DAF Notes!

Insights into the Daily Daf

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Migrash Vs. Techum

Abaye explains a scenario which fits the braisa's statement that the *migrash – open area* around the city is ¼ of the techum region. If the city is 1000 square amos, the techum is 8000 square amos (2000 x 1000 on each side) plus 16000 amos at the corners (4 regions of 4000 square amos each), for a total of 24000 amos. The migrash is 8000 square amos (1000 on each side, and 1000 for each corner).

The Gemora challenges this, as this is one third of the total area, and answers that the case of the braisa is a circular city. Therefore, the city and its 1000 amos wide migrash is ¾ of the area that a square region would be, i.e., 6000 amos, which is ¼ of the total area.

Ravina says the braisa is referring to a city of 2000 x 2000 amos, and it means that the migrash on the sides (8000 square amos = 4 regions of 2000 square amos) is ¼ of the total techum area (32000 square amos = 16000 square amos on the sides + 16000 square amos at the corners).

Rav Ashi says the braisa is referring to a city of 2000 x 2000 amos, and it means that the migrash of the corners (4000 square amos = 4 regions of 1000 square amos) is ¼ of the total techum area of the corners (16000 square amos).

Ravina challenges Rav Ashi's implication that migrash is only at the corners from the verse which mandates that a migrash be saviv – around, implying that it surround the whole city.

Rav Ashi answers that the word saviv can also mean only the corners, as we find in the verse which requires the kohen to apply the blood of a sacrifice saviv – around the altar, which is fulfilled by applying it at opposite corners.

Rav Chavivi from Chuzna'ah asked Rav Ashi how Abaye and Rava can say that a migrash is circular, as that will reduce the size of the migrash in the corners of the city, which are further out than the sides, and Rav Ashi answered that their case is when the city itself is also circular. Although we consider it square for measuring the techum, since it isn't actually square, this doesn't reduce the migrash area.

Rav Chanila'i from Chuzna'ah asked Rav Ashi how the braisa can say that squaring a circle city adds 800 amos (400 at each corner), as a square's size is only ¼ more than its enclosed circle, i.e., 1/3 of the circle's size. Therefore, the square surrounding a circle of diameter 2000 should only add 666 2/3 amos (1/3 of 2000 amos).

Rav Ashi answered that the calculation of ¼ is for the full area of the square around the circle, but the difference in size at the corner (which is largest) is more than that,
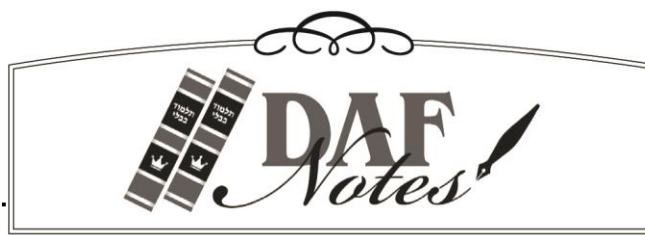
as the diagonal of a square unit is 7/5 of the unit (more than 4/3 of the unit). (56b – 57a)

Karfaf

The Mishna cites Rabbi Meir saying that we allocate a *karfaf – storage area* to the city before we begin measuring the techum, while the Sages say it is only given to connect two adjacent cities. If the gap between two cities is small enough to allow for up to a little more than 70 amos outside of each, we can consider them one city since their karfaf areas overlap. Similarly, if three cities are adjacent, with a gap of up to 141 1/3 ama between the two outer ones, the middle one allows all three to be considered one city.

The Gemora asks how we know that we can allocate a karfaf to a city, and Rava says we learn it from the verse that says to measure techum from the wall of the city *vachutza – and outwards*, teaching that we first allocate some area which is outside, i.e., a karfaf. (57a)

How Many Karfafs To Two Cities?

The Gemora cites a dispute about what the Sages' position is about a karfaf between two cities. Rav Huna says that we allocate a karfaf to each one, while Chiya bar Rav says that we allocate only one karfaf for both.

The Gemora attempts to disprove Rav Huna from the Mishna which says that a karfaf applies between two cities, implying that only one karfaf is allocated.

