

Ramban's Anatomic Description of the Visual Pathway for the Placement of Tefillin of the Head

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This article proposes that Ramban, Moshe son of Nachman (1194–1270; see *Appendix A* for background on Ramban and *tefillin*),¹ used his knowledge of the visual pathway in his explanation of the word *totafos*, *tefillin* of the head. There is no comprehensive analysis of Ramban's explanation of *totafos* as an anatomical reference. This article will show that Ramban had access to Greek medical textbooks, which contained knowledge of the pathway of the nerves for the eyes. With the knowledge of anatomy, we can better understand Ramban's comments on *tefillin* in Exodus 13:16.

Ramban discusses the placement of *tefillin* of the head, on the top of the head, over the roots of the eyes where vision is, ששם שרשי העינים ומשם יהיה הראות. Ramban explains that by placing the head *tefillin* over the roots of the eyes, we fulfill the Torah's literal meaning of “between the eyes.” *Appendix B* describes a manuscript of Ramban with a word substitution that further supports the anatomical explanation of *tefillin*. Today, we identify the root of the eyes as the optic chiasm, the structure where the optic nerves from the right and left eyes join together. Ramban uses anatomy to defend the oral tradition's instruction to wear the *tefillin* on top of the head instead of the literal understanding between the eyebrows.

¹ <https://en.wikipedia.org/wiki/Nachmanides>

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Rabbis in the 1800s understood that Ramban was incorporating anatomy into this comment on *totafos*. Rabbi Yitzchak Dov Bamberger (1807–1878), in his work *Melech Shamayim*,² explains that Ramban refers to the optic chiasm. While discussing Ramban’s explanation of *tefillin*, he notes: “The roots of eyes: So wrote Ramban in *Parashas Bo* and he intends that the nerves of the eyes exit the brain forming an X, from the right to the left and the left to the right and travel into the holes of the eyes.” He cites *Magen Avos*, written by Rabbi Shimon ben Tzemach Duran (Tashbetz), who lived in Barcelona (1361–1444)³, as support that Ramban is discussing the optic chiasm. While Rabbi Duran in *Magen Avos* describes the optic chiasm, he does not connect the optic chiasm to the *tefillin* of the head or Ramban. Recent books such as *Tefillah Le’Moshe*⁴ and *30 Days to Bar Mitzvah* cite Rabbi Bamberger.⁵ Appendix C shows Rabbi Moshe Schreiber, Chasam Sofer (1762–1839) understood Ramban’s wording as referring to the optic chiasm.

Ramban’s Commentary on the *Tefillin* of the Head

Ramban⁶ explains in Exodus 13:16 in the subject heading *totafos* that the fundamental reason for *tefillin* of the arm and head is that we are to place a written remembrance of the Exodus from Egypt on the arm and head, respectively opposite the heart and the brain, which are the seats of human thought.⁷ He quotes Rabbi Abahu,⁸ who explains that “A טוטפות (*totafos*) is an ornament that surrounds the head from ear to ear.”⁹

Later, in the same comment, Ramban discusses why the Torah changed the description from “a remembrance (זכרון/*zikaron*) between

² Yitzchak Bamberger, *Melech Shamayim* (1853).

³ Shimon Duran, *Magen Avos* (Haktav Institute, 2016) 3:4. 360.

⁴ Aharon Lopiansky, *Tefillah Le’Moshe*, 17:12, footnote 22, 329.

⁵ Dovid Gross, *30 Days to Bar Mitzvah* (Judaica Press, 2011), 50-53. Personal communication email May 2022.

⁶ Exodus 13:16, subject heading *totafos*.

⁷ Ramban continues: “And the purpose of this [as Ramban explained above on verse 9], is to remember the Exodus always—which will ultimately result in the faithful observance of God’s commandments. It is because the wearing of *tefillin* causes us to remember that He redeemed us from bondage to the Egyptians, and consequently became our Master, Whose will and commandments we must obey. By being ever mindful of the Exodus, we will speak about our Master’s Torah always, leading us to observe its commandments and teachings.”

⁸ *Shabbos* 57a.

⁹ Ramban (ArtScroll, 2006), 2a. 293.

the eyes”¹⁰ in the verse that discusses *tefillin* the first time, to “a *totafos* between the eyes”¹¹ the three subsequent times *tefillin* are mentioned in the Torah. *Zikaron* is remembrance, and *totafos* is a head ornament. *Zikaron*, *totafos*, and *bein einecha* all provide clues to the placement of the *tefillin*.

