: Day 7 at noon (Saturday) Year 5: Day 2 at sunset (Sunday) Year 6: Day 3 at midnight (Tuesday) Every four years sees a jump of an additional day because the four six-hour periods sum to a full day. This is somewhat similar to a solar leap year occurring every 4 years to account for the four quarter days that accrued at a rate of a quarter day per year. Although the proper time for the blessing would be at sundown on Tuesday April 7th, the Sun is no longer visible at sundown; the blessing is therefore delayed until the following morning. The 28 year cycle is based on a solar year of 365.25 days, as was accepted by the [Julian calendar](#), which we now know as being only nearly precise. The Julian calendar loses one day of accuracy about every 133 years.

Order of the service - The service generally includes: Psalms 148:1-6 The blessing: "*Baruch Atah A-donai E-loheinu Melech Haolam Oseh Ma'aseh Breishis.*" The *Shecheyanu* blessing. Psalm 19 Psalm 121 Psalm 150 A passage from the Talmud regarding the obligation of *Birchat Hachama*. Psalm 67 *Aleinu* The mourner's *Kaddish*.

Occurrences of *Birchat Hachammah* - Occurrences in the last 120 years: [Wednesday, April 7, 1897](#) (5 Nisan 5657) Wednesday, [April 8, 1925](#) (14 Nisan 5685) Wednesday, [April 8, 1953](#) (23 Nisan 5713) Wednesday, [April 8, 1981](#) (4 Nisan 5741) *Birkat HaHammah* will occur next on Wednesday, [April 8, 2009](#) (14 Nisan 5769) Wednesday, April 8, [2037](#) (23 Nisan 5797) Wednesday, April 8, [2065](#) (2 Nisan 5825) Wednesday, April 8, [2093](#) (12 Nisan 5853) Wednesday, [April 9, 2121](#) (21 Nisan 5881) Note: Because the dates for *Birchat Hachammah* assume a 365.25-day solar year and the [Julian calendar](#) also assumes a 365.25-day solar year, *Birchat Hachammah* will always fall on [March 25](#) in the Julian calendar. While *Birchat Hachammah* usually occurs in the Jewish lunar month of *Nissan*, this is not always the case; it will occur on 29 *Adar II* (April 10th) in the year 2233^[19].

Lerman's thesis - Moshe Lerman suggested^[20] a background to *Birchat Hachammah* by pointing out a possible connection between the traditional Hebrew dating and the two *machzorim* ("cycles") that are observed in Jewish tradition—the "small" 19-year cycle which is the basis of the Jewish calendar, and the "big" 28-year cycle which determines the year in which *Birchat Hachammah* is recited. Mathematically, if one knows the position

of a certain year in both cycles, one can compute the number associated to the year [modulo 532](#) (19 times 28), given that the starting point of both cycles is year 1. Because the astronomical year is slightly shorter than 365.25 days, the date of *Birchat Hachammah* shifts away from the spring equinox as history proceeds. A simple astronomical calculation shows that 84 cycles of 28 years before 5769, in the Jewish year 3417, the spring equinox was in the beginning of the night before the fourth day of the week as stipulated by the [Talmud](#). Lerman takes this as a hint that the astronomically astute Jewish sages of the time concluded that the Jewish year 3417 was a first year in the cycle of 28 years. Moreover, Lerman suggests that these same Jewish sages would have reasoned that year 3421 was a first year in the 19-year cycle, in accordance with an ancient tradition that the world was created in the first week of the month of *Nissan*. They would have concluded this from the Spring equinox occurring early in the night leading to the fourth day of the Jewish month of *Nissan* in the Jewish year 3421. Lerman surmises that the Jewish sages at the time could argue for a determination of the position of their years in both cycles and could therefore compute the absolute year-count modulo 532 years. They were left with a number of options, 532 years apart from each other, and Lerman suggests that they chose the dating closest to what seemed to be the truth according to a literal interpretation of biblical accounts. The sages legally defined future equinox times by instituting the 28-year cycle, to protect the Hebrew dating against future change, and to leave a remembrance to what they had done.

References -

- 1 Artscroll Yitzchak Yair Siddur page 98
- 2 Bavli Berachot 59b
- 3 Bavli Eruvin 56a
- 4 This was recognized and commented on by Isaac Israeli ben Joseph, a disciple of the Rosh in his work *Yesod Olam*. Spring is approximately 92.84 days long, summer is approximately 93.6 days long, autumn is approximately 89.8 days long and winter is approximately 89.02 days long.
- 5 Sefer HaIbbur, page 8
- 6 Rabbi J. David Bleich. *Bircas Hachammah, Blessing of the Sun: Renewal of the Creation: a Halachic Analysis and Anthology*. Brooklyn, N.Y.: Mesorah Publications Ltd, 1981. ISBN 0-89906-176-1., page 50
- 7 Orach Chaim 229:2 + associated commentary of the Mishnah Brurah, "b'tekufatah"
- 8 Orach Chaim 229:2 + associated commentary of the Be'er Heitev, "baboker"
- 9 Mishnah Brurah, "baboker"
- 10 Be'er Heitev
- 11 "Baboker"
- 12 Mishnah Brurah, "baboker"
- 13 Shaarei Teshuva, "baboker"
- 14 Bavli Berachot 59b)
- 15 Genesis 1:14 + commentary of Rashi. Many Biblical commentators, including Rashi, insist that the luminaries were, in fact, created on the first day and only suspended in place on the fourth day.
- 16 Bavli Berachot 2a
- 17 "Calculating the Date of Birkat Hachamah". Chabad.org. http://www.chabad.org/library/article_cdo/aid/820926/jewish/Calculating-the-Date.htm. Retrieved on 2009-02-17.
- 18 Bavli Rosh Hashanah 10b
- 19 Remy Landau. "Question 161 - When next will Birkat HaHammah not be recited in the Hebrew month of Nisan?". Hebrew Calendar Science and Myths. <http://www.geocities.com/Athens/1584/zqarc161.html>. Retrieved on 2009-02-17.
- 20 Moshe Lerman (2005-05-08). "Why Do We Live in the Year 5765?". Arutz Sheva. <http://www.israelnationalnews.com/Articles/Article.aspx/5096>. Retrieved on 2009-02-17.