

THANK G-D FOR THE SUN

Why? When? How?

Every year the sun comes full circle, returning to its original point of orbit. But only once in 28 years does that alignment match up with the day of the week and precise moment of its creation.

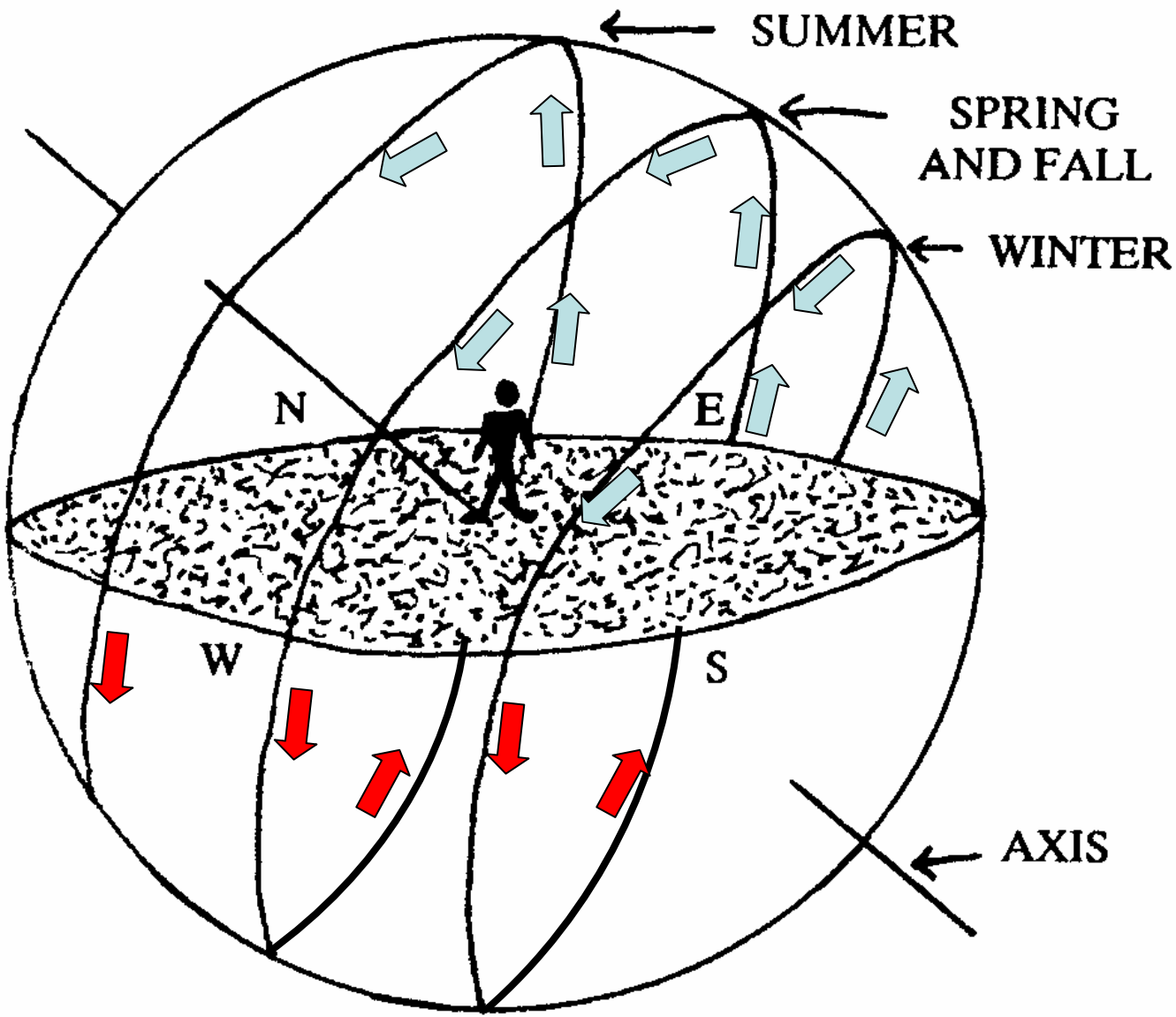
Learn the science and significance of this once-in-28-years milestone.

