According to this version, it is clear that the Beit HaLevi conceded that if the “fish” (i.e., the hillazon) was not available (and it was not), and for that reason the great Torah leaders never discussed it and decided not to use it, but rather—and this is what actually did happen—that “it became clear to us that this fish or the dyeing process did cease and the method was forgotten... thereby causing a break in the transmission [and for that reason use of tekhelet ceased]—at that point, the halakhic arguments could and do serve as proof.”

With the help of the Almighty and His creations, the transmission and the halakhah have been renewed once again, and it is possible to observe the mitzvah of wearing a thread of tekhelet, as in days of old.

Rabbi Hershel Schachter

Using Tekhelet in Tzitzit

INTRODUCTION

The tzitzit which are attached to each corner of the tallit are tied in a precise manner. Through a hole in each corner, four strings are inserted halfway along their length to produce eight semi-strings. The semi-strings are knotted together at a position close to the garment. One of the semi-strings is then wound around the others to produce a coil of seven turns. This coil ends with a knot, which is followed by a coil of eight turns and a knot, followed by a coil of eleven turns, a knot, and finally a coil of thirteen turns and a knot. This process results in a tassel of four coiled sections (each section of coils is called a hulya) delineated by knots, and ending in eight hanging strings.

This method of tying tzitzit has been extant for hundreds of years. However, the Torah describes the tzitzit as having a petil tekhelet (blue string). When tekhelet was available, how did the tzitzit look? With the loss of the tekhelet, were changes in the method of tying...

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the tzitzit introduced? Recent efforts to rediscover the tekhelet take these questions out of the theoretical realm and thrust them squarely into the realm of the practical and relevant.

ROLE OF THE TEKHELET STRINGS

The Gemara rules that four strings are to be inserted into each corner of the tallit to produce eight semi-strings (Menahot 41). Of these, some are to be white, and the others tekhelet.1 Left unclear, however, is the distribution between the white and tekhelet strings.

Tosafot write that the mitzvah of tzitzit requires that two tekhelet strings and two white strings be inserted into the tallit to produce four white semi-strings and four tekhelet semi-strings (Menahot 38, s.v. ha-tekhelet).

The Ra'avad writes that only one of the four strings is tekhelet, and three are white, which produces six white semi-strings and two tekhelet semi-strings (Hilkhot Tzitzit, chap. 1).

The Rambam, restricting the tekhelet even more, writes that all of the strings are white except for one semi-string of tekhelet (Hilkhot

1. The Torah does not prescribe any specific color for the tzitzit strings, except that there be a petit tekhelet. The Mishnah, however, refers to the ordinary strings with the description “white” (Menahot 38). The Rambam writes that this is because there is no obligation to dye them, implying that any color is acceptable for the “white” strings (Hilkhot Tzitzit 1:1). In this essay we will conform to this convention, so the tzitzit can be said to have two components—white strings and tekhelet strings.

Rashi (s.v. min kanaf) writes that the reason the Mishnah chose the color white is because the tallit is usually white, so the tzitzit are also to be white. Thus, if the tallit is gray, then the “white” strings of the tzitzit should also be gray. The Rambam appears to concur (2:8); see B. Yosef 9 for a discussion of the Rambam’s opinion. The Shulhan Arukh refers to this opinion, although the Rema writes that we insist on white strings for tzitzit regardless of the color of the tallit (9:5). The Ateret Zekenim and the Responsa Bach 24 say that the prophecy of Daniel, who described the image of Hashem as wearing “snow-white clothing” (Dan. 7:9), refers to the tallit and the tzitzit. The Mishnah Berurah thus recommends to have a white tallit with white strings to avoid controversy, and to emulate the “garb” of Hashem.

Tzitzit, loc. cit.). This means that one string is dyed halfway; thus, when folded there are seven white semi-strings and only one tekhelet semi-string.

Although this dispute may appear to be about subtle details only, the Netziv suggests that the very nature of the role of tekhelet is at issue (Ha’amek She’elah, She’elot 127:11). He claims that the Rambam and the Ra’avad share a similar view that is fundamentally different from that of Tosafot. The Rambam and the Ra’avad understand that when the Torah speaks of tzitzit it means the white strings, and not the tekhelet. This position reflects the simple understanding of the pasuk: “They shall make tzitzit upon the corners of their garments forever. They shall place on the tzitzit of the corners a string of tekhelet” (Numbers 15:38). The implication is that the petit tekhelet is attached to the tzitzit, but is not a component of the tzitzit per se.2

On the other hand, Tosafot write: “How do we know that two white strings and two tekhelet strings are required? Perhaps the Torah only required tekhelet for the wrappings, in which case we would have one tekhelet string and three white strings. The answer is that since the Torah mandates both components, logically they should be equal [in proportion]” (Menahot 38, s.v. ha-tekhelet).

