DAF Notes
Insights into the Daily Daf
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A *korah* (*crossbar*) must be wide enough to hold an *ariach*, a half-brick.

A *korah* must be wide enough to hold an *ariach*, a half a brick. A half-brick is half of a three-*tefach* brick. The *korah* therefore has to be a *tefach* wide that would hold a half-brick by its width. This means that the half-brick is three *tefachim* by one and a half *tefachim*, and will be placed on the *korah* and the brick will extend over both sides of the *korah* a quarter-*tefach* on each side. The brick does not actually have to be placed on the *korah*, just that the *korah* appears to be affixed that it can hold the brick if the brick were placed on top of it. (13b)

There is a dispute regarding how strong the *korah* has to be.

The *Tanna Kamma* maintains that a *korah* must be wide enough and strong enough to hold a brick. Alternatively, the *korah* must be strong enough to hold a row of half-bricks placed across the length of the *korah*. Rabbi Yehudah, however, maintains that even if the *korah* is not strong enough to hold a half-brick, the *korah* is still valid. Rabbi Yehudah therefore continues according to his reasoning and states that a *korah* made of straw or reeds, which is certainly not strong enough to hold a half-brick, should be viewed as if it were made from metal, which is strong enough to hold a half-brick, and the *korah* is valid. (13b)

There is a dispute regarding how strong the supports of the *korah* need to be.

Rabbah bar Rav Huna maintains that the *Tanna Kamma* only states that the *korah* itself must be strong enough to hold a half-brick, but if the *korah* rests on pegs and not on the walls

themselves, those pegs which serve as supports for the *korah* need not be strong enough to hold the *korah* and a half-brick. Rabbah bar Rav Huna reasons that the *korah* itself serves as a reminder to people not to carry in a public domain, but the supports of the *korah* are used to keep the *korah* in place, and therefore the supports only have to be able to support the *korah* and not the half-brick. Rav Chisda, however, maintains that the supports of the *korah* also must be able to support the *korah* and the half-brick. (14a)

One who places a mat over a *korah* has nullified the *korah* and the partition.

If one places a *korah* over the entranceway of a *mavoi* and spreads a mat over the *korah*, but the mat is elevated more than three *tefachim* from the ground, we do not have a *korah* or a partition. We do not have a *korah*, because a *korah* serves as a reminder, and now a mat covers the *korah*. We do not have a partition either, because when a partition is elevated three *tefachim* off the ground, the goats can pass through and this is not considered a partition. By placing the mat over the *korah*, he has invalidated the *korah* and one can no longer carry inside the *mavoi*. (14a)

There is a dispute regarding how much of a gap is allowed for a *korah* that does not extend completely to the opposite wall, and for two *korahs* that do not touch each other.

A *korah* that extends from one wall of the *mavoi* across the entranceway but does not reach the other wall, or if there are two *korahs*, where each *korah* extends from a wall but

- 1 -

the two *korahs* do not meet each other, then the rule is as follows: If the gap between the *korah* and the wall, or the gap between the two *korahs* is less than three *tefachim* wide, then we apply the rule of *lavud*, that a gap within three *tefachim* is as if the object is connected to what is next to it. If the gap is three or more *tefachim*, however, then one must bring another *korah*, because the existing *korah* is invalid because of the gap. Rabban Shimon ben Gamliel, however, maintains that if the gap is less than four *tefachim* wide, there is no need for another *korah*, because Rabban Shimon ben Gamliel maintains that that the rule of *lavud* applies as long as the gap is less than four *tefachim*. If the gap is four or more *tefachim*, however, then according to Rabban Shimon ben Gamliel one would have to add another *korah*, because the existing *korah* is invalid. (14a)

There is a dispute regarding two *korahs* over an entranceway when neither *korah* can hold a half-brick.

If one used two *korahs* over the entranceway of a *mavoi*, and neither *korah* is wide enough to hold a half-brick, if combined together they can hold a half-brick, we do not require that he brings another *korah*, because the two *korahs* are valid. If by combining the *korahs* together they are still not a full *tefach* wide, then one must bring another *korah* to validate the *mavoi*. Rabban Shimon ben Gamliel maintains that if the two *korahs* are placed together so that it holds a half-brick lengthwise, measuring three *tefachim*, one does not need to bring another *korah*. If the positioning of the two *korahs* does not allow for the support of the weight of the half-brick placed lengthwise, then another *korah* is required to adjust the *mavoi*. (14a)

Rabbi Yosi the son of Rav Yehudah holds like his father in one matter but disagrees with his father in another matter.