Ramban explains the connection between *zikaron* and the eyes:

ואמר ולזכרון בין עיניך, שיונחו במקום הזכרון בין העינים שהוא ראשית המוח, והוא תחלת הזכרון ומעמד הצורות אחרי הפרדן מלפניו, והם מקיפים את כל הראש ברצועותיהם, והקשר שהוא על אחרית המוח המשמר הזכירה ולשון בין עיניך שיהיו באמצעות הראש לא מצד אחד, או ששם שרשי העינים ומשם יהיה הראות. וכן ולא תשימו קרחה בין עיניכם למת, ולפרש זה חזר ואמר ולטוטפות לבאר שאין המצוה בין העינים למטה, אבל בגובה הראש מונחים שם כטוטפות ואמר לשון רבים שהם בתים רבים כאשר קבלנו.

ArtScroll's translation ¹²	Anatomic translation	Ramban
[Scripture] states (v. 9) and for a reminder between your eyes , teaching us that [the head <i>tefillin</i>] should be laid on the place of man's memory, between the eyes, which is the front of the brain;	[Scripture] states (v. 9) and for a reminder between your eyes , teaching us that [the head <i>tefillin</i>] should be laid on the place of man's memory, between the eyes, which is the front of the brain [<i>frontal lobe</i>];	ואמר ולזכרון בין עיניך שיונחו במקום הזכרון בין העינים שהוא ראשית המוח
And that place is the beginning of one's memory, the location for preservation of images of the things after the departure of [those things] from before him.	And that place is the beginning of the [<i>organization of visual/optic chiasm, 3 in fig 4.</i>] remembrance, the location of images after the separation [<i>into the individual eyes and optic nerves, 1 in fig 4.</i>] from before him [<i>visual field</i>].	והוא תחלת הזכרון ומעמד הצורות אחרי הפרדן מלפניו
And [the head <i>tefillin</i>] encircle the entire head with their straps	And they [<i>the images</i>] encircle the entire head in their straps [<i>optic tracts which become optic radiations, 4-6 in fig 4.</i>]	והם מקיפים את כל הראש ברצועותיהם
and the knot, which is positioned over the back of the brain, which preserves the memory long term	and the knot, which is positioned over the back of the brain [<i>occipital lobe/primary visual cortex, 7 in fig 4.</i>], which preserves the memory	והקשר שהוא על אחרית המוח המשמר הזכירה

¹⁰ Exodus 13:9.

¹¹ Exodus 13:16.

¹² Ramban (ArtScroll, 2006), 2a. 292-301. This segment comes from 295. Bolded words are a direct translation. Non-bolded words were added by the ArtScroll editor to elucidate the translation.

The expression <i>between your eyes</i> teaches that [the head <i>tefillin</i>] should be placed in the middle of the head, not to one side	The expression <i>between your eyes</i> teaches that [the head <i>tefillin</i>] should be placed in the middle of the head, not to one side	ולשון בין עיניך שיהיו באמצעות הראש לא מצד אחד
Alternatively, that area in the middle of the top of the head is called " <i>between the eyes</i> " because the roots of the eyes are there, and from there is derived the power of vision.	Alternatively, that area in the middle of the top of the head is called " <i>between the eyes</i> " because the roots of the eyes are there [<i>optic chiasm, 3 in fig 4.</i>], and from there is vision.	או ששם שרשי העינים ומשם יהיה הראות
And so the verse <i>You shall not make a bald spot between your eyes for a dead person</i> (Deuteronomy 14:1) is to be understood.	And so the verse <i>You shall not make a bald spot between your eyes for a dead person</i> (Deuteronomy 14:1) is to be understood.	וכן ולא תשימו קרחת בין עיניכם למת
And to elucidate this (i.e., the proper meaning of "between your eyes" in verse 9) [Scripture] continued and stated in a later verse and for <i>totafos</i>	And to elucidate this (i.e., the proper meaning of "between your eyes" in verse 9) [Scripture] continued and stated in a later verse and for <i>totafos</i>	ולפרש זה חזר ואמר ולטוטפות
To make clear that the commandment is not to place the <i>tefillin</i> below, between the eyes, but on top of the head, placed there like <i>totafos</i> —ornaments.	To make clear that the commandment is not to place the <i>tefillin</i> below [<i>like the Karaites and Sadducees who rejected the oral tradition</i>], between the eyes, but on top of the head, placed there like <i>totafos</i> —ornaments.	לבאר שאין המצוה בין העינים למטה, אבל בגובה הראש מונחים שם כטוטפות
And furthermore, [Scripture] stated " <i>totafos</i> " in the plural form because they are several compartments that make up the head <i>tefillin</i> , as we have received through tradition.	And furthermore, [Scripture] stated " <i>totafos</i> " in the plural form because they are several compartments that make up the head <i>tefillin</i> , as we have received through tradition.	ואמר לשון רבים שהם בתים רבים כאשר קבלנו