From this argument it appears that Tosafot view the role of the tekhelet strings as the same as the role of the white strings. In other words, Tosafot hold that the tzitzit are composed of two equivalent components: white and tekhelet. They derive this understanding from their interpretation of the Gemara, which we will mention below.

The Netziv notes that these conflicting positions—that of Tosafot, who view the tekhelet as a component of the tzitzit, and that of the Rambam and the Ra’avad, who view the tekhelet as separate from the tzitzit—have their roots in a mahalot tannaim between the Sifrei in parshat Shelah and the Sifrei in parshat Ki Tetze. In Shelah,

2. See Rashi, Deuteronomy 32:5, who explains that the word petit connotes winding.
the passage reads “three of wool and the fourth of tekhelet,” which corresponds to the opinion of the Ra’avan, and the Netziv considers this in line with the Rambam’s view as well. In Ki Tetze, the passage reads, “four strings of tekhelet and four strings of white,” in accord with Tosafot.³

SUPPORT FOR TOSAFOT’S VIEW

Structure of the Mishnah

The Mishnah states: “The tekhelet is not indispensable for the white, and the white is not indispensable for the tekhelet. The tefillin on the arm is not indispensable for the tefillin on the head, and the tefillin on the head is not indispensable for the tefillin on the arm” (Menahot 4:1).

The Mishnah refers to two mitzvot, tzitzit and tefillin. In both cases, the Mishnah rules that each of the two components of the mitzvah is independent of the other. Thus, regarding the tefillin, the Mishnah teaches that one who puts on just the shel rosh and not the shel yad has still fulfilled the mitzvah of the shel rosh. Likewise, one who puts on only the shel yad fulfills the mitzvah of the shel yad.

However, regarding the tzitzit, the explanation of this halakha is not as clear. Ostensibly, the most obvious explanation is as presented by Tosafot: “If one attached two strings of one type [tekhelet or white], he has fulfilled [his obligation], just as [the Mishnah] writes regarding the tefillin that [the absence of] the shel yad does not preclude putting on the shel rosh” (Menahot, loc. cit., s.v. ha-tekhelet).

Preserving the parallelism of the Mishnah, Tosafot explain that the Mishnah refers to one who ties only the white strings or only the tekhelet strings. Since Tosafot understand that each part of the tzitzit exists independently, and both parts perform the same function, it is physically possible to do what the Mishnah describes, and attach only the white portion of the tzitzit or only the tekhelet portion of the tzitzit.

However, the Rambam does not, and cannot, explain the Mishnah this way (Hilkhot Tzitzit 1:4). According to the Rambam the tzitzit is all white, and the tekhelet is wound around it. So without any white one cannot attach the tekhelet alone. There is nothing for it to wind around! Thus, the Rambam is forced to give a more complicated explanation of the Mishnah, which forfeits its parallel structure.⁴

The Gemara’s Presumption

The Netziv (loc. cit.) offers a more compelling support for Tosafot, which further refutes the Rambam, from the opening passage of the Gemara that comments upon this same Mishnah. The Gemara remarks that the Mishnah appears incompatible with the position of Rabbi, who rules that without tekhelet the tzitzit is invalid, and without the white strings the tzitzit are invalid (Menahot 38). By suggesting this, the Gemara was taking for granted an interpretation in the Mishnah in which the tzitzit are valid even though no white was attached.⁵ In fact, the Gemara continues by quoting a Beraita in which the opinion contrary to Rabbi’s is phrased: “[The Torah] implies [that] each one [is valid] by itself.” Since this position is possible only according to Tosafot, and not according to the Rambam,

³. There are questions of girsa in this passage; however, our girsa reads as presented.

⁴. The Rambam’s explanation will be discussed further on.

⁵. Consider the lulav and etrog on Sukkot. All four minim are necessary, so even with only one min missing there is no partial fulfillment by taking the others. Contrasting the four components of the four minim with the two components of the tzitzit, our Mishnah comes to state that neither of the two components of the tzitzit—two white strings and two tekhelet strings—depends on the presence of the other to be meaningful.
the Netziv demonstrates that the opinion of Tosefta emerges from
the Gemara.6

**Gardumi Tzitzit**

Although the Shulhan Arukh does not directly address the matter of tekhelet, and so perforce does not render a decision on the dispute of the Rambam and the Ra’aavad with Tosafot, we may be able to infer indirectly what its decision would have been.

