

Has *Techeiles* Been Found?

While thousands of Jews around the world have recently begun adding what they are convinced is techeiles to their tzitzis, a recent article published in Flatbush and distributed throughout America (Halacha Brurah Volume 9 Issue 2 "The Search for Techeiles") claims that no one "has presented any concrete proof that the Murex techeiles is genuine," and "that there are clear indicators that neither the chilazon nor techeiles have any connection to the Murex techeiles." In this article, the author demonstrates why he feels these statements are entirely baseless.

The possibility of the Murex snail being the *chilazon* of *techeiles* has been under consideration for a considerable amount of time. Until recently almost all rabbis rejected this possibility out of hand simply because the dye of the Murex is purple. We know without doubt from our tradition that *techeiles* is blue¹. In 1983, a startling discovery was made. When the dyeing process of the Murex Trunculus is performed outdoors, the resulting color of the dye is blue². This discovery opened the door to the possibility of being able to perform the *mitzvah* of *tzitzis* במלואו.

The first part of this presentation will focus on the arguments that support the claim that the Murex snail is the renowned *chilazon* from which *techeiles* was produced. The second part will present the arguments against this claim and the answers to these arguments.³

Evidence that the Murex Trunculus is the Chilazon

The major reason for believing that the Murex Trunculus is the *chilazon* is because of the basic characteristics of the dye produced from it, particularly its color. It is recorded in *Chazal* (Menachos 42b-43a) that there existed an exact

¹Rav Herzog in his doctoral thesis written in 1913 suggested that the Murex would be the most likely candidate, except for the fact that it produced a purple dye. This manuscript was later edited and published "The Royal Purple and the Biblical Blue" by Keter 1987. Almost all scholars today agree that the *techeiles* is blue. The Septuagint translation of the Torah translates *techeiles* as *iakanthos*, which is a blue flower, and, at that time the *techeiles* was still being used. Professor I. Zeiderman in *Techumin* Volume 9 presents a paper arguing that *techeiles* is a purple with a bluish shade. However, he also agrees that the Murex was the snail used for *techeiles*. Rabbi Yehuda Rok of Yeshiva Har Etzion in an article חידוש התכלת ועניני ציצית, published in *Techumin* volume 16 brings many proofs that *techeiles* is blue.

²Thus it is possible to produce both purple and blue dyes from the same snail. The ancients knew this also. See Vitruvius *De Architectura* (ed. H.L. Jones), Loeb Classical Library, Cambridge London 1930 Book VII, c. VII-XIV, p113-129. "For it does not yield the same color everywhere, but it is modified naturally by the course of the sun. As we proceed between the north and south it becomes a leaden blue". There were a number Roman Empirical decrees restricting the use of Murex dyes to the nobility (see appendix). We can now understand the Roman decree against wearing *techeiles* mentioned in the Gemara (סנהדרין י"ב) not as an anti-religious decree, but rather due to the fact that *techeiles* was being produced from the same Murex snail as the royal purple dye. Because the snail was becoming extinct (See paper by Susan C. Druding at Seminar presented in Seattle Washington at Convergence 1982 titled "Dye History from 2600 BC to the 20th Century"), the Romans decreed not to wear anything made from the Murex. Without this explanation, one would have said that the Romans made a decree against *techeiles* out of pure anti-semitism without having any understanding why they chose this particular *mitzvah*.

³Interleaved with these arguments will be a response to an article in *Halacha Brurah* Volume 9 Issue 2 called "The Search for Techeiles".

look-alike of *techeiles*, from a plant called *kela ilan*. There is general agreement today, based on many *Rishonim*⁴, that the dye produced from *kela ilan* was indigo. The *Gemara* states clearly that the color of *techeiles* is virtually indistinguishable from *kela ilan*. Since the dye produced from Murex Trunculus has exactly the same color as indigo (the molecule that acts as the coloring agent in both is identical⁵) it is clear that the color of Murex *techeiles* is the true *techeiles* color! However, there is a *Tosefta*⁶ that states that *techeiles* which is not produced from the *chilazon* is *posul* for *techeiles*. Thus, we must also be able to show that the Murex is the *chilazon* of Chazal⁷.

