Today's Daf In Review is being sent l'zecher nishmas Habachur Yechezkel Shraga A"H ben R' Avrohom Yehuda

Eiruvin Daf Nun Vuv

- A Braisa says, when squaring the boundary of a city, we make the square according to the directions of the world (i.e. one side facing north, another south, etc.). The way to determine the directions of the world is by knowing that the constellation of "eglah" is in the north and of "akrav" is in the south. **R' Yose** says, another way to determine how to make the square of the city is by following the location of sunrise and sunset during the different seasons of the year. If one were to draw a line from where the sun rises to where it sets on the longest day of the year, that would be north, and the north side of the square should be drawn parallel to it (in the summer the sun rises and sets more to the north, and in the winter it rises and sets more to the south, although at all times it takes a path that goes southerly around the world by day and back up north at night). If one were to draw a line from where the sun rises to where it sets on the shortest day of the year, that would be south, and the south side of the square should be drawn parallel to it. On the days of the spring and fall equinoxes, the sun rises in the middle of the eastern sky and sets in middle of the western sky, and therefore east and west can be determined from this as well.
    - **R' Mesharshiya** said, the sun never rises or sets in the true north or south, so it cannot be used as a guide to determine its proper location.
    - **Shmuel** said, based on the fact that a year is 365 and ¼ days, that means each solar event will happen one day and 6 hours later in the week than it happened the year before. Given that the sun was placed into Creation (the spring equinox) at the beginning of the night (at 6:00PM), every spring equinox will happen either at the beginning of the night, at midnight, at the beginning of the day (6:00AM) or at midday.
        - Also, based on the fact that each season is 13 weeks and 7.5 hours long, every season will begin 7.5 hours in the day later than the last one began. Therefore, the summer solstice can begin either at 1:30 AM, at 7:30 AM, at 1:30 PM, or at 7:30PM.
        - The fall equinox can begin at either 9:00AM, at 3:00PM, at 9:00PM or at 3:00AM.
        - The winter solstice can begin at either at 4:30PM, 10:30PM, 4:30AM, or 10:30AM.
        - Also, in the order of the 7 mazalos that change every hour, each season will begin a half hour further into that cycle than the last season began (because it begins 7.5 hours later in the day than the last season).
    - **Shmuel** also says, if the spring equinox begins during the mazal of "tzedek", all the trees get ruined. If the winter solstice begins in the mazal of "tzedek" the seeds all dry out. This is all only if the "new" moon of that month appeared in the hour of the mazal of "levanah" or "tzedek".
- A Braisa says, one who squares the boundary of a city for techum purposes (it will later become clear that the Braisa is discussing a round city with a 2,000 amah diameter), makes it like a square board. He then goes and squares the techum as well (effectively making a square of 2,000x2,000 amos to all 4 sides of the city). However, when he is measuring the 2,000 amos, he should not measure 2,000 amos in a diagonal from the corner, because that will lead to the lines straight north, south, east and west being less than 2,000 amos. Rather, he measures the straight lines as 2,000 amos (thereby making squares on each side of the city), and then adds an additional square of that same size to the 4 corners of the city. The result (assuming a round city of 2,000 amos) is that the squaring of the city's boundaries increased the boundaries by 400 amos from the city to the corner of the square, and 2,800 amos from the corner of the boundary to the corner of the techum (which is an addition 800 amos more than the 2,000 amos the

techum should normally get). Thus, there is a total gain of 1,200 amos because of the "squarings" that were done.
    - **Abaye** explains, the gains in these amounts are true for a city that is a circle with a 2,000 amah diameter.
- **R' Eliezer the son of R' Yose** says in a Braisa, the Levi'im were given an additional area of 2,000 around their cities. The area of 1,000 amos around the city was to be left empty, which would be ¼ of the entire area, and the remaining could be used for planting fields and vineyards.
    - **Rava** says, this is learned from a pasuk, that 1,000 amos should be left empty.
    - **Q:** The area left open in ½ the area, not ¼!?
        - **A1: Rava** says, this can be explained with a city that is 2,000x2,000 amos. The area given to the Levi'im at each side of the city is also a square of 2,000x2,000 amos. Squares of equal size are then added to each corner. The resulting size of the entire area belonging to the Levi'im is 6,000x6,000 amos (36 million square amos). The initial added area around the city (4 squares of 2,000 amos each) is 16 million sq amos. The corner squares are also equal to 16 million sq amos. Out of this, 12 million sq amos were left empty (4 areas of 1,000x2,000 amos along each side, and 4 areas of 1,000x1,000 amos at each corner).
            - **Q:** According to this explanation, the open areas equal 12 million sq amos out of a total of 32 million sq amos of the area outside the city. That is more than a third, and definitely not the fourth that the Braisa says that it is!? **A:** The Braisa meant to include the area of the city itself as part of the total.
            - **Q:** Even so, that makes it 12 million sq amos out of 36 million sq amos. That is a third, not a fourth!? **A:** The Braisa is discussing a circular city, which therefore gets a circular area of 1,000 amos of empty space. The general rule is that a circle is ¼ less than the square that can enclose the circle. If so, the 12 million sq amos of empty space is actually only 9 million sq amos of empty space. 9 million of the total 36 million sq amos is exactly one fourth, as stated in the Braisa.
        - **A2: Abaye** says, the Braisa may be discussing a city that is 1,000x1,000 amos. The additional area will be rectangles of 2,000x1,000 amos on each side of the city (or 2 million sq amos each, for a total of 8 million sq amos). The squares needed to fill in the corners are 2,000x2,000 amos (or 4 million sq amos each, for a total of 16 million sq amos for all the corners, for a grand total of 24 million sq amos for the entire area added to the city). The amount of area left empty is 8 million sq amos (squares of 1,000x1,000 at each end of the city and the same size squares at each corner).
            - **Q:** 8 million out of 24 million is one third, not one fourth!? **A:** The Braisa is discussing a circular city. The general rule is that a circle is ¼ less than the square that can enclose the circle. Therefore, the empty space is actually 6 million sq amos, which is exactly one fourth of the total additional area of 24 million sq amos.