Rav Huna deflects this by saying that the Mishna means that between two cities we apply the karfaf method of measuring, by allocating a karfaf to each one.

Rav Huna supports this reading from the continuation of the Mishna which says that if there is no more than 70+

amos for each city between them, they are considered one, implying that each one gets its own karfaf.

The Gemora suggests that this can disprove Chiya bar Rav, but deflects this by saying that this part of the Mishna is following Rabbi Meir's position. Although Rabbi Meir already said that every city gets a karfaf, we may have though that we would give only one karfaf to a city, even if it's adjacent to another. If Rabbi Meir taught that karfaf applies only between two cities, we may have thought that we only do so in that case, since they need space to separate them, but an isolated city which has a lot of open space doesn't need any karfaf. The Mishna therefore had to teach both cases within Rabbi Meir's position.

The Gemora challenges Rav Huna from the end of the Mishna which says that if three cities are adjacent, and there is 141 1/3 amos between the two outer ones, we consider them one by the placement of the middle one between them. This implies that without the middle one, the gap of 2 karfafs would not allow them to be connected.

Rav Huna deflects this by citing Rabba in the name of Rav Idi in the name of Rabbi Chanina who says that the Mishna's case is when the middle city is not directly in between the two others, but away from their area. The Mishna is teaching that if by considering the middle one to be in between the two others there won't be a gap of 2 karfafs anywhere, they are considered one. (57a – 57b)

Layout Of The Three Cities

Rava asked Abaye how far away the middle one can be for us to say this, and he said that it must be within 2000 amos.
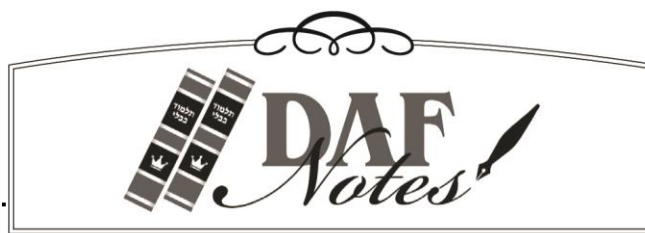
Rava asked Abaye why he said this if he also said that it is logical that a bow shaped city is considered one unit even if there is more than 2000 amos from its top to its middle.

Abaye answered that in the case of the city, residents can get to any part of it by walking through the city itself, but in the case of the three cities, if the middle one is beyond 2000 amos, there is no way to reach it from the others.

Rava asked Abaye how far away can the two outer cities be for us to say this, and he said that there is no limit, as long as the third city fills up enough to only leave up to 2 karfaf gaps.

Rava asked whether it is true even if they are more than 4000 amos apart (i.e., with no overlap between their techum), and Abaye said it is.

Rav challenged this from Rav Huna, who says that if the two edges of a bow shaped city are more than 4000 amos apart, we may not consider it one unit. Abaye answered that in the case of the city, we have nothing which we can consider to fill in that gap, but in this case, the middle city can be considered to fill in the gap. (57b)

Crossing a river

Rav Safra asked Rava how we consider the two cities of Akistefon and Ardashir to be one, even though they are separated by the Chidekel river, which is wider than 2 karfaf.

Rava went out and showed him foundations of walls which stood out of the river, within a karfaf distance of each other, closing the gap. (57b)

Measuring The Techum

The Mishna says that when we measure techum, we use ropes of exactly 50 amos, and each one measures holding it at chest level. If they reach an incline (e.g., valley, fallen fence, or mountain), they subsume it in that leg of measurement and continue. If it is less than 50 amos, they hold the 50 amos rope above it, while if it is more, but it narrows further away, they go to the area where it is less than 50 amos, measure there, and then return to their original path. If the only place it is this small is outside of the techum, they may not go to there to measure. If he can't subsume since it is large, Rabbi Dostai the son of Yannai quotes Rabbi Meir saying that we modify the measurement, akin to boring a hole through the mountain. Instead of using one rope of 50 amos, smaller segments are measured, 4 amos each, with the higher end at the feet of the person, reducing the impact of the slope on the measurement. (57b – 58a)