The location of the *chilazon* is known from Chazal (Shabbos 26a) to be between Tzur and Haifa. Additionally, the area is identified as belonging to *Shevet Zevulun*⁸. The Murex is located in this area. In fact, hundreds of yards of Murex shells have been found in this area⁹, where there obviously was an ancient dyeing factory¹⁰. Another characteristic known from Chazal is the fastness of the dye. Both the *Gemara* (Menachos 43a) and *Rambam* (Hilchos Tzitzis 2:1) mention that it is a dye which does not lose its color. The *Gemara* bases its test to distinguish *techeiles* from *kela ilan* on the fact that the *techeiles* dye does not fade. The Murex *techeiles* has been tested by independent fabric inspectors at the Shenkar College of Fibers and received excellent marks for fastness (see footnote 15).

The ability to produce a dye from a specific living creature is a rare occurrence¹¹. It would be a highly unlikely coincidence for there to be in existence two separate dyes of the exact same color produced from two different sea

⁴ נמוקי יוסף ב"מ דף לד בדפי ריף, ערוך קלא אילן- פירוש אינדיקו, רמב"ם פירוש המשנה כלאים ב"ה, שו"ת גאונימ מן הגניזה, מדרש הגדול מתימן.

⁵ See Article "Tekhelet" by Baruch Sterman which describes in detail the chemistry involved to produce the purple dye (dibromide indigo) and the indigo dye.

⁶ תוספתא מנחות טו: – תכלת אין כשרה אלא מן החלזון שלא מן החלזון פסולה, שני התולעת מן חתולעת שבהרים הביא שלא מן התולעת שבהרים פסולה

⁷ There is a possibility that the term *chilazon* here doesn't refer to a specific species but is rather a generic term for any snail. See footnote 24. If so, even if the *chilazon* of the *techeiles* in the *Talmud* does not refer to the murex, it would still be usable for *tzitzis*. The Tiferes Yisroel (Hakdamah to seder Moed) and others go so far as to suggest that as long as any dye is of the proper color and fast it can be used for *tzitzis*.

⁸ רשי דברים לג:ט

⁹ J. Wilfrid Jackson, F.G.S. in an article entitled *The Geographical Distribution of the Shell-Purple Industry*, taken from Volume 60, Part II of *Memoirs and Proceedings of the Manchester Literary and Philosophical Society*, Session 1915-1916, writes that archeologist L. Lortet reported (La Syrie d'aujourd'hui, Paris 1883 page 102) finding in the vicinity of Sidon great banks, a hundred yards long and several yards thick composed of broken shells of Murex Trunculus. H. B. Tristram (The land of Israel, 1882, page 48) reports that large quantities of crushed Murex Brandaris shells were discovered in Tyre. In the article it was reported that large quantities of Murex Brandaris shells were found, which give off a reddish purple dye. In a separate area, large quantities of Murex Trunculus shells were found which give off the bluish purple dye. Scientists thought this was for *techeiles*, but our tradition said it was blue.

¹⁰ The purple and blue dyes produced from the Murex snails were a prized material and were not used exclusively for *Tzitzis*.

¹¹ see www.ancientroute.com/resource/cloth/dye.htm. There it lists ancient dyes, and there were less than 10 ancient dyes. Of those, only one was from a sea animal (Murex), another dye was from an insect, and all others were from either plants or minerals. See Rabbi Twersky (footnote 30) "Encyclopedia Britannica, entry "Dyestuffs and Pigments", mentions 10 to 12 materials that were in use prior to the 19th century."

animals in the same area. Thus, it is highly probable that the Murex is the true *chilazon*¹².

