

## Nature in the Parasha

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### *Parashat Tetzaveh* – The Mystical Turquoise Colored Snail Fish

This week's *parasha* centers around the garments of the Kohanim when serving in the Mishkan (Tabernacle). The exquisite fabric of the garments were woven together from linen, gold and wool dyed in three vibrant colors: *tola'at shani* (crimson), *argaman* (purple) and lastly *techelet* (sky-blue). These colors were produced by different animals or plants. Naturally, it is disputed which animals or plants produce each of these colors. Even the nature of each of the colors is disputed, and my translation is only one possibility.



Until recently, I thought that the *tola'at shani* color was dyed from worms as the Hebrew word *tola'at* means worm. However, Rambam explains that *tola'at shani* is not produced from a worm, but from a vegetable product in which a worm grows (*Hilchot Parah Adumah* 3:2). There is even greater dispute among the sages until this day about the nature of the creature that produces my favorite color: *techelet*. For as long as I can remember, I have always been attracted to this deep mysterious color that reminds us of the color of the sky just before the sun sets. I feel energized in my element when I wear *techelet*, and as those of you who know me can testify, I wear it most often, to the extent that some of you even call me the 'the turquoise Rebbetzin.'

*Techelet*, the ancient biblical sky-blue dye, which adorned the robes of kings, priests, and simple Jews, was lost to the world nearly 1300 years ago. Recent discoveries in the fields of archeology, marine biology and chemistry in conjunction with intense examination of historical and Talmudic sources have identified the source of the dye as the snail *Murex Trunculus*. The mitzvah to wear a thread of *techelet* is once again being fulfilled by Jews. It is very exciting to live in these messianic times when it is possible to keep the mitzvah of *techelet* since Hashem has enabled us to rediscover the creature that produces this exquisite color. As can be expected, not everyone agrees, although it has been verified by extensive research and halachic authorities. I'm happy that the color of *techelet* graces the *tzitzit* (ritual fringes) of both my husband and my two sons.

So how do we know that *Murex Trunculus* is the true source of the biblical *techelet*, and what kind of animal is this *Murex*, chosen for the elevated purpose of adorning the priestly garments and fringes of the *tzitzit* of every Jewish male?

## The *Techelet*-Producing Creature in the Torah and the Talmud

*Techelet* was one of the main materials among the requested donations for the Mishkan as it states, ספר שמות פרק כה (ה) וְהֵם יִקְחוּ אֶת הַזָּהָב וְאֶת הַתְּכֵלֶת וְאֶת הָאַרְגָּמָן וְאֶת תּוֹלַעַת הַשָּׁנִי וְאֶת הַשֵּׁשׁ:  
 “They shall take the gold, the *techelet* (sky-blue), the *argaman* (purple), the *tola’at shani* (scarlet) and the fine linen” (*Shemot* 28:5).

The Talmud classifies the source of the *techelet* dye as a חלזון/*chilazon*. This term refers to a snail like sea-creature with a hard shell. The following Talmudic statement is one of the sources for verifying the research done regarding the identity of the *techelet* producing creature.

תלמוד בבלי מסכת מנחות דף מד/א תנו רבנן חלזון זהו גופו דומה לים וברייתו דומה לדג ועולה אחד לשבעים שנה ובדמו צובעין תכלת לפיכך דמיו יקרים:

Our Rabbis taught, “The body of the *chilazon* resembles the sea [in its color]: in shape it resembles a fish, it comes up once in 70 years and with its blood one dyes *techelet*, and therefore, it is so expensive” (*Babylonian Talmud, Menachot* 44a).

From here, we learn the following six qualifications for rediscovering the source of *techelet*:

- The source of the dye is the *chilazon*.
- The color of its body is like the sea. (Possibly the color of the seabed)
- It is like a fish. (Possibly referring to all sea-creatures reproducing by eggs)
- It comes up once in 70 years. (Possibly a general term for something rare)
- Its blood is used for *techelet*.
- It is expensive.

A seventh qualification is that the snail-fish producing *techelet* derives specifically from the shores of northern Israel as a further Talmudic statement teaches:

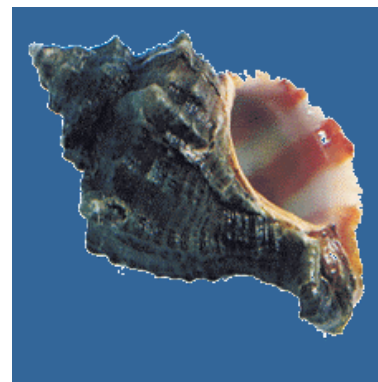
תלמוד בבלי מסכת שבת דף כו/א... צייד חלזון מסולמות של צור ועד חיפה:

“Those who catch *chilazon* from the headland of Tyre as far as Haifa” (*Babylonian Talmud Shabbat* 26a).