Ramban's Description of the Visual Pathway

Ramban provides three explanations to reconcile "between your eyes" and the placement of *tefillin* on top of the head.

1. The placement of *tefillin* over the roots of the eyes where vision is.
2. The Gemara's *gezairah shavah* from the prohibition of pulling out hair between the eyes when mourning.
3. The definition of *totafos* as a head ornament.

In the first explanation, Ramban provides an anatomical description connecting the placement of the *tefillin* of the head to the visual pathway and visual memory. Ramban specifically uses the term "המוח," brain. Furthermore, when explaining the literal definition of the term "בין עיניך",

he connects structure and function "ששם שרשי העינים ומשם יהיה הראות" (roots of the eyes that there is the vision). He provides four clues to determine anatomy.

Ramban's Description	Purpose	Optic Chiasm
A structure in the brain/המוח	where	In the brain
Between the eyes/בין עיניך	coordinate	Directly behind the area between the eyes
Roots of the eyes/שרשי העינים	structure	Joining of the two optic nerves
There is vision/ומשם יהיה הראות	function	vision

The optic chiasm¹³ of the visual pathway fulfills all four clues.¹⁴ The optic chiasm is where the optic nerves of the left and right eyes join together, fulfilling the clue of the roots of the eyes, and the vision function. The location of the optic chiasm is on the underside of the brain's frontal lobe. It is on the level of the eyes and under the anterior fontanelle. *Menachos* 37a says that the soft spot of the baby's head, the anterior fontanelle, is the anatomic marker for the location of the *tefillin* of the head. (See Figures 1 & 2: MRI of the brain.). With this cipher, we can now decode the rest of Ramban.

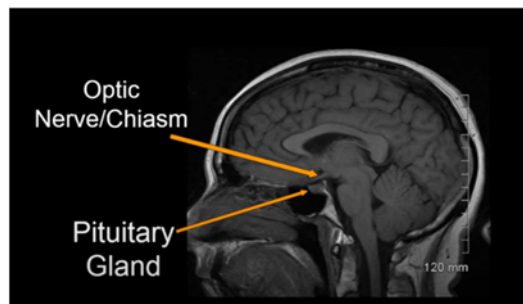


Figure 1: MRI of the brain. The location of the optic chiasm is midline on the level of the eyes under the anterior fontanelle. (public domain)



Figure 2: MRI of the brain, demonstrating the pathway of the optic nerves from the eyeballs to the optic chiasm. The nerves are on the brain's underside. Anatomic dissection readily reveals the optic nerves and chiasm. (public domain)

¹³ Latin; in sense 1, from chiasma, from Ancient Greek χιάσμα (khasma); in sense 2, from chiasmus, from Ancient Greek χιάσμος (khasmos “crossing, diagonal arrangement”).

¹⁴ Yitzchak Bamberger, *Melech Shamayim* (1853).