In addition, we do not find in *Chazal* any mention of a *posul* source of *techeiles* besides *kela ilan*. Since the ability to produce a blue dye from Murex snails was known in the time of *Chazal*¹³, if there was a different animal which was the real source of *techeiles*, then *Chazal* would have told us explicitly that the Murex is *posul*¹⁴.

The second argument is from the *Gemara's* statement (Shabbos 75a) that the *chilazon* must be kept alive while the blood is extracted in order for the dye to succeed. A similar property has been discovered in the Murex. In experiments performed on the Murex it has been found that the quality of the dye is severely degraded within two hours after death. The enzyme required for the formation of the dye quickly decomposes upon the death of the snail, and so the dye precursor must be extracted while the snail is alive or soon after¹⁵. In an article written for the Halacha Brurah (See 4) the argument is made, that from this *Gemara* "it is clearly implied that the dye begins to degrade at the moment of death". This may be true, however it is recorded in both Pliny's and Aristotle's descriptions¹⁶ of the Murex that the dye must be obtained from live snails. It is clear the ancients believed (and maybe correctly so given how they extracted the dye) that the Murex must be kept alive while extracting the dye!

The third argument is from literary sources that identify the *chilazon*. *Ravya* in *Brachot*¹⁷ quotes the following Yerushalmi: בין תכלת לכרתי, בין פורפורין ובין פריפינין. *Ravya* then comments: והוא מעיל שקורין בלע"ז פורפירא. The simplest understanding of this Yerushalmi is that it is giving two practical examples of items, one, which has the color תכלת, and one, which has the color כרתי. Based on the explanation of *Ravya*, the *Gemara* is explaining that a commonly used garment, called פורפורין bore the color of *techeiles* that the *Mishnah* spoke of, while פריפינין was the color of כרתי. Thus the *Yerushalmi* identifies *techeiles* with פורפורין. Since *Purpura* is a Greek word that means either the Murex snail or the color purple which comes from it, we have clear evidence that there is a link between the Murex and the color *techeiles*. The article in Halacha Brurah claims that "the supporters have

¹² This argument is not only convincing from a purely logical perspective, but it also has a *halachic* aspect as well. In *Halacha*, identification of an object can be made through סימנים. It can be used to identify lost objects or a deceased husband. An object that has a סימן מובהק ביותר is considered a good סימן מן התורה. A סימן מובהק ביותר is defined as a feature which is found in less than one in a thousand of the general objects עד ס"ק ט"ז. To date, of all the thousands of fish and mollusks that were studied, no other fish has been found that can produce the *techeiles* color. Seeing that the ability to procure a *techeiles* dye from a given fish is an occurrence with a likelihood of one in many thousands, we can consider this property to be a סימן מובהק ביותר that identifies the Murex snail as the true *chilazon*.

¹³ See footnote 2.

¹⁴ We find in סוכה לד that *Chazal* pointed out that the צפצפה is *posul*, and there are additional cases where *Chazal* point out the *psul* of other objects.

¹⁵ Article by Baruch Sterman titled "A response to Dr. Singer's Review of Murex Trunculus as the Source of Techelet".

¹⁶ Pliny The Elder Natural History Book pages IX pages 40-45. Aristotle in Des Animilibus Historia describes the Phoenician dyeing process of the purple dye in detail

¹⁷ ראביה ברכות כה הירושלמי שלנו יש גירסא אחרת בין תכלת לכרתי בין פורפירין ובין פריפינין והוא מעיל שקורין בלשון לעז פורפוריא ויש שדומה לו קצת

purportedly misinterpreted a *Yerushalmi* quoted by the Ravva". Although admitting that פורפירין in the *Yerushalmi* refers to the murex snail, the article holds that the terms פורפירין and פריפנין are not giving examples of cloths colored with תכלת and כרתי, but are rather another comparison of two pieces of clothing with totally different colors. He does not explain what prompts him to change the simple explanation but just states "המעייין היטב יבין האמת". That this new comparison should just happen to be with a material produced from the Murex which can also be a source of the color of *techeiles* would be a coincidence of major proportions. In addition, the Musaf Aruch translates the word פרפר as בגד תכלת.