INSIGHTS TO THE DAF

Measuring the T'chum Shabbos

In this article, we continue our discussion of *t'chum* Shabbos, by examining the practical means by which the *t'chum* Shabbos was measured in the time of the Gemara, and how it is measured today. The standard method of measuring the *t'chum* was by means of a fifty-*amah* long rope, which was stretched taut by two people standing on either side. The procedure was repeated forty times, to reach a total of two thousand *amos*. The Sages decreed that the *t'chum* must be measured in a straight line, as the crow flies. One could not rely on the mile counter in a car to measure the t'chum, since this measure includes the ascent and descent of the car on slopes. Two thousand *amos* as it appears on the mile counter would in fact be less than the permitted distance of the *t'chum*. Our sugya
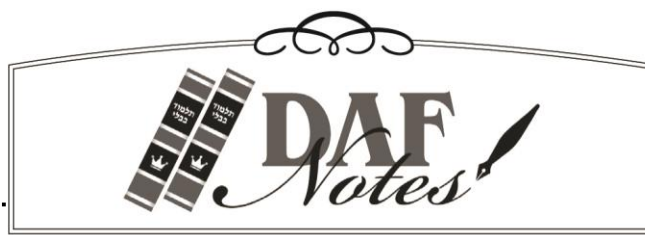
explains how the ropes must be positioned in order to take into account the vertical slope, and ensure that it is not included in the measurement.

In a previous article, we discussed R' Gamliel's tool for measuring distances by means of trigonometric calculations (43b). As we discussed then, this method was limited since his tool was only effective on a straight plane.

When all other means fail, our Sages permitted perhaps the least accurate method of measuring by footsteps (42a). An average footstep, in which the space between the feet is equal to the length of the foot, equals approximately one *amah* (Ritva; Mishna Berura 397:2:5, Biur Halacha; see Kiryat Ariel, p. 203). Thus, by measuring two thousand footsteps from the border of a city, one has a rough approximation of the *t'chum* Shabbos. The Meiri (57b) states that even though this method is inexact, the Sages were lenient for a person who needs to walk somewhere to perform a mitzva. The Mishna Berura adds that this method may only be used by someone who was unable to properly measure the *t'chum* before Shabbos. Furthermore, since one is likely to overstep an exact *amah* with each step, one should not walk to very edge of the *t'chum* based on the approximation of his footsteps. However, if he wishes to walk less than two thousand steps he may do so (Biur Halacha 399:1).

Above, we discussed the principle of *ribu'ah ha'ir,* in which a square is drawn around the city before measuring the *t'chum*. Were we to measure two thousand amos from any point on the city's *ribu'ah*, the t'chum would have rounded corners. However, the border of the *t'chum* is also squared (49b). The rounded corners are extended to form right angles, such that the distance from the corners of the city's *ribu'ah* to the corners of the *t'chum* is approximately 2,800 *amos* (the

diagonal line of a perfect square, whose sides are each 2,000 *amos*).

Nevertheless, the Minchas Baruch (77:2) rules that when measuring from corner of city to corner of *t'chum* by footsteps, one may measure only 2,000 steps (see Kiryat Ariel p. 203). Other Poskim argue, and maintain that the regular boundary of 2,800 *amos* applies even when measuring by footsteps (Eliya Rabba 397:4; Chazon Ish 39:10, 110:24).

Today it is unheard of for *t'chum* Shabbos to be measured with ropes, as it was in the time of the Gemara, since it is so difficult to measure in this manner. Other more practical methods are used, which can measure two thousand *amos* with a margin of error of only a few centimeters (see Kiryat Ariel p. 204).

More precise than measuring by footsteps, bricks on the edge of a sidewalk can also be used to measure t'chum Shabbos. These bricks are usually of uniform length. After measuring one brick, and making the necessary calculations, one can count bricks as he walks until he reaches the end of the *t'chum*. In *Eretz Yisrael*, the bricks are usually one meter long. When using this measurement, one must keep in mind a certain margin of error, since the curves of the street make the measurement imprecise (ibid, p. 207).