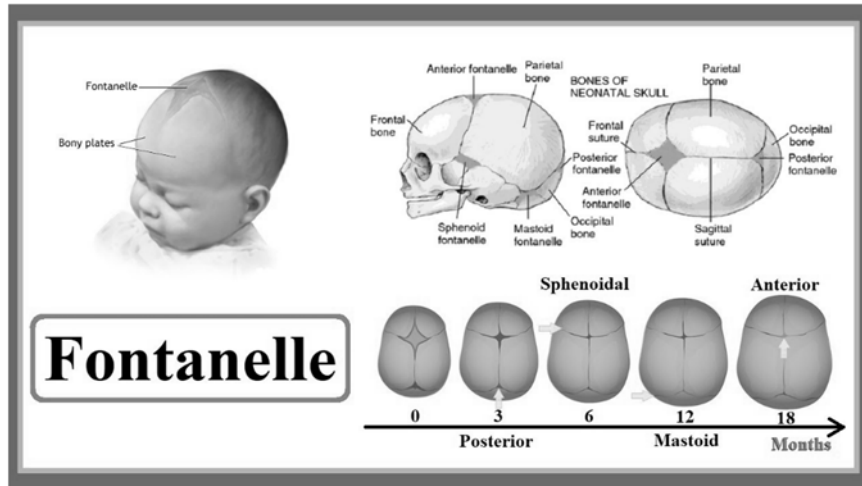


Figure 3: *Adam's Atlas* showing all the fontanelles. *Menachos 37a* states that the tefillin of the head is placed on the *kadkod*, which Rabbi Yannai's Academy said is where an infant's skull is soft. (public domain)

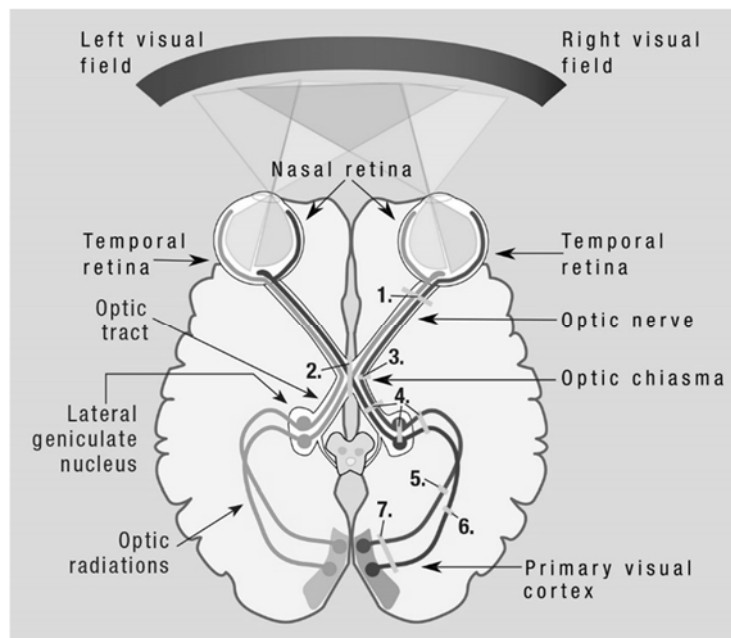


Figure 4: Complete visual pathway demonstrating the course of the optic nerves after they leave the optic chiasma, split into optic tracts traveling to the left and right, encircling within the cerebral cortex of the brain in optic radiations and terminating on the occipital lobe (primary visual cortex) on the posterior aspect of the brain. (public domain)

Referencing the pathway in Figure 4, Ramban describes the visual pathway as we know it today. The image in front of us [visual field] separates [between the left and right optic nerves (1) and joins together] at the root of the eyes where vision is [optic chiasm (3)] in the front part of the brain. [The visual data begins, *tehilas hazikaron*, to be organized there.] The images encircle the brain in straps (4-6) [to the occipital lobe, the primary visual cortex, (7)] where the knot is placed on the back of the brain [occipital protuberance, the location for the conversion of visual data into images] where visual memory is preserved. This completes the initial stage of visual processing. The function of memory is complex, and multiple parts of the brain are involved in its processing and storage.

Ramban read Greek medical textbooks, which had descriptions of the optic chiasm and he references Greek medical textbooks in his essay *Toras Hashem Temimah*. In 1263, Ramban won a disputation with Friar Pablo Christiani hosted by King James of Aragon. On a Shabbos soon after the disputation, the Church and the king delivered a sermon in the Barcelona synagogue, attempting to proselytize the Jewish community. Ramban gave a rebuttal sermon, *Toras Hashem Temimah*, on the subsequent Shabbos. Elements of this essay are almost identical to a section of the comment on *totafos*. Ramban states regarding a different scientific point “as has been described by the Greeks in their medical textbooks.”¹⁵ Ramban’s own writing attests to his familiarity with Greek medical knowledge.