There are many additional sources indicating that the *chilazon* used for dyeing *techeiles* is the Purpur snail. The *Chavos Ya'ir* living in the 17th century, states that *techeiles* is a purple dye that comes from the Purpur¹⁸. The Halacha Brurah article argues that "the *Chavos Yair* who was under the impression that *techeiles* was purple, came to this conclusion on his own". Precisely so! The *Chavos Ya'ir* was so convinced that *techeiles* was made from the Murex, he was willing to contemplate that *techeiles* was purple despite the fact that this conclusion went against our tradition! Clearly he felt that the evidence in favor of the Purpura was overwhelming. (Other rabbis could not accept this rejection of tradition despite the evidence and thus declared that Purpura could not be the source of *techeiles*). The recent discovery of the possibility of extracting blue dye from the Purpura completely resolved this contradiction between the evidence and tradition.

Rav Avraham Harophe, also living in the 17th century, states explicitly that the Purpura is the *chilazon* of *techeiles*¹⁹. The Halacha Brurah article claims that "Passing halachic rulings based on *kisvei yados* discovered long after the author has lived is itself quite dubious in the eyes of the *poskim*, as the authenticity and integrity of each word is questionable". This generalization is unwarranted. The *Chazon Ish* (brought as support to this statement in the footnotes) was discussing whether one can change examined and accepted texts that have been used for many years, because of newly found *kisvei yad*. The *Chazon Ish* writes that the newly found text might be corrupt and was therefore rejected by previous generations. Therefore, we do not change our established text that was passed down through *Gedolei olam*. All this is obviously irrelevant to our case where we have no previous text at all! In our case the known evidence is consistent with the *psak* in the *kisvei yad*, so why should we question their authenticity²⁰?

¹⁸ חוות יאיר מקור חיים יח:ב. בחידושים כתבתי דם חלזון שבו צובעין תכלת אינו בלוא רק צבע פורפור שנעשה מדם דג שנקרא הדג פורפור עיין ספר לולאות התכלת דף 100

¹⁹ חרב אברהם הרופא פורטאליאני שנת שע"ב בספר שלו על כל עניני מקדש פרק כט והמלה הזאת בלאטה יש לה שתי משמעויות כפי הפרש הלשונות כי בלשון לאטינו רוצה לומר עש האוכל הבגד ובלשון יון רוצה לומר רמש הים הנקרא פורפור והוא החלזון שצובעים בו התכלת עיין בספר לולאות תכלת דף 100

²⁰ One could have possibly brought a different proof from the first letter of the *Chazon Ish* in הלכות where he says that new *kisvei yad* should not be used to change the minority to a majority opinion. However, in this letter he does not question the authenticity of the *kisvei yad*, but rather mitigates the importance of a technical majority of *poskim* for a number of reasons. Firstly, there is no halacha of רוב outside of *beis din*. Thus, each community uses its particular *poskim* even when they are the minority. The known major *poskim* are considered to be the *Rabbanim muvhakim* of *Clal Yisrael* and thus their opinions carry more weight than others even when they are a minority. Also, the personal logic of the present day *Posek* carries weight in deciding which opinion to follow. Secondly, it is

Rav Tevger in his book *K'lil Techelet*²¹ argues that marine biologists have continually searched the Mediterranean Sea for new species of all types of mollusks, and none have been discovered for many tens of years. The likelihood of a new mollusk being discovered is very very low. Considering the fact that we have fit all these characteristics, it is almost certain that we have found the right one!