The Gemara records a tradition that in some circumstances we allow gardumi tzitzit (Menahot 38). This is the term for tzitzit that were attached properly but later ripped. Although many of the debates surrounding this halakhah are narrow in scope, and find relevance only within the area of gardumin, one prominent dispute among the Rishonim relates to our discussion. Tosafot write that the tzitzit remain kasher, based on the rule of gardumi, only if both white strings or both tekhelet strings are intact (ibid., s.v. ele le-gardumin). Clearly, this is based on their position regarding the mitzvah of tzitzit as described above; namely, that the tekhelet is an independent half of the tzitzit just as the white is an independent half. Thus, the rule of gardumi implies that as long as both halves were initially attached properly and at least one complete half of the tzitzit remains intact, the whole is completely valid.

The other opinion quoted in the Shulhan Arukh is that the rule of gardumi applies to all of the tzitzit strings equally (Orah Hayyim 12:1). This view does not indicate anything about the role of tekhelet, so one can side with either the Rambam or Tosafot and still accept this opinion.

Although the mehaber quotes both opinions in the Shulhan Arukh, he accepts the latter opinion, le-ma’aseh. Thus, we cannot determine what his position is regarding the number of tekhelet strings. However, the Rema writes that we follow Tosafot, indicating that he accepts their position regarding the number of tekhelet strings as well.

**Material Valid for Tzitzit Strings**

Regarding the material of the white strings, the Gemara refers to two derashot (Menahot 39). From one we learn that strings of wool or linen are always acceptable, and from the other we learn that strings of the same material as the tallit are acceptable. Thus, for a silk tallit one can use wool, linen, or silk strings.7 The mehaber

6. To reconcile the Mishnah with Rabbi, the Gemara suggests that perhaps the Mishnah does not mean what we thought; rather it refers specifically to one case: gardumi. This is the term for tzitzit which were attached properly but later ripped. The Gemara records a tradition that in some circumstances we allow gardumi. Based on this halakhah, the Amoraim suggest that Rabbi (who edited the mishnayot) intended the Mishnah to mean that if the tzitzit had been kasher at one time, but now some strings have ripped—whether the white ones or the tekhelet ones—it is still kasher. If this is actually the explanation of the Mishnah, then it can be consistent with the opinion of Rabbi, as well as the hakhamim. However, since the halakhah is against Rabbi, there is no need to understand the Mishnah in this way; rather the simpler, more straightforward way presented above. Therefore, practically speaking, the interpretation of the Mishnah which we accept is, loosely expressed: white strings or tekhelet strings are each adequate to partially fulfill the mitzvah of tzitzit. As mentioned above, the Rambam (Hilkhot Tzitzit 1:4) does not explain the Mishnah this way, even when presenting the normative halakhah. Quoting the Mishnah, he explains ha-tekhelet einah ma’akhevet et ha-lavan as meaning that without tekhelet, the white strings are sufficient (exactly as Tosafot would explain), and ve-ha-lavan eino ma’akhevet et ha-tekhelet as meaning that if the white strings tear off, then the tzitzit remain valid (which is the rule of gardumi). Note that the Rambam explains the second part of the Mishnah as Rabbi does, even though he rejects Rabbi’s position! He was forced to this because there is no way to attach only tekhelet the way he describes. In any event, it is clear that the flow of the Gemara is smoother if we understand the functions of tekhelet and white strings as Tosafot do.

The Netziv attempts to defend the Rambam based on the two passages in the Sifre mentioned above.

7. Regarding attaching linen strings to a silk tallit, there is some controversy as to whether this is proper, but the Gemara does not mention any objection. See Orah Hayyim 9:2 and Mishnah Berurah 108 about this.
writes in the *Shulhan Arukh* that he is unsure whether one may mix strings of wool and silk on a garment of silk (Oraḥ Hayyim 9:4). The Mishnah Berurah quotes from the *Artzot ha-Hayyim* that the mehaber can have no doubts about a case in which two strings on each corner are silk and two are wool, because this could have been the composition if tekhelet were used. The Mishnah Berurah concurs with this argument, indicating that he rules in accord with Tosafot regarding the number of tekhelet strings.

Typically, in a mahaloket such as this, in which the disputants are Ḥakhami Ashkenaz (as represented by Tosafot) against Ḥakhami Sefarad (Rambam and Ra’avad), Ashkenazim follow their tradition, and Sefardim theirs. Curiously, the Gra is quoted as siding with the Ḥakhami Sefarad, although unconvinced whether to follow the Rambam or Ra’avad. Practically, *halakhah le-ma’aseh*, unless one consistently follows the opinions of the Gra, Ashkenazim ought to maintain the tradition of Tosafot to tie two white strings and two tekhelet strings on each corner.

WINDING THE TEKHELET

Nowadays, our custom of winding the longer white string around the other white strings is a remembrance of the original halakhat of tekhelet, so we do not necessarily conform to the instructions found in the Gemara, as mentioned below (Rambam, Hil. Tzitzit 1:10; Tosafot, Menahot 39, s.v. *lo yifḥot*). However, when using actual tekhelet, one ought to be particular to follow the rules as they appear in the Gemara and Rishonim.