Ramban’s Student: Rashba on *Tefillin Shel Rosh*

Rashba, Rabbi Shlomo ibn Aderet (1235–1310) was a student of Ramban. He writes that the word *Ein* is used three ways.¹⁶ The first is literal: the vessel of vision. The second is metaphorical (*Yechezkel* 1:22 and *Sota* 11b). The third refers to *hashgachah* and remembrance, like the saying that something “should not leave your eyes” (*Mishlei* 3:21). He elaborates on the vessel of vision:

כלי הראות ששם מקום הנחתם ר"ל על שורשי העינים שהוא ראשית המוח והוא
על הפנים.

The vessel of vision, that there is the place they are laid. To say: on the root of the eyes, which is in the front of the brain and that is on the face.

Rashba uses his teacher’s words and explains that the first explanation is a concrete biological description, that the *tefillin* are placed on the root of the eyes, which is found by the front of the brain.

¹⁵ Charles Chavel, *Kisvei HaRamban* (Mosad HaRav Kook, 1962), volume 1, 160. See footnote 26 there.

¹⁶ *Chidushei Aggados Berachos* 7:1.

והם מקיפים את כל הראש ברצועותיהם And they encircle the entire head in their straps.

It is unclear what Ramban meant when he wrote **והם מקיפים את כל הראש ברצועותיהם**. The subject of the paragraph is “*zikaron*/memory,” repeated four times. The pronoun “they” could refer to the *totafos/tefillin* or the images. ArtScroll and Chavel believe that “they” refers to the head *tefillin*: “And [the head *tefillin*] encircle the entire head with their straps.” The prefix “ב” is translated as “with” instead of “in.”

Another potential explanation is that Ramban continues to describe the visual pathway after the optic chiasm. The “they” would refer to the last stated noun, “images.” Here Ramban is using the word “straps” to describe the “optic tracts,” which become “optic radiations.” The prefix “ב” is then translated literally as “in.” The statement would then mean, “And they [the images] encircle the entire head in their straps [optic tracts which become optic radiations].” In the time of Ramban, the optic tracts were known, but where the optic tracts continued was not known. Ramban could have known this through his knowledge of the Torah and medicine. We do not have any documented evidence that the understanding of optic radiations existed in the time of Ramban. Four hundred years after Ramban’s death is the first known description in the medical literature of the optic radiations leading to the occipital lobe by Raymond Vieussens.¹⁷

Why Ramban’s Connecting *Tefillin* of the Head to the Optic Chiasm Is Significant

Ramban writes that his explanation of between the eyes “makes clear that the commandment is not to place the *tefillin* below, between the eyes, but on top of the head, placed there like *totafos*—ornaments.” Integrating the concepts of *totafos*, *zikaron*, and *bein einecha* with the optic chiasm provides a literal understanding of “between the eyes” that defends the oral Torah against the groups that refuse to accept its authority. Until Ramban’s anatomical explanation, the explanation of the words *bein einecha* was that the Torah has an internal consistency in its use of phrases (*gezzeirah shavah*). The Torah uses the phrase *bein einecha* to describe the location for the prohibition of pulling out the hair between the eyes during mourning. The Gemara explains that *bein einecha* refers to a place where hair is between the eyes, at the top of the head. Since the Torah employs the exact phrase

¹⁷ C.F. Costea, T. Serban, C. Buzdugă, A. I. Cucu, G. F. Dumitrescu, A Sava, M. D. Turluc, *The History of Optic Chiasm from Antiquity to the Twentieth Century*. Childs Nerv Syst (2017) 33:1889–1898.

of *bein einecha* here (*gezeirah shavah*), the oral tradition teaches that it refers to the same place. In the absence of the *gezeirah shavah*, the simplest explanation would be to wear the head *tefillin* between the eyebrows. Factions of Jews called Sadducees and Karaites rejected the oral tradition and understood the Torah according to the literal interpretation of the text. They interpreted the placement of *tefillin* as between the eyebrows. See the footnotes below for Ramban's strong disdain for the Sadducees and Karaites.^{18,19} Ramban's explanation of the optic chiasm refutes their literal interpretation.