Arguments against the Murex being the Chilazon

1. The strongest question raised against the Murex being the *chilazon* is that the *Gemara* (Menachos 42b) describes a test to distinguish between the *techeiles* produced by the *chilazon* and the *techeiles* produced by קלא אילן . If placed in a specific combination of substances the קלא אילן dye would be ruined while the *techeiles* would remain intact. The problem is that both the indigo plant and the Murex snail produce the same indigo molecule which is the basis of their dyes. How could they react differently to *Chazals'* test? This problem bothered the original *Talmidei Chachamim* who worked on the Murex. Rav Tevger discussed the issue with Professor Elsner who was an expert on dyeing textiles. The professor stated that despite the fact that the coloring agents of the dyes are identical, there are differences in the makeup of the accompanying substances. In other words, the fastness of a dye is affected not only by the actual molecule that attaches to the fabric and gives it a new color but also by the accompanying substances that assist in attaching the coloring molecule to the fabric - the reduction process²². The Halacha Brurah article claims that "it is highly unreasonable that *Chazal* would make a test that was based on impurities, as the test will vary from batch to batch". But we are not discussing impurities, rather differences in the dying material, albeit not differences that affect the color.
2. The *Gemara* says that the *chilazon* is a דג. Is a snail a דג ? There are several proofs from *Chazal* that the *chilazon* is not a fish, but some sort of mollusk, and most probably a snail. Firstly, the *medrash* says that the shell of the *chilazon* grows with it²³. If it has a shell, then it is a mollusk of some sort.

impossible today to determine the real majority opinion of previous generations, simply because not all poskim wrote their opinions in books and not all books have come down to our hands.

²¹ E. Tevger, *Kelil Tekhelet*, Chemed Press, Jerusalem, 1993

²² Rabbi Twersky quotes a correspondence from Baruch Stermen (footnote 30) "Though we are not one hundred per cent certain, it would appear that snail *tekhelet* and indigo were reduced in different ways. *Tekhelet*, since it comes from a snail, may have been reduced chemically using lead and tin pots with the sulfuric reducing agent found in the glands of the snails. (This seems to be what Pliny describes). Indigo, on the other hand, comes up from a plant and has no proteins or sulfur compounds. Up till a few years ago in America, and still in some African countries, indigo is reduced by fermentation, using Bran, madder and sugars to cultivate the bacteria necessary to reduce the dye. These differences may have had something to do either with the way that the dye adhered to the wool, or perhaps to some extraneous chemicals found in the dyed wool (maybe in the snail *tekhelet*, or just possibly in the plant indigo). Baruch Stermen quotes Nobel Chemist Professor Roald Hoffman that the proposition that the fastness of the two dyes may be different depending on the method of extraction is plausible (footnote 15).

²³ פסיקתא דרב כהנא יא: כא אמר להם חלזון הזה כל זמן שהוא גדל עמו נרתיק גדל עמו

Secondly, the word *chilazon* normally means snail²⁴. Thirdly, the Ran²⁵ says that the *chilazon* used for *techeiles* has a גוף אטום with no bones and is a slow moving sea creature. The *Ritvah*²⁶ and his *Rebbe* (presumably the *Ra'ah*) describe the *chilazon* in the same terms as the *Ran*. This means that it is the *chilazon* that is a snail. Therefore, since the *chilazon* is referred to as a דג, we see that all these *Rishonim* hold that a snail is a דג. For more proofs that the snail is considered a fish in other areas of *halacha*, see footnote 15.

3. The *Gemara* (Shabbos 75) clearly states that it is considered צידה to capture a *chilazon*. The question arises, how can there be צידה on an animal like a snail that can be taken בשחיה אחת²⁷? Rav Shlomo Fisher uses this argument to dismiss the Murex *techeiles*²⁸. Nonetheless, the four major *Rishonim* just quoted above must hold that a slow moving mollusk can be צד חייב משום צד. We find in Rashi²⁹ that צידה is anything where one requires tricks or strategies to catch an animal. The Murex snail burrows itself into the sand, at times, and even people using scuba diving equipment have a very hard time catching these snails since they blend in with the background. In fact, fishermen today use nets with traps to catch them. What these *Rishonim* hold is that when you need tricks to trap the animal it is not considered בשחיה אחת.