Rabbi Yosi the son of Rabbi Yehudah maintains that if one *korah* is placed higher than the other *korah*, we view the upper *korah* as being lower and the lower *korah* is viewed as being above, i.e. they are both viewed as if they were on the same plane. If on the same plane they would function together as a valid *korah*, then they are also considered one *korah* in their existing state. This is conditional on the upper

korah not being higher than twenty *amos* and the lower *korah* cannot be lower than ten *tefachim*, as these are the required maximum and minimum heights of a *korah*. Abaye said that Rabbi Yosi the son of Rabbi Yehudah agrees with his father regarding one matter but disagrees with his father in a different matter. Rabbi Yehudah in our *Mishna* maintained that we view a *korah* of straw to be as strong as a *korah* made of metal, and similarly, Rabbi Yosi his son rules that we view the two uneven *korahs* as being even. They disagree with regard to the height of a *korah*, as Rabbi Yehudah holds that a *korah* higher than twenty *amos* is valid, and Rabbi Yosi maintains that a *korah* is only valid if the *korah* is within twenty *amos*, but if it is higher than twenty *amos*, it is invalid. (14a)

The ratio of the circumference of a circle to its diameter is three to one.

The *Mishna* stated that if the *korah* was round, we view the *korah* as if it was square. The *Gemora* states that we only need this statement as an introduction to the last statement of the *Mishna* that states that if a round object has a circumference of three *tefachim*, then the width of the object is a *tefach*. The *Gemora* states that we derive this ratio from the verse where it is said: *and King Shlomo made the pool of cast metal¸ ten amos from rim to rim, circular all around, and five amos was its height, and a line of thirty amos would encircle it all around*. We see from this verse that the diameter of a thirty-*amah* circle is ten *amos*, and this is a ratio of three to one. Although there was a little thickness to the rim of the pool, Scripture only calculates the circumference of the pool from within and does not calculate the circumference from the outside, so the ratio is precisely three to one. (14a)

There is a dispute regarding how wide a *lechi* must be.

The *Mishna* states that a *lechi* must be ten *tefachim* high and the width and thickness has no required measurement. Rabbi Yosi, however, maintains that the width of the *lechi* must be at least three *tefachim*. The *Gemora* explains that according to the *Tanna Kamma*, the width and thickness of

the *lechi* can be as thin as the string of a garment, as long as there is some substance to the *lechi*. (14b)

If one made a *lechi* for half a *mavoi*, i.e. he placed the *lechi* half-way inside the *mavoi*, so the *mavoi* is only adjusted from the location of the *lechi* and behind, he can only carry in the part of the *mavoi* that was adjusted.

If one made a *lechi* for half the *mavoi*, i.e. the *lechi* is placed in the middle of the *mavoi* and not at the front, he can only carry in the part of the *mavoi* that had the adjustment of the *lechi*. One might think that it is forbidden to carry even in the part of the *mavoi* that was adjusted by the *lechi*, because he may come to carry even in the unadjusted part of the *lechi*. The *braisa* therefore teaches us that one can carry in the part of the *mavoi* that was adjusted by the *lechi*, and there is no concern that he will carry in the part of the *mavoi* that was not adjusted by the *lechi*. (14b)

INSIGHTS TO THE DAF

"Pi"

Our *Gemora* asks: How do we know the rule of the *Mishna* that if a circle is three *tefachim* around (*circumference*) that it is one *tefach* wide. The *Gemora* answers that the verse measures the circular pools built by King Solomon. It says that the diameter of the circular pool was ten *amos*, and that the circumference of the circle was thirty *amos*.

The question on our *Gemora* is obvious. First of all, why do we require a verse for this? It is a mathematical equation! Secondly, didn't the *Gemora* realize that Pi is 3.14, not three? Saying that it is three is incorrect!

The following explanation is given: The *Gemora* knows full well that Pi is 3.14, as it is something every school child knows and is clearly measured. However, the *Mishna* clearly said to use 3, not 3.14, as the *halachic* way to measure circumference. The *Gemora's* question therefore is, what is the source of the *Mishna* that one can use three for *halachic* reasons, such as permitting a *korah* that is three *tefachim*

around because it is considered to have a *tefach* of space across? One should think that the *korah* must be at least 3.14 *tefachim*! Additionally, one cannot say the *Mishna* was not being accurate, as the *Gemora* states in many places that the *Mishna* will never estimate in a way where the amount is too little to satisfy the *halachic* requirements (i.e. see Sukkah 8a).

This is why the *Gemora* answers that we see that the verse states Pi as equaling three. Why would the verse give these measurements if they are not accurate and do not have to be stated? It must be to teach us that we can use 3 for Pi, even when it involves a leniency.