In the next paragraph of his commentary, Ramban continues to show the significance of *tefillin* as a remembrance of the involvement of G-d in the world. Ramban describes how idol worship evolved and how the Exodus from Egypt corrected this theological mistake. Ramban explains that Exodus demonstrates G-d being the world's creator, His omnipotence, and continued involvement in it. The knowledge of G-d's role in the world is ensured by storing the testimony of the generation who witnessed the Exodus and transmitting the testimony through commandments and education from generation to generation. Ramban's explanation of the word *zikaron*/remembrance alludes to the brain's circuitry which records visual memory and serves to initiate and establish the unbroken chain of evidence. Ramban explicitly states the import of the storage and transmission of the testimony of the Exodus.

Ramban ends his explanation with the verse, "And all the peoples of the earth will see that the Name of Hashem is proclaimed on you."²⁰ *Menachos* 35b explains that this verse refers to the nations of the world seeing the *tefillin* of the head, reminding them of the involvement of G-d in the world.

¹⁸ Ramban on Leviticus 16:29 references the Karaites when commenting on the Ibn Ezra, "He explains this way in order to seal the mouths of the Karaites, may their name be blotted out."

¹⁹ Ramban on Leviticus 3:9 references the Sadducees. "Now, I was forced to discuss at length about this, so as to shut the mouths of the Sadducees, may their name be erased. For it is stated in matters of Torah, 'Answer a fool according to his foolishness, lest he be wise in his own eyes' (Proverbs 26:5), and [the Sages] said: 'Be diligent in study of Torah, and know what to respond to the heretic.'"

²⁰ Deuteronomy 28:10. See Ramban, Exodus 13:16, at the end of his comment on *totafos*.

Conclusion

Ramban was respected as a leading scholar of his time by the Jewish community, by the Church and the King of Spain. Living amongst Christian and Muslim communities, he had access to a vast library of scientific knowledge. In his explanation of the *tefillin* of the head, *totafos*, he uses the anatomical knowledge of his time, and he correlates the placement of the *tefillin* of the head to overlaying the optic chiasm. He explains the transmission of images from the eyes to the optic chiasm and then transferred to the back of the brain “where memory is stored.” *Tefillin* function as a remembrance for the unbroken chain of the testimony of the Exodus, which demonstrates the involvement of G-d in the world. This knowledge is transmitted from generation to generation through the passing down of *tefillin* and the commandments connected to remembering the Exodus.

Appendix A

Tefillin

Four verses in the Torah contain the commandment to wear *tefillin*. The paragraphs containing these verses are written on parchment in black boxes. Wearing *tefillin* is an ancient Jewish prayer ritual that uses two small leather boxes, each attached to a long, 9mm-wide leather strap. One box is placed on the biceps of the weaker arm, while the second is placed on the head. The biceps strap is tightly wound along the arm in a carefully prescribed manner. The back of the head strap is tied in a knot and carefully placed at the base of the skull.



Ramban

Moshe, the son of Nachman (Ramban; 1194–1270), lived in 13th-century Spain in Girona, Catalonia, under the Christian King James, the Conqueror of Aragon.²¹ He was the leading Rabbi of his time. Ramban is considered a leading commentator on the Torah. He is famous for his Biblical commentary, writings on the Gemara, and Disputation of Barcelona, 1263,²² with Pablo Christiani, which consequently led to his leaving Spain at 74 years old. He moved to Israel, where he completed his commentary on the Bible. We know from the writings of Ramban's student, the Rashba, that Ramban earned his livelihood as a physician.²³ Today, his commentary on the Bible is widely found in Bibles and studied in households and libraries worldwide.

²¹ https://en.wikipedia.org/wiki/James_I_of_Aragon.

²² https://en.wikipedia.org/wiki/Disputation_of_Barcelona.

²³ Rashba, Section 1, responsa 120 and 167.

Appendix B

A Word Substitution in a Manuscript of Ramban's Commentary from the Hungarian Academy of Sciences

In a manuscript from 1403, there is a word substitution for Ramban's explanation of the place of *bein einecha*. Here, instead of the *reishis hamoach* (ראשית המוח/front of the brain) found in the standard text of Ramban, the word *reishis* is switched with the word *tachas* (תחת המוח) /underneath the brain). In this manuscript, Ramban explains that the place of *bein einecha*/between the eyes is found underneath the brain. *Tachas* is significant since the optic chiasm is located directly under the brain.