4. The *Gemara* (Menachos 44) describes the *chilazon* as גופו דומה לים. The color of the Murex shell is not the color of the sea, so how can it be the true *chilazon*? The supporters explain that the color of the *chilazon* is the same as the color of the seabed upon which it lies when living in the ocean³⁰. Only after being taken out of the ocean and drying out do the shells turn a whitish color. The different color of the snail while still in the ocean is probably due to algae that attach to its shell when alive. This provides it with a perfect camouflage. The Halacha Berurah article argues that “even if one were to argue that it can also refer to the shell since this is what first meets a person’s eye, it is unreasonable to extend this untenable idea to also include foreign organisms such as algae that become attached to it. *Chazal* would not refer to it as gufo, but would have been more descriptive”. First of all, any scientist or layman would definitely consider the shell of a snail that grows with it, to be part of its body. Calling this position “untenable” is completely unwarranted. With regard to the algae that attach to the shell, it must be understood that these algae are firmly imbedded in the shell. It is not something that can easily be washed or scraped off. Rashi defines “gufo” as מראה גופו - the “look” of its body. Even if we consider the algae as apart from the snails’ body, we can still say that the Murex looks like the sea due to the algae attached to it. Any observer of a live *chilazon* would consider the color of its shell to be blue-green.

²⁴ ערוך השלם "חלזון של משנה-והוא שם כולל למיני שבלול וחומט ובעל גרתיק הגדל בים) והוא מדבר על חלזון של תכלת), רשי-ע"ז כח: ד"ה משקדי חלזוני, לימע"ץ בלע"ז, וכן חזקוני ויקרא יא:ל חמט-לימצין בלע"ז, For full discussion see

לולאות תכלת דף 88-011

²⁵ חידושי רן שבת קז

²⁶ חידושי ריטבא הוצאת מוסד הרב קוק דף עה

²⁷ רמב"ם הלכות שבת י:כ

²⁸ Heard from him personally in private discussion.

²⁹ רשי ביצה כד

³⁰ Rabbi Chaim Twersky “Identifying the Chilazon” Published in Journal of Halacha and Contemporary Society NUM XXXIV, Fall 1997

5. The *Gemara* (Menachos 44) relates that the *chilazon* comes up out of the sea once every 70 years. This phenomenon has not been observed by the Murex snail, so how can it be the *chilazon* of Chazal³¹? First of all, it is clear from the *Gemara* (Shabbos 75) that in addition to coming out of the sea every seventy years it was also hunted with normal methods at other times. There are those who say that the coming out once every 70 years was a supernatural occurrence³². If so, it is reasonable that בזמן הזה this miracle does not occur. In fact, the Radvaz³³ explains that this phenomenon only occurred during the time of the first *Beis Hamikdash*. At the time of the exile this special occurrence stopped, and from that point on the *chilazon* was trapped **only** with normal methods. Alternatively, if we understand the coming out of the *chilazon* to be a natural event³⁴, then it is possible that changes in ocean conditions and/or the drastic reduction in the quantity of the Murex snails in the area³⁵ caused this event to cease.
6. The *Medrash Tanchuma* relates that the *techeiles* was נגנו³⁶. Is it possible to reinstate a mitzvah that was נגנו?³⁷ Radvaz³⁸ and Maharil³⁹ both say that *techeiles* is theoretically available and one need only identify and find the *chilazon* in order to reinstate the *techeiles*⁴⁰. Additionally, the *Raavad*⁴¹ records exactly how Rav Natrunai Gaon would tie his *techeiles*. Rav Natrunai is clearly referring to something actually performed in his day since he says about a particular detail ונהג לעשותו. Therefore, we know that *techeiles* was still extant at around 850CE - 100 years after the *Tanchuma* was completed. Exactly what the word נגנו means is now unclear, since *techeiles* was still extant after that time.