Geometry in the Beis HaMikdash

The Greek letter "Pi" represents the number 3.14, which is used to calculate the circumference of a circle. One of the most basic principles in geometry is that the diameter of a circle multiplied by Pi equals the circumference.

In truth, this number is not exact. Pi is an irrational number, which cannot be expressed correctly by any number of decimals. Rounded to twenty places, Pi is 3.1415926535897932384, but this too is an imprecise simplification. Our Sages simplified the number even more. When calculating the circumference of a *korah,* they sufficed with the number three. Thus, in order to determine whether a *korah* has the minimum of one *tefach* diameter, one must ascertain if its circumference is at least three *tefachim*.

Shlomo's Sea: The *Gemora* derives this calculation from the verses discussing the construction of the Beis HaMikdash. Shlomo HaMelech built a gigantic *mikvah*, which the verse refers to as "*Yam shel Shlomo* - Shlomo's Sea." According to the verses, the *mikvah* was thirty *amos* in circumference and ten *amos* in diameter (Melachim I 7:23).

The Rishonim pose two questions against this inference. Firstly, why is it necessary to derive mathematical principles from the Torah? Empirical evidence clearly demonstrates

this principle to be true. Secondly, the rounded number of three is not strictly accurate (Tosefos s.v. *V'ha'ika*).

The Tashbatz (I: 165) wrote a lengthy responsa to resolve these questions. In conclusion, he writes that our Sages were well aware that their calculation was imprecise. Nevertheless, they used the measurement of three-to-one in order to teach us that this is close enough, and the Torah does not expect us to be more exact with our measurements of circumference. As we will see, the question still remains whether we may rely on this imprecision to the side of leniency, or only to the side of stringency.

The Tosefos Ha'Rosh adds that in order to prove that exact precision is unnecessary, our Sages cited the verse in regard to the *Yam shel Shlomo*, in which the Torah itself provides intentionally imprecise measures. From here it would seem that this imprecise calculation may be relied on even when the inaccuracy errs in the direction of leniency.

The Rambam, in his commentary to the *Mishna*, writes simply that the precise number of Pi can never be calculated to the last decimal place. Since the number must be rounded off at some point, our Sages sufficed in rounding it off at three. It is unclear from here whether the Rambam intended merely to explain why the Sages used this imprecise number, but in practice we must use the most accurate measurement of Pi. Or perhaps the Rambam meant that just as the Sages rounded down to three, we may also conduct our calculations using the number three instead of Pi, even if this produces inaccurate leniencies.

The Tashbatz (ibid.) rules that in practice we must use the accurate measure of Pi. However, the Aruch HaShulchan (Y.D. 30:13. O.C. 363:23) rules that we may rely on our Sages' measurement of three, even when this calculation produces leniencies. The Mishnah Berurah (Shaar HaTzion 372, s.k. 18) also rules that in regard to mitzvos of Rabbinic origin, we may be lenient and calculate with three. (See Meoros Daf HaYomi journal 266, on Bechoros 17b, in regard to how precise one must be in making tefillin with perfect corners).

Hexagons: The Eretz Chaim cites a most novel solution to this problem in the name of his father, R' Menashe Mathuv Stalon; who came to *Eretz Yisrael* from Syria, approximately one hundred and forty years ago, and served as Av Beis Din in the holy city of Tzefas.

He writes that in the time of the *Gemora*, people generally did not build perfect circles. It was easier for them to multi-sided objects such as hexagons. The circumference of a hexagon is exactly three times its diameter. He therefore suggests that the *korah* in question in our *sugya*, and the *mikvah* made by Shlomo HaMelech were not actually circles, but rather hexagons. This explanation neatly resolves all the questions cited above. However, from the fact that the Rishonim posed these questions and endeavored to answer them, we see that they understood the *Gemora* as discussing perfect circles.

DAILY MASHAL

Ariach and Levainah

The *Mishna* states that the *korah* has to be wide enough to support an *ariach*, a half-brick. We find that the term *ariach* is used in other instances, i.e. by the *Shiras Hayam*, the Song sung by the Jewish People at the Red Sea. There the *Gemora* mentions that the *Shirah* is written *ariach al gabei levainah*, a half-brick on top of a full brick, which means that one line of the Song is written like a half-brick, and the line beneath it is a full brick. We can interpret the terms *ariach* and *levainah* homiletically. A half-brick symbolizes that one's hearts should be contrite and broken, and by demonstrating sincere remorse for one's transgressions, Hashem will grant him atonement, as the word *levainah* connotes atonement. The word *lavan*, which is closely associated to the word *levainah*, means white, and white reflects atonement.