From this statement, we can deduce that the natural habitat of *chilazon* was off the shores of what is today northern Israel and southern Lebanon, Phoenicia of ancient times.

### Attempts of Finding Source of *Techelet*

In 1888, the Radzyner Rebbi (Rabbi Gershon Hanoach Leiner) pioneered a quest for *techelet*. He identified the squid (*Sepia officinalis*) as the *techelet* producing creature, and indeed the squid does fulfill many of the Talmudic requirements. It looks like a fish, and in a way we can say that it comes up once in 70 years, as it has cycles when it is in abundance, while it is only available to skilled people with nets who can catch them the rest of the time. The main weakness of this discovery, however, is that it produces black rather than blue ink. The *techelet* color derives from the added chemicals rather than from the squid itself. The Rebbi’s three books on the subject (*Sfunei Temunei Chol, Ptil Tekhelet, Ein HaTekhelet*)



still serve as a basis for *halachic* investigation. Most Breslev chassidim wear *techelet* from the squid to this day.

In 1913 Rabbi Isaac Herzog's doctoral thesis on *techelet* named the *Murex Trunculus* as the 'most likely candidate' for the source of *techelet* – except that, by using contemporary dyeing procedures, its dye was not pure blue. In 1980 Prof. Otto Elsner of the Shenkar College of Fibers in Israel demonstrated that when the reduced solution of *Murex Trunculus* dye is exposed to sunlight, the UV-rays from the sun act to break the bromine bonds. When oxidation occurs in sunlight following the removal of the dyed fabric from the solution, pure indigo bonds to the wool, while the bromine atoms are left in the vat. Subsequently in 1985 Rabbi Eliyahu Tavger, author of *K'lil Tekhelet* succeeded in applying the process of dyeing *techelet* for the ritual purpose of *tzitzit* according to the *Halacha*. He was the first person, since the Arab destruction of the last Jewish vestige in the land of Israel in the 7<sup>th</sup> century, to have produced ritual kosher *techelet*. Finally, in 1993 the *P'til Tekhelet* organization was formed together with R. Tavger, to produce and distribute *techelet* strings, as well as to promote research and educational projects.



### Snail, Worm or Fish?

Let us explore some of the main identifications of the *chilazon*. Rashi on *Sanhedrin* 91a described the *chilazon* as a worm with a shell. While in tractate *Shabbat* 74b and 77b he established that the *chilazon* was a sort of small fish. In his commentary on (*Babylonian Talmud, Avodah Zarah* 28b), Rashi translates *chilazon* as *limace*, which is old French for snail. It is possible to classify a snail that lives in the sea, as a fish. The Vilna Gaon states, "...all that is in the sea is a type of fish in all forms that it has" (*Eliyahu Rabbah* on *Keilim* 10:10). Rabbi Herzog held that the *chilazon* is similar to a worm enclosed in a shell that lives in the sea, which makes it resemble a fish. Even the Rebbe of Radzin wrote that if not for his other proofs on behalf of a squid he would have understood that the simple implication is that the *chilazon* has a shell. The author of *Tiferet Yisrael*, understood that it referred to a snail that lives in the sea. *Murex trunculus* is a medium-sized sea snail, in the family Muricidae, the murex shells or rock snails. This species of sea-snails secretes a mucus that the ancient Canaanites/Phoenicians used as a distinctive purple-blue indigo dye. *Murex trunculus*, like fish, are spawned from eggs. This sea-snail has long been believed to be the source of *argaman* as its dye originally is purple, and only turns sky-blue when exposed to sun, in this way the same creature produces both Temple colors, as it states, "*Techelet* and *argaman* from the isles of Elisha were your awning" (*Yechezkiel* 27:7). Radak commented that this refers to garments dyed with *techelet* and *argaman* deriving from the isles of Elisha. These isles of Elisha are situated by the seashore, most likely by the shores of northern Israel and Lebanon.

## Evidence for Murex Trunculus as the Source of *Techelet*

The majority of observant Jews still do not wear the string of *techelet* in their *tzitzit*. Besides the fact that it is expensive, many are not aware of the evidence that the true source for *techelet* has been rediscovered. Last time someone asked me how we know for sure that we really have found the true source of *techelet*, I couldn't recall many of the points. So I decided to do this review with you, choosing some of the many points that resonated strongest with me.