Wearing *techeiles* as a *safek*

Assuming that murex *techeiles* has the status of *safek*, there is a question whether the rule of ספק דאורייתא לחומרא applies or not. The Halacha Brurah article states that "Quite a number of poskim maintain that there is no requirement to perform a *mitzvah* with an item regarding which there is a doubt whether one can fulfill a mitzvah with it." However, the Ran⁴² says that if one has not done the *mitzvah* of *lulav* and it is *bein hashmoshos*, one should do the *mitzvah* without saying a

³¹ See Rav Herzog, The Royal Purple p. 69

³² חידה פתח עינים מנחות מד

³³ שו"ת רדב"ז סימן תרפ"ה

³⁴ The Radzhiner Rebbe and Rav Herzog have suggested that 70 years is not meant as a precise number, but rather means that the *chilazon* would come out of the sea at infrequent intervals.

³⁵ The Murex snail is currently considered an endangered species in Israel.

³⁶ מדרש תנחומא במדבר רבה פרשת שלח יז:ה

³⁷ This question has been an issue ever since the Radziner Rebbe started looking for the lost *chilazon*. For full discussion see Lu'laos Ha'tcheiles p.19-35.

³⁸ שו"ת רדב"ז תשובה תרפה

³⁹ שו"ת מהרי"ל החדשה מכון ירושלים 2:5

⁴⁰ These two *Poskim* clearly disagree with the opinion (said in the name of the *Beis Halevi*), that even if we knew what the *chilazon* is, we would not be able to use it because of the lack of *Masorah*.

⁴¹ ראבד על הרמבם הלכות ציצית פרק א:ז

⁴² מובא בב"י א"ח ס' תרס"ה מ"א ס' תרנ"ב משנה ברורה שם ס"ק ב (ושאר אחרונים)

bracha since it is a doubt. Rav Shlomo Miller⁴³ in a previous article addresses this point with the following argument.

במצה שמחייב בתורת ודאי יש לפניו אופן לקיימו מספק ואחר שיקיים מספק עדיין נשאר מחוייב בדבר סד"א לחומרא א"כ ליכא חיוב מה"ת לעשות דבר שאף אחר עשייתו נשאר החיוב לעשות מוטל עליו ואינו דומה כלל לדברי הר"ן דבבהש"מ יש חיוב מספק וע"י עשייתו הוא פוטר עצמו מן החיוב ולא נשאר שום חיוב עליו

I disagree on several counts. Firstly, even if you accept the distinction made by Rabbi Miller, in the case of murex *techeiles* you have done as much as possible to perform the *mitzvah* because there is no better candidate for *techeiles* that we know of. Thus, after tying murex *techeiles* no חיוב remains. Secondly, the *Mishnah Brurah*⁴⁴ brings down a *Pri Megadim* that if one has *tefillin* that have fallen in water, there is a *safek* whether you can accomplish the *mitzvah*, and one should put them on without a *bracha*. This is exactly an analogous case to the murex, and still the *Pri Megadim* and *Mishnah Brurah* say to perform the *mitzvah* even though there is a *safek*! Lastly, his distinction is made without any proof from a primary source. The *acharonim* bring down the Ran without making any distinctions.

Two additional reasons are given by the Halacha Brurah article for not wearing murex *techeiles*. A) According to *Kabala* one should not wear *techeiles* made from indigo⁴⁵. B) "Halacha mandates that *lechatchila*, unless genuine *techeiles* is being used, *tzitzis* should be the same color as the garment"⁴⁶. Clearly, both of these reasons only apply if we are already convinced that murex *techeiles* is not authentic. If we consider murex *techeiles* to have a good chance of being genuine, then the possibility of fulfilling this great mitzva overrides these considerations

Summary

In summary, we have found a sea creature with many of the critical characteristics of the *chilazon* recorded in Chazal. It produces the proper color. And we know of no other animal that can do the same.