תלמוד בבלי מסכת ברכות דף נט עמוד ב

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Talmud Bavli, Berachos 59b

Our Rabbis taught: He who sees the sun at its turning point... should say: Blessed are You who makes the work of creation. And when? Abaye said: Every twenty-eight years when the cycle begins again and the Nisan [Spring] equinox falls in Saturn on the evening of Tuesday, going into Wednesday.



SUMMER

SPRING
AND FALL

WINTER

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W

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AXIS

שבעה כוכבי לכת – Seven moving heavenly bodies

	Shabbos	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
12:00 a.m.	Jupiter	Venus	Saturn	the Sun	the Moon	Mars	Mercury
1:00 a.m.	Mars	Mercury	Jupiter	Venus	Saturn	the Sun	the Moon
2:00 a.m.	the Sun	the Moon	Mars	Mercury	Jupiter	Venus	Saturn
3:00 a.m.	Venus	Saturn	the Sun	the Moon	Mars	Mercury	Jupiter
4:00 a.m.	Mercury	Jupiter	Venus	Saturn	the Sun	the Moon	Mars
5:00 a.m.	the Moon	Mars	Mercury	Jupiter	Venus	Saturn	the Sun
6:00 a.m.	Saturn	the Sun	the Moon	Mars	Mercury	Jupiter	Venus
7:00 a.m.	Jupiter	Venus	Saturn	the Sun	the Moon	Mars	Mercury
8:00 a.m.	Mars	Mercury	Jupiter	Venus	Saturn	the Sun	the Moon
9:00 a.m.	the Sun	the Moon	Mars	Mercury	Jupiter	Venus	Saturn
10:00 a.m.	Venus	Saturn	the Sun	the Moon	Mars	Mercury	Jupiter
11:00 a.m.	Mercury	Jupiter	Venus	Saturn	the Sun	the Moon	Mars
12:00 p.m.	the Moon	Mars	Mercury	Jupiter	Venus	Saturn	the Sun
1:00 p.m.	Saturn	the Sun	the Moon	Mars	Mercury	Jupiter	Venus
2:00 p.m.	Jupiter	Venus	Saturn	the Sun	the Moon	Mars	Mercury
3:00 p.m.	Mars	Mercury	Jupiter	Venus	Saturn	the Sun	the Moon
4:00 p.m.	the Sun	the Moon	Mars	Mercury	Jupiter	Venus	Saturn
5:00 p.m.	Venus	Saturn	the Sun	the Moon	Mars	Mercury	Jupiter
6:00 p.m.	Mercury	Jupiter	Venus	Saturn	the Sun	the Moon	Mars
7:00 p.m.	the Moon	Mars	Mercury	Jupiter	Venus	Saturn	the Sun
8:00 p.m.	Saturn	the Sun	the Moon	Mars	Mercury	Jupiter	Venus
9:00 p.m.	Jupiter	Venus	Saturn	the Sun	the Moon	Mars	Mercury
10:00 p.m.	Mars	Mercury	Jupiter	Venus	Saturn	the Sun	the Moon
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Why only once in 28 years?

From Creation: Tuesday, Year 1 at 6:00 p.m.

2	Thursday, 12:00 a.m.
3	Friday, 6:00 a.m.
4	Shabbos, 12:00 p.m.
5	Sunday, 6:00 p.m.
6	Tuesday , 12:00 a.m.
7	Wednesday, 6:00 a.m.
8	Thursday, 12:00 p.m.
9	Friday, 6:00 p.m.
10	Sunday, 12:00 a.m.
11	Monday, 6:00 a.m.
12	Tuesday , 12:00 p.m.
13	Wednesday, 6:00 p.m.
14	Friday, 12:00 a.m.
15	Shabbos, 6:00 a.m.

16	Sunday, 12:00 p.m.
17	Monday, 6:00 p.m.
18	Wednesday, 12:00 a.m.
19	Thursday, 6:00 a.m.
20	Friday, 12:00 p.m.
21	Shabbos, 6:00 p.m.
22	Monday, 12:00 a.m.
23	Tuesday , 6:00 a.m.
24	Wednesday, 12:00 p.m.
25	Thursday, 6:00 p.m.
26	Shabbos, 12:00 a.m.
27	Sunday, 6:00 a.m.
28	Monday, 12:00 p.m.
29	Tuesday, 6:00 p.m.