Regarding the method of tying the tzitzit, the Gemara (loc. cit.) states:

8. *Ha-Me’ir la-Aretz* 27. However, see also 24. The Artzot ha-Hayyim writes quite a few times that there were two strings of tekhelet (see his Lev ha-Aretz on 2,3). Perhaps one may infer that the mehaber does not hold with Tosafot from the fact that he does not mention the exclusion of the Artzot ha-Hayyim.

What is the size of hulya? A Beraita records: Rabbi says, “Such that he can wind, double and triple.” A Beraita records: One who [is about to] minimize should not [stop with] less than seven, and one who [is about to] maximize should not exceed thirteen: no less than seven, corresponding to the seven strata of Heaven, and no more than thirteen, corresponding to the seven strata of Heaven plus the six regions between.

Further, the Gemara states: “Rava said that we can deduce from that [Beraita mentioned in the passage] that one must make a knot upon [completing] each hulya” (Menahot 38). However, the Gemara rejects the proof from the Beraita.

These two passages contain most of the rules for making tzitzit. Each hulya must have at least three coils, and there is an ambiguous reference to a minimum of seven and maximum of thirteen. Additionally, it is not conclusive whether one must tie a knot after each hulya.

Some Rishonim (Ra’avad 1:7, and end of Tosafot 39, s.v. *lo yifḥot*) understand the numerical limits of seven and thirteen to apply to the number of coils per section (hulya), and this is our custom without tekhelet. However, most Rishonim (Rashi, Tosafot, Rambam) understand the limits to refer to the number of hulyot, not to...
the number of coils per hulya. Regarding each hulya, these Rishonim relate the other passage in the Gemara which mandates three coils in each hulya. Thus, the majority of Rishonim prescribe between seven and thirteen hulyot, each of which has three coils. Although there is no clear consensus about whether knots are required on each hulya, our practice currently is to require knots, so presumably we would maintain this insistence even with tekhelet.

An additional passage of Gemara (Menahot 39) relates specifically to winding tekhelet:

The Beraita records: When one begins, he begins with white, [as the Torah states,] “ha-kanaf [tzitzit]” [implying that the tzitzit must correspond to the] nature of the kanaf [tallit]. When one concludes, he finishes with white, [because of the rule] “We prefer to increase [things] in degrees of holiness, and not reduce [them].”

In other words, we begin to wind the coils with a white string rather than a tekhelet string, and we end the windings with a white string. However, more details are not explicit, and are subject to a mahaloket rishonim.

The Rambam writes that just the first coil and the last coils are white; all of the rest of the coils are tekhelet (Hilkhot Tzitzit 1:7).

The Ra’avad agrees with the Rambam that “first” and “last” refer to the coils (Hilkhot Tzitzit 1:7). However, he understands that each hulya begins and ends with a coil of white, and the coils in between alternate such that there are at least three coils of tekhelet separated by coils of white. So, according to the Ra’avad, each hulya will consist of white, tekhelet, white, tekhelet, . . . white, totaling at least seven coils. The Ra’avad adds that there are four hulyot in each tzitzit.

Tosafot write that each hulya consists of three uniform coils, either white or tekhelet (Menahot 39, s.v. lo yifhot). So the first entire hulya is white and the last entire hulya is white, and the others alternate. Thus, according to Tosafot, the first three coils are white, then the next three coils are tekhelet, then three coils of white, and so on, concluding with a hulya of white.

Practically, since this is not an issue on which there is a decision of halakhah, we ought to follow the most ancient tradition. The Kesef Mishneh (loc. cit.) quotes from the Teshuvot ha-Rambam that the

11. Tosafot (ibid.) require knots, but suggest that they may only be required between pairs of hulyot. The Rambam’s opinion (Hilkhot Tzitzit 1:7) is unclear on this issue. The Ra’avad requires knots, but not the way we make them.

12. See above, n. 11.

13. See above, n. 11.

14. See above, n. 11.
Rabbis of Lunel asked the Rambam how he developed his opinion. He replied that his method was the one described by R. Shmuel ben Hofni Gaon. As such, it seems to be perhaps the most ancient tradition, and therefore the one we should adopt.

CONCLUSION

In general, Ashkenazi traditions rely heavily on Tosafot. Therefore we ought to use two long strings of tekhelet and two long white ones. The tzitzit should be wound following the method of R. Shmuel ben Hofni Gaon: tie a knot and wind one white coil and two tekhelet coils, tie a knot, wind three tekhelet coils, tie another knot, wind three more tekhelet coils, tie another knot, continuing in this fashion until the twenty-first coil, which is white, and end the tassel in a knot.*

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