APPENDIX

An approximate timeline of significant events is described so that the reader may get some perspective when some of the main events occurred. Most of the following information has been taken from the Timeline in the site www.tekhelet.com

⁴³ מכתב מרב מילר לדר זינגר יום ב' לפרשת ויחי תשס"ד על דעתו במורקס לגבי תכלת

⁴⁴ א"ח ס' ל"ט משנה ברורה ס"ק כו

⁴⁵ The article presumes that *techeiles* which is made from the murex has the same status of *kela ilan* as far as *kabala* is concerned. This assumption is arguable. In general, the role of *kabala* in *Halacha* needs its own discussion, which is beyond the scope of this article

⁴⁶ This statement is in itself questionable. The *מא* in רמא actually writes that one should wear white *tzitzis* even if the garment is colored.

1. 1750BCE The archaeological evidence now available suggests that the origins of the purple and blue dyeing industry can be traced to Crete. This implies that the *techeiles* was well-known at the time the Torah was given.
2. 1200 BCE- circa 1200 BCE- Chemical analysis of an ancient vat at Tel Shikmona are found to be molecularly equivalent to dye from Murex snails.
3. 1200-900 BCE- The vat from Tel Shikmona, together with various other archeological finds at numerous sites reveal an advanced dye industry using Murex snails established on the Canaanite coast.
4. (100BCE-68CE)-Caesar(100-44BCE)and Augustus(63BCE-14CE) restricted the use of dyes to governing classes. Nero(37-68)CE) issued a decree that gave the emperor exclusive right to wear purple or blue garments.
5. 300CE- 337-383-Under Coastatinus(337-362 the restrictions against the use of *techeiles* were strictly enforced. An edict by Gratian, Valentinian and Theodosius made the manufacture of higher quality purple and blue a state monopoly.
6. 500CE –The talmud tells of *techeiles* being brought from Israel to Babylonin the days of Rav Achai(506)- This was the last positive indication of the use of *techeiles* .No reference to its discontinuance is mentioned in the talmud.
7. 639CE The Arab conquest of Israel is suggested to have brought an end to the snail source dyeing in Israel.
8. 750CE The Medrash Tanhuma(750) laments “and now we no *techeiles* , only white”.
9. 1500CE- Guillaou, Rondelet(d. 1566) was the first to identify Pliny’s *purpura* with the species Murex Brandaris. Fabius Columna(1616) suggests Murex Trunculus as having been utilized in the ancient dyeing process. William Cole(1681) noted that a colorless fluid in the hypobranchial gland of mollusks (*purpura lapillus*) found off the coast of Britain was converted to a red color on exposure to light, thus revealing the sensitivity of mollusk-based dye to light.
10. 1857-French zoologist Henri de Leaze-Duthiers discovered three dye producing snails in the Mediterranean. Murex Brandaris, Murex Trunculus, and Thais Haesmastoma.
11. 1864-At Sidon (hundreds of yards long and several yards deep) of Murex Trunculus shells of snails were found. The shells were broken at the spot that gives access to the glands from which the dyestuff is obtained. At some distance a separate and distinct massive mound of Murex Brandaris and Thais Haemastoma was found. Since a reddish purple dye is most readily obtainable from the Murex brandaris and Thais haemastoma as opposed to the bluish-purple obtained from the Murex Trunculus, Egyptologist A. Dedekind(1898) viewed this as undeniable proof that the Murex Trunculus was the snail used for *techeiles* and the others for *argamon*(purple or reddish purple). Rav Herzog concurred.
12. 1888-Rabbi Gershon Henoch Leiner pioneered a quest for *techeiles* which led to the isolation of a certain type of squid as its source. Subsequent analysis of the dye revealed that the source of the blue color did not come from the fish, but rather ingredients which were added, and not from the squid. The Rebbe did the pioneering work on *techeiles* on which all subsequent investigation has been based.
13. 1919- German scientist Paul Friedlander identified the chemical structure of the purple dye from the Murex snail as being dibromide-indigo.

14. 1983 Professor Otto Elsner from the Shenker College of Fibers in Israel and Ehud Spanier of Haifa University discovered the secret of producing a pure blue color (indigo)