28 year cycle since creation

1	505	1009	1513	2017	2521	3025	3529	4033	4537	5041	5545
29	533	1037	1541	2045	2549	3053	3557	4061	4565	5069	5573
57	561	1065	1569	2073	2577	3081	3585	4089	4593	5097	5601
85	589	1093	1597	2101	2605	3109	3613	4117	4621	5125	5629
113	617	1121	1625	2129	2633	3137	3641	4145	4649	5153	5657
141	645	1149	1653	2157	2661	3165	3669	4173	4677	5181	5685
169	673	1177	1681	2185	2689	3193	3697	4201	4705	5209	5713
197	701	1205	1709	2213	2717	3221	3725	4229	4733	5237	5741
225	729	1233	1737	2241	2745	3249	3753	4257	4761	5265	5769
253	757	1261	1765	2269	2773	3277	3781	4285	4789	5293	5797
281	785	1289	1793	2297	2801	3305	3809	4313	4817	5321	5825
309	813	1317	1821	2325	2829	3333	3837	4341	4845	5349	5853
337	841	1345	1849	2353	2857	3361	3865	4369	4873	5377	5881
365	869	1373	1877	2381	2885	3389	3893	4397	4901	5405	5909
393	897	1401	1905	2409	2913	3417	3921	4425	4929	5433	5937
421	925	1429	1933	2437	2941	3445	3949	4453	4957	5461	5965
449	953	1457	1961	2465	2969	3473	3977	4481	4985	5489	5993
477	981	1485	1989	2493	2997	3501	4005	4509	5013	5517	6021

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Discrepancy between Julian and Astronomical Solar Years

- Julian Solar Year: **365 days, 6 hours, 0 minutes, 0 seconds.**
- Astronomical Solar Year: **365 days, 5 hours, 48 minutes, 46 seconds.**
- Julian's Calendar is longer by: **11 minutes, 14 seconds.**

Vernal Equinox in 1582

- Julian's Calendar is longer by: 11 minutes, 14 seconds.
- Accumulative discrepancy from 46 b.c.e. till 1582 (total of 1628 years) = Approximately 13-14 days.

Date of Vernal Equinox in 1582:

Julian Calendar – March 25.

Actual – March 11

Step One of the Gregorian Reformation: Omit 10 days.

Date of Vernal Equinox in 1582:

Julian Calendar – March 25.

Actual – March 11

Omitted 10 days from the calendar year: October 5th through
October 14th.

Step Two of the Gregorian Reformation:

**From every 400 years, omit 3 leap
years.**

Julian Calendar ahead of the Actual Solar year in the
course of 400 years (400 x 11 min & 14 seconds =)

3 days, 2 hours, 53 minutes and 20 seconds.

Discrepancy between Gregorian Calendar and Actual Solar Year

Astronomical Solar Year:

365 days, 5 hours, 48 minutes & 46 seconds.

Average Gregorian Calendar Year ($400 \times 365, + 97$ days, divided by 400 =)

365 days, 5 hours, 49 minutes & 12 seconds.

Discrepancy between Average Gregorian Calendar Year and the actual Solar Year:

26 seconds.



Why April 8?

- In 1582 the vernal equinox according to the Julian Calendar was on March 25.
- Gregorian Calendar is currently ahead by 13 days: 10 days for the initial correction, plus 3 days for the three 'skipped' leap years in 1700, 1800 and 1900.

Ecclesiastes 3:1-8




Everything has its season, and there is a time for everything under the heaven:

 A time to be born  and a time to die;

 a time to plant  and a time to uproot the planted.

 A time to kill  and a time to heal;

 a time to wreck  and a time to build.

 A time to weep   and a time to laugh;

  a time to wail   and a time to dance.

  A time to scatter stones   and a time to gather stones;

  a time to embrace   and a time to shun embraces.

  A time to seek   and a time to lose;

  a time to keep   and a time to discard.

  A time to rend   and a time to mend;

  a time to be silent   and a time to speak.

  A time to love   and a time to hate;

  a time for war   and a time for peace,