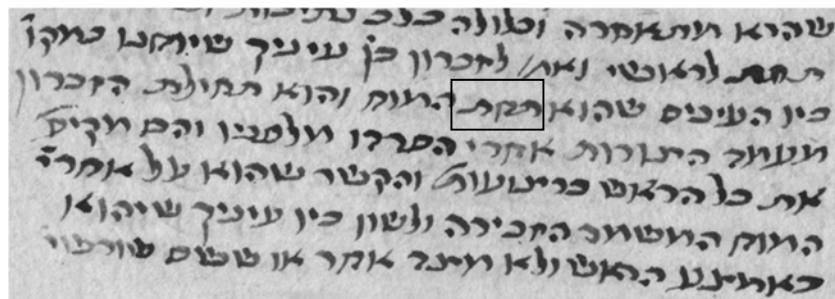


Figure 5: Manuscript: MS Kaufmann A 20. From the collections of the Library of the Hungarian Academy of Sciences, The National Library of Israel. Ktiv Project, The National Library of Israel.²⁴

ואמר ולזכרון בין עיניך שיונחו במקום בין העינים שהוא תחת המוח והוא תחילת הזכרון מעמד הצורות אחרי הפרדן מלפניו והם מקיפים את כל הראש ברצועותיהם והקשר שהוא על אחרית המוח המשמר הזכירה ולשון בין עיניך שיהיו באמצע הראש ולא מצד אחד או ששם שרשי העינים ומשם יהיה הראות.

²⁴ Completed by the Sofer on 12/29/1403 with his own commentary "*Maskil Yavin*." [https://www.nli.org.il/he/discover/manuscripts/hebrew-manuscripts/viewerpage?vid=MANUSCRIPTS&docid=PNX_MANUSCRIP TS990001909820205171-1#\\$FL36514316](https://www.nli.org.il/he/discover/manuscripts/hebrew-manuscripts/viewerpage?vid=MANUSCRIPTS&docid=PNX_MANUSCRIP TS990001909820205171-1#$FL36514316).

This *katzar*²⁵ copy of Ramban was completed on December 29, 1403, in the commentary “*Maskil Yavin*.” It was completed 133 years after the death of Ramban. The comment of Ramban on *totafos* contains two significant changes from the current text of Ramban and any of the other 53 manuscripts that the National Library of Israel has digitalized. The first change is the omission of the word *zikaron* after the word *b'makom* at the end of the third line. The second is substituting the word *tachas* for *reishis* on the fourth line in the cropped text above. Errors of substitution are more significant than omissions. The description of the *totafos* as referring to underneath the brain is a more accurate description of where the optic chiasm is found, on the brain's underside. This text version flows better from Ramban's previously cited verse in his Kabbalistic explanation of *tefillin* with the words *tachas l'roshi*. It is possible that Ramban wrote the first version from a physician's perspective. Once it was published, he changed it to the standard version, which is easier for the general public to understand. After Ramban arrived in Akko in 1267, he continued editing his Torah commentary. He sent a list of his commentary edits back to Spain. Several scribes preserved the list at the end of the copies they made of his commentary and directly attributed to Ramban as changes that he published.^{26,27} The list of edits is not comprehensive. Several minor changes attributed to Ramban are not on the list. The switch to the word *reishis* instead of *tachas* is not on the edit list. This alternative text is the only known version of this variant of the 53 digital copies of Ramban scrolls in the National Library of Israel. In addition, the *Me'iras Einayim*, written by Rav Yitzchak ben Shmuel of Akko in the 13th century, contains the current version of the text of Ramban with the phrase *reishis hamoach*.²⁸

²⁵ This text is *katzar* (short) since it is missing significant portions of Ramban's full commentary. The most likely reason is to decrease the expense and time in creating a handwritten copy. The copyist may have chosen to include only the comments that he deemed significant. Another possibility is that given the paucity of manuscripts due to the expense of handwritten versions, this was the only text available to the copyist. Another explanation is that this is an earlier published text of Ramban's commentary and Ramban subsequently sent out a fuller version as he revised it. This is consistent with the understanding of how Ramban published his commentary as evidenced by the list of addenda that Ramban sent after he arrived in Akko, Palestine in 1267.

²⁶ Yosef Ofer, “The Two Lists of Addenda to Nahmanides' Torah Commentary: Who Wrote Them?” *Jewish Studies Quarterly*, 15:4, (2008), 321–352. JSTOR, <http://www.jstor.org/stable/40753471>. Accessed 24 Oct. 2022.

