

## A Fragment of the Aleppo Codex (Exodus 8) that Reached Israel

Yosef Ofer

In blessed memory of Dr. Mordechai Glatzer ז"ל  
who taught me the theory of the Jewish book,  
and assisted me in this study as well.

In 1988 it became known that a fragment of the Aleppo Codex was in the possession of a Mr. Sam Sabbagh in New York. In 1989 I published my reading of that fragment, showing parts of verses from Exod 8, after examining a reproduction of it made by a photocopier.<sup>1</sup> In 2003 Mr. Sabbagh passed away, and his family donated the fragment to the Ben-Zvi Institute in 2007.<sup>2</sup> I examined the fragment inside its plastic sheath (in December, 2007), aided by a high-quality color copy. The fragment was then handed over to the Israel Museum's laboratory for paper restoration. The head of the laboratory, Michael Magen, extracted the fragment from the plastic sheath which was stuck to it, stretched it out and straightened its folds, and then mended the tears in the fragment and re-stuck them. By the end of this process there were four separate pieces of parchment, of different sizes, and I was invited to aid in their re-integration. It turned out that all four pieces fit

\* I would like to express my gratitude to the Ben-Zvi Institute, and in particular to the Academic Secretary, Michael Glatzer, who allowed me to examine the new fragment and publish it, as well as several photos of the Aleppo Codex. I also wish to thank Michael Magen of the Israel Museum laboratories, who provided me with the photographs of the fragment that appear in the article; and Dr. Mordechai Glatzer for his advice and comments.

<sup>1</sup> Y. Ofer, "A Fragment of Exodus from the Missing Part of the Aleppo Codex," *Pe'amim* 41 (1989), 41-48 (Heb.). The name of the owner of the fragment, Sam Sabbagh, was spelled incorrectly there.

<sup>2</sup> The fragment was donated to the Ben-Zvi Institute by Samuel and Clara Sabbagh. The couple's daughter, Rachel Magen, handed the fragment to the Institute staff.

[*Textus* 26 (2016), 173-198]

together, creating a single fragment.<sup>3</sup> From 2012 on, the fragment is displayed in the Aleppo Codex exhibition in the Shrine of the Book in the Israel Museum in Jerusalem. It is now possible to identify many more letters, punctuation and cantillation marks than those that were visible when I published the earlier article.

Below is a copy and transcription of both sides of the fragment:



Photograph 1: Recto: Exod 8: 3-4, 8-12

<sup>3</sup> Aside from these four pieces of parchment, the sheath also contained some tiny shreds of parchment, each with a few ink signs. Most of these, too, fit into the fragment and were integrated into it.

Recto: Exod 8: 3-4, 8-12:

## Column 3 M.P.

## Column 2

וְ

הַצ

לֶפ

מֹשֶׁה וַיִּמְתּוּ הַצִּפְרָדִּים

מִן־הַבְּתִּים מִן־הַחֲצֹלֹת וּמִן

הַשָּׂדֶה וַיִּצְבְּרוּ אֹתָם חֲמֹרִם

חֲמֹרִם וַתִּבְאֵשׁ הָאָרֶץ וַיִּר

פְּרָעָה כִּי הִיתָה הָרֹ

וַהֲכַבֵּד אֶת לְבָבוֹ

אֱלֹהִים בְּאִשֶּׁר

וַיֹּאמֶר

ל

ד

חס

ל

חס

וכל

עזרא

ב

מ

א

שׁוֹכֵן הַחֹר

וַיַּעֲלוּ אֶת־

טִים עַל־אֶרֶץ

רִים וַיִּקְרָא פֶּרְעָה לֵ



Photograph 2: Verso: Exod 8:16-18, 25-26

Verso: Exod 8:16-18, 25-26

## Column 2 M.P.

## Column 1

|                              |              |  |
|------------------------------|--------------|--|
|                              |              | י  |
|                              |              | ג  |
|                              | ב            | י  |
|                              |              | אָמַרְתָּ לִּי כֹה אָמַר יְיָ הֹ             |
|                              | ב            | שְׁלַח עָמִי וַיַּעֲבֹדְנִי: כִּי אִם־       |
|                              |              | אֵינְךָ מְשַׁלַּח אֶת־עָמִי הַנִּגְיִ        |
|                              |              | מְשַׁלֵּיחַ בָּךְ וּבַעֲבָדֶיךָ וּבַעֲמָלְךָ |
|                              |              | יָךְ אֶת־הָעָרֶב וּמִלְּאוֹ                  |
|                              | ט<br>ל<br>מל | מָצָר מִן־אֶת־הָעָרֶב וְגַם                  |
| יְהוָה וְסָר                 |              | אֲשֶׁר־הֵם עָלֶיךָ                           |
| מַעֲבָדֶיךָ וּמַעֲמִ         |              | הָהוּא אֶת־                                  |
| יִסְף פְּרָעֹה               | ל            |  |
| שְׁלַח אֶת־הָעָם לְזִבְחָ לְ |              |  |