1. The Talmud states that the *chilazon* is found at the shores of Haifa to Tyre. This is the habitat of Murex trunculus.

2. Digs near Haifa and Tyre in 1882 revealed the remains of a dye factory, which had mounds with thousands of Murex shells (broken to access their dyestuff) (Royal Purple, p.24, p.151-5; Ziderman, p.438; Twerski, p.82).

3. This shell produces a dye that can be converted to a blue indigo dye without much difficulty.

4. The dye of Murex trunculus is chemically identical to indigo (*kela ilan*), a fake *techelet* produced by plant material, which the Talmud states is the same color as *techelet* (*Babylonian Talmud, Menahot* 42b-43a).

5a. The *chilazon* was a shellfish (mollusk) as the Talmud states that one who cracks open (*HaPotzeyya*) a *chilazon* violates the Shabbat (*Shabbat* 75a). The word *potzeyya*, which means to strike with force, only applies to something hard like a shell.

5b. Further proof for the *chilazon* having a hard shell: "Go and learn [about the clothes of the Jews in the desert] from the *chilazon* - all the time that it grows, its shell (*nartiko*) grows with it (*Shir HaShirim Rabbah* 4:11).

6. The sages of the Talmud would surely have been aware of the dyes produced just north of them in Phoenicia. If the dye produced by the Murex is indeed invalid, then, just as the Talmud warned against the use of *kela ilan* (*Baba Metzia* 61b), it would have mentioned the prohibition of using the 'disqualified' mollusk and described the differences between the two species. This proof is solidified by the scrap of sky-blue dyed woolen cloth found at Masada in the 1960s by Yigal Yadin, dating from the Mishnaic period. Its containing of dibromoindigo is a clear indication the source of the dye was Murex trunculus.

7. Dozens of actual Murex trunculus shells were found in digs on Jerusalem's Mount Zion, dating from the Second Temple Period, in a section thought to be the homes of *kohanim*. Point 6 and 7 demonstrate that ancient dyers had developed techniques to produce a sky-blue color from the murex, that murex-dyed wool was available in Israel in the Mishnaic period, and that the Murex trunculus snail was well known in Jerusalem during the second Temple period.

## *Techelet* Revived

Since the land of Israel returned into Jewish hands, keeping the Torah has been infused with renewed life. Various Torah research institutes are being established in the Land, and authentic ways of the Torah are both rediscovered, and reinstated. Today, over 100,000 people wear *P'til Techelet* in their ritual garments. I hope this writing will help bring even more people to consider practicing the mitzvah of *techelet*. Some well-known Rabbis who wear true *techelet* include Rabbi Zalman Nechemia Goldberg, Rabbi Avraham Dov Auerbach, Rabbi Shlomo Dichovsky, Rabbi Amram Opman, Rabbi Simcha Kook, Rabbi Hershel Schachter and Dr. Rabbi Abraham Twerski. Many others wear it privately. In a recent approbation for *Levush Ha'aron*, a book that promotes the use of the *Murex trunculus* for *techelet*,



Rabbi Yisroel Belsky, a prominent **posek** in the U.S. and a leading figure in the OU, writes that the book is, worthy to be disseminated among Torah scholars and can also be relied upon in practice. Unfortunately, there are still those who choose to be suspiciously opposed anything new in their determination against wearing *techelet*. This is in spite of the fact that there is no prohibition in wearing a blue colored thread in the *tzitzit*, even if it turns out that this is not *techelet*, a point made poignantly by the Radziner Rebbe, in his book, *Ptil Techelet*. However, by not wearing *techelet*, a man nullifies a positive mitzvah from the Torah (*Bamidbar* 15:38). So there is nothing to lose but much to gain by taking on the mitzvah of *techelet*. Please tell your husband, sons, nephews and uncles etc. and help return the crown of Torah to its original state! Check out more details and depths on the topics in the following websites:

<http://tekhelet.com/>

<http://www.tekhelet.com/pdf/EpsteinM.pdf>

[http://tekhelet.com/pdf/Tek\\_src97.pdf](http://tekhelet.com/pdf/Tek_src97.pdf)

<http://www.vilnagaon.org/solutions.htm>

<http://www.techelet.info/>

[http://techailes.org/intro\\_general.php](http://techailes.org/intro_general.php)