²⁷ https://alhatorah.org/Commentators:Ramban's_Updates.

²⁸ <https://hebrewbooks.org/20635>.

Appendix C

Chasam Sofer's Understanding of *Bein Einecha*

In the 18th century, Rabbi Moshe Schreiber, Chasam Sofer (1762–1839), was the head rabbi of his generation. He received questions about Jewish law from communities worldwide, to which he sent written responses. His rulings were considered authoritative in his time and to the present day. He is considered an expert in the writings of Ramban. In his ethical will, he encouraged his descendants to study the Torah with the commentary of Ramban. He writes that Tanach should be studied with the commentary of Rashi and the Torah with Ramban's commentary, and teach it to your children, for he [Ramban] is foremost in “steadfast faithfulness” (Isaiah 25:1). And through it, you will become wiser than “*Kalko, Daerda and Heman*” (Kings 1, 5:11).²⁹ In his responsa, Chasam Sofer describes Ramban's Bible commentary as “the foundation of faith and the roots of religion.”³⁰

Chasam Sofer uses Ramban's anatomical wording and explanation of the connection between *tefillin* and the visual pathway in his responsa describing a body. He uses the term *shoresh ha'ainayim*, to reference the optic chiasm in a responsum about the placement of the *tefillin* of the head. “It is certain that the language of the Torah intends *bein einecha* to be in the place of the *shoresh ha'ainayim* (the root of the eyes). The place of hair where the brain is soft on the baby's head. The veins of the eyes pour forth from the brain to the eyes, and it is a place wide enough to accommodate two phylacteries. However, in the language of people, it would be too narrow [between the eyebrows], and therefore teaches that it is a different place that is intended.”

יג לשון תורה לחוד ולשון בני אדם לחוד. כי בלשון בני אדם בין עינים הוה ממש בין עין לעין וקצת למעלה מזה קורי על המצח ולמטה קורין חוטם וגם הרוחב הוה כרוחב אצבע ואם עומדי עליו ב שומין הוה מצומצם מאוד **בוודאי בלשון תורה הוה בין עינים במקום שרש העינים מקום שער שמוחו של תינוק רופס ששם עורקי העינים שופכים מהמוח אל העינים והוא מקום גדול להניח בהם ב תפילין אבל בלשון בני אדם הוה מצומצם והוא להתלמד במקום אחר כיוצא (שו"ת חת"ם אהע"ז ח"א סי צ)**

²⁹ Chasam Sofer, *Moshe 'alah le-Marom*, compiled and edited by Judah ha-Cohen Strasser and Aaron haCohen (Brooklyn: Meshmuel, 1933), 214-216, Translated and annotated by Dov Weiss.

³⁰ Ramban (ArtScroll, 2006), biographical note/xviii.

In his commentary on the Bible, Chasam Sofer uses Ramban's words from his explanation of *totafos* regarding the placement of the knot to be anatomic. Chasam Sofer comments on the verse that G-d showed Moshe Rabbeinu his back. He explains: "For *tefillin* are on the brain, to be every day and at every moment as if in his eyes that the Exodus happened and the singularity of G-d, and the acceptance of the yoke of G-d at Mount Sinai. The knot of the *tefillin* is on the back of the brain where memory is after the images have separated from in front of him. Memory is stored there. Even if the experience of standing before G-d is not at every moment, nevertheless, the memory of G-d does not leave him."

וראית את אחורי: ברש"י הראה לו קשר של תפילין ופני לא יראו, כי תפילין על המוח להיות בכל יום ובכל רגע כאלו בעיניו יציאת מצרים, ואהדות השי"ת, קבלת מלכות שמים בהר סיני. וקשר של תפילין מאחורי המוח ששם מקום הזכרון לאחר שנפרדו הצורות מלפני האדם עדין הם תקוקים באחורי המוח לזכרון והיינו אפילו אם אינם בכל רגע ורגע כאלו עומדים לפני ה' מ"מ זכר ה' לא ימוש ממנו. (שבת דף ס"ג ע"א ע"כ ופני לא יראו) (חתם סופר תורת משה פרשת כי תשא)

Chasam Sofer was an expert in Ramban. His use of Ramban's words in an anatomic manner supports the contention that Ramban is describing human anatomy when he discusses the "root of the eyes." ❧