*Masora notes*

The fragment shows eight Masora parva notes, as follows:

**Recto:**

Exod 8:9 – 'ד' חס' (4 defective occurrences). This note refers to the word חֲצִירָה with or without a prefix attached. An identical note is found in the MP of L ad loc. In the MM of L on Num 33:17, the comment is limited to the

Pentateuch, because the Writings feature the forms *הַצִּירְתִּיו* (Ps 100:4) and *וַהֲצִירְתִּיהֶם* (Neh 8:16). However, it is possible that our Masoretic note refers to the Bible as a whole, paying no attention to possessive forms.<sup>4</sup>

Exod 8:9 – *הַשְׁדֹּת* – מ' א' – ל' חס' וכל עזרא ב' מ' א' (This is the only defective occurrence; all occurrences in Ezra are also defective, except of one). The Masoretic note refers to the all forms of this word, such as *שְׁדֹתָיו*, *שְׁדֹתָיו*, *שְׁדֹתָיו* and the like. The plene spelling in Ezra is *וּמְשֹדֹת* (Neh 12:29 – the Masora regards the Book of Nehemiah as a part of the book of Ezra). An identical note appears in M.P. of **D** here. Cf. MP of **L** ad loc. and on Neh 12:29.

Exod 8:10 – *וַיִּצְבְּרוּ* – ל'. This is a unique form. In another verse (Gen 41:35) the form *וַיִּצְבְּרוּ* occurs.

#### Verso:

Exod 8:16 – *הַמִּימָה* – ב' (2 occurrences). This note is not visible clearly, and its existence is doubtful. The second occurrence of this word is in Exod 7:15, and there an identical note appears in MP of **L**.

Exod 8:16 – *שָׁלַח עֲמִי* – ב' (2 occurrences). The second occurrence is in Exod 10:3. A similar Masoretic note appears in MP of **S** and **S1** in both places and in MP of **D** in the second place. In MP of **S** in Exod 10:3 there is also a reference to our verse.<sup>5</sup>

Ex 8:25 – *יֹצֵא* – ט' מל' – וכל. The full version of this Masoretic note is: *ט' מל' וכל* (The word *Yotze* occurs 9 times plene; all the occurrences in Writings are plene as well, except of one). This expression appears four times in the MP of the Aleppo Codex (e.g. Josh 6:1). However, the short version, *ט' מל'*, appears twice: 2 Sam 16:5 and Ezek 1:13.

Exod 8:25 – *וַהֲעִתְרָתִי* – ל' (The word appears only here).

Exod 8:25 – *הָהֵל* – ל'. An identical Masoretic note appears in MP of **L**.

<sup>4</sup> In my previous article (Ofer, "Fragment") I maintained that the note concerned the word *הַנְּהָרִית* (Exod 8:1). However, the tiny circle over the word *הַנְּהָרִית* is clearly visible, while the word *הַנְּהָרִית*, in the column to the right, was apparently one line above this Masoretic note.

<sup>5</sup> Cf. C.D. Ginsburg, *The Massorah: Compiled from Manuscripts, Alphabetically and Lexically Arranged* (4 vols; London [Vienna: Brög], 1880-1905 [photoprint: Jerusalem: Makor, 1971]), par. ש 517 (the late Rabbi M. Breuer interpreted this note for me and provided me with the parallel passages).

Four of these Masoretic notes refer to words that did not survive in the fragment (המיתה, יוצא, והעתרת, התל).

Conversely eight words in the fragment are marked with circles indicating Masoretic notes, but the notes did not survive: חמרם, חמרם, ותבאש (v. 10), ומלאו, ובעמד, ויאמר ה' (v. 12), והכבד, הרוחה (v. 11).

### *Questions posed by the Meorot Natan*

In 1857 Yaakov Sapir sent a list of questions about the Codex and received a response from Rabbi Menashe