

CURRENT TALMUD PASSAGE

Posted December 21, 2006, by Rabbi Judy Abrams. Please refer to Maqom's home page for information about previous passages.

BH

THIS MUST BE JEWISH: ANTIKYTHERA MECHANISM

© Judith Z. Abrams, 2006

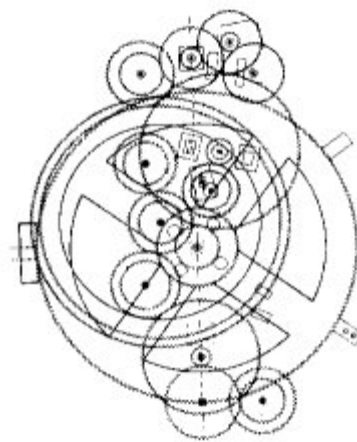
Check this out. This is an article from Wikipedia (http://en.wikipedia.org/wiki/Antikythera_mechanism). I just don't see how this could be anything but a Jewish calendrical device. Who else tells time on a 19-year cycle with leap-months thrown in?

The Antikythera mechanism is an ancient mechanical analog computer (as opposed to most computers today which are digital computers) designed to calculate astronomical positions. It was discovered in the Antikythera wreck off the Greek island of Antikythera, between Kythera and Crete, and has been dated to about 150-100 BC.

Sometime before Easter 1900, Elias Stadiatos, a Greek sponge diver, discovered the wreck of an ancient cargo ship off Antikythera island at a depth of 42 m (138 ft). Sponge divers retrieved several statues and other artifacts from the site. The mechanism itself was discovered on 17 May 1902, when archaeologist Valerios Stais noticed that a piece of rock recovered from the site had a gear wheel embedded in it. Examination revealed that the "rock" was in fact a heavily encrusted and corroded mechanism that had survived the shipwreck in three main parts and dozens of smaller fragments. The device itself was surprisingly thin, about 33 cm (13 in) high, 17 cm (6.7 in) wide, and 9 cm (3.5 in) thick, made of bronze and originally mounted in a wooden frame. It was inscribed with a text of over 2,000 characters, many of which have been deciphered.

The device is displayed in the Bronze Collection of the National Archaeological Museum of Athens, accompanied by a reconstruction. Another reconstruction is on display at the American Computer Museum in Bozeman, Montana. The origins of the mechanism are unclear, as are the circumstances by which it came to be on the cargo ship. The ship was Roman, but there is no doubt that the mechanism itself was made in Greece.

The device is remarkable for the level of miniaturization and complexity of its parts, which is comparable to that of 18th century clocks. It has over 30 gears, with teeth formed through equilateral triangles. When past or future dates were entered via a crank (now lost), the mechanism calculated the position of the Sun, Moon or other astronomical information such as the location of other planets. The use of differential gears enabled the mechanism to add or subtract angular velocities. The differential was used to compute the synodic lunar cycle by subtracting the effects of the sun's movement from those of the sidereal lunar movement. It is possible that the mechanism is based on heliocentric principles, rather than the then-dominant geocentric view espoused by Aristotle and others. This might indicate that the heliocentric view was more widely accepted at the time than was previously thought. [citation needed]



The mechanism has 3 main dials, one on the front, and two on the back. The front dial is marked with the divisions of the Egyptian calendar, or the Sothic year, based on the Sothic cycle. Inside this there is a second dial marked with the Greek signs of the Zodiac. This second dial is moveable dial so that it can be adjusted with respect to the Sothic dial to compensate for leap years.

The front dial probably carried at least three hands, one showing the date, and two others showing the positions of the Sun and the Moon. The Moon indicator is ingeniously adjusted to show the first anomaly of the Moon's orbit. It is reasonable to suppose the Sun indicator had a similar adjustment, but any gearing for this mechanism (if it existed) has been lost. The front dial also includes a second mechanism with a spherical model of the Moon that displays the Lunar

phase.

There is reference in the inscriptions for the planets Mars and Venus, and it would have certainly been within the capabilities of the maker of this mechanism to include gearing to show their positions. There is some speculation that the mechanism may have had indicators for the 5 planets known to the Greeks. None of the gearing, except for one unaccounted for gear, for such planetary mechanisms survives

Finally, the front dial includes a parapegma (an precursor to the modern day Almanac) used to mark the rising and setting of specific stars. Each star is thought to be identified by Greek characters which cross references details inscribed on the mechanism.

The upper back dial, is in the form of a spiral, with 47 divisions per turn, displaying the 235 months of the 19 year Metonic cycle. This dial contains a smaller subsidiary dial which displays the 76 year Callippic cycle. (There are 4 Metonic cycles, within 1 Callippic cycle.) Both of these cycles are important in fixing calendars.

The lower back dial is also in the form of a spiral, with 223 divisions showing the Saros cycle. It also has a smaller subsidiary dial which displays the 54 year Exeligmos cycle. (There are 3 Saros cycles, within 1 Exeligmos cycle.)

Discussion Questions:

1. The Jewish calendar is the ultimate, ungainly example of something designed by a committee. You had the "Solar calendar" faction coming together with the "Lunar calendar" faction. And our calendar of 19-years with 7 leap years is what resulted. Does this help you understand our calendar better?
2. Who do you think were the constituents for the solar calendar? For the lunar calendar?
3. Do you think this device is of Jewish origin? If so, why do you think that nobody has proposed this to the academic community?