Birchas Hachama

An interview

Prof. Rav Nissim Vidal is in popular demand during these pre-Birchas Hachama days. Certified as Israel's first astronomer, Prof. Vidal runs the Institute for Teaching Science and Technology in Jerusalem, and works at the Mitzpeh Rimon Observatory. He worked as a senior astronomer in the Royal Greenwich Observatory in England, and as a professor of astronomy at the Australian National University in Canberra, and as a guest lecturer in the past at Washington and Harvard Universities. He has written his own books about Birchas Hachama and "Tzva Ha'shamayim", a fifteen-volume on modern astronomy, comprehensible commentary on jewish astronomical topics from the Talmud and the Zohar book, and Maimonides astronomy, which include many diagrams and photographs

Prof. Vidal has an internet site in hebrew that covers all his books, videos and various articles and interviews on current astronomical events:

Vidal-jewish-astronomy.com

Prof. Vidal combines his professional credentials in astronomy with mastery of Jewish studies.

Vidal says his interest in astronomy goes back to his childhood years in Cairo. "When I was a youth, I researched divrei Chazal for their insights in astronomy. I was attracted to questions on existence and the universe." When he made aliya to Israel, he studied physics in the Hebrew University, graduating with a B.sc. M.sc. and Ph.d. with a specialty in astronomy.

"It's actually a mitzvah to learn astronomy," he explains. "The gemora in meseches Shabbos (75a) says that it's a mitzvah to calculate tekufos and mazalos, as the verse says 'for it is your wisdom and understand before the nations.' "

Vidal avers that science only strengthens belief in a Creator and His greatness. The assumption that religion and science are contradictory has no basis in fact.

"The fact is that up to 100 years ago, the greatest scientists believed in a Creator. The physicist Newton had written in his Bible next to a verse that contained Hashem's name twice 'The Masters of masters, the G-d of Israel.'

"All the modern astronomical findings, without exception, are properly explained through our faith. We and the others see the same existence of stars and far off galaxies through telescopes, and each one explains it in his way — we through divine providence and faith, and them — superficially, without purpose or meaning," he asserts.

Vidal says that Chazal spoke about a "nartik" which surrounds the sun orb. In the past, no one knew what this meant, but today, modern science has discovered that the sun has a protective sheath which filters out the scorching gases and destructive rays, without which life would not be possible on earth. These phenomenon buried deep in the sun are as powerful as atom bombs, but the sun's sheath encloses most of them, and the remaining dangerous rays are filtered out by the earth's atmosphere.

"If anything, modern science proves how precise are the Torah's words," Vidal confirms.

Vidal says that one who wants to recite Birchas Hachama at the very second when the sun was created, should be in New Zealand at 6:00 p.m. — which corresponds to netz in Israel. "We have a kabala that during the Six Days of Creation, that day's creation was created at the beginning of the day — which in Judaism starts in the previous night," he says.

He says that since the creation of the world 5769 years ago until the upcoming 14 Nissan, there have been 206 cycles of 28 years.

"The Jewish calendar is based on a combination of sun years and moon years. The gemora brings the controversy between Rabbi Yoshua and Rabbi Eliezer concerning whether the world was created in Nissan or Tishrei. The chochomim say like Rav Yoshua, so the sun year starts in Nissan. The Torah itself tells us that the 'seventh month' is Tishrei.

"However, the moon year begins in Tishrei — and our holidays are fixed according to the moon. That's why an extra month is added — Adar II — to ensure the holidays occur at their proper seasons. At any event, even if a holiday was calculated improperly, the Bais Din shel Maalah accepts the dates set for the holidays by the Bais Din shel Matah. This point was powerfully brought across in the gemora by the story of Rav Yoshua, who disagreed with the calculation of the rosh Sanhedrin, Rav Gamliel, concerning the date of Yom Kippur, and Rav Gamliel demanded that he come to him on his Yom Kippur with his 'staff and basket' – to show everyone that only the leadership can determine such things. Holidays, roshei chodoshim and fasts are determined by the chochomim."

Only Shabbos is fixed from heaven, coming to the Jewish people every 7 days. How do we know that the Shabbos we are keeping is the seventh day from creation? All

doubt was removed when a double portion of manna fell on the sixth day and none on Shabbos. Since then, Jews have been keeping Shabbos non-stop."

Prof. Vidal says that calculating time according to the sun is an ancient practice which goes back to the Chaldeans. Old shards had been found from the period of the Bayis Rishon and perhaps even older that have calculations of the new moon on them, and one even has the King instructing the people to add another month of "Adro" that year.

"By the way, Josephus writes in his book Antiquities of the Jews that astronomy came from the Chaldeans, who learned it from their father Arpachshad (from whom the shorter version of his name Kesed is translated as "Chaldean") ben Shem. He also writes that Shem ben Noach was a great astronomer.

"When I was in Paris a few years ago, I entered a store that sold books on astronomy, and found a book written by the last French monarch," Vidal says. "I was fascinated by the contents — the author writes that he researched Chinese, ancient Babylonian, Indian and Jewish astronomy, as well as many others, and reached the conclusion that they all came from the same source going back 4,500 years — that's the period of Noach, from whom Shem derived knowledge of astronomy and passed it to his son Arpachshad. From him, the wisdom spread through the entire world.

"Calculating the calendar is an enormously complex skill. Much trouble was caused by the fact that the sun year is 365 days plus close to a quarter day. Five hundred years ago, they had to wipe out 15 days from the calendar, which caused strikes and demonstrations by workers who wanted to get paid wages for those 15 days… That gave rise to the Gregorian calendar which many people use today, although the older Julian calendar is also widely in use."

Vidal explains that there are actually 3 different Jewish ways to calculate a sun-year.

1. Shmuel's method considers a sun-year exactly 365.25 days long, and adding 7 leap months over 19 years doesn't exactly balance it out, but leaves an approximate 1 1/2 hours over. According to this calculation, Pesach keeps falling behind towards the winter. At the rate of 1 1/2 hours every 19 months, it loses 3.3 days every 1000 years. Birchas Hachama is fixed according to this method, as is the time when Tal Umotor is recited in chutz la'aretz.

2. Rav Ada's method puts a sun year at 365 days, 5 hours, 55 minutes and 25 seconds. According to this, 19 moon years and another 7 moon months, equal 19 sun years exactly.

3. The length of the sun year accepted today is 365 days, 5 hours, 48 minutes, and 46 seconds. This measurement causes Pesach to fall later in the summer at the rate of 4.5 days every thousand years. But, Vidal offers final words of comfort, at least until the end of the sixth millennium, Pesach won't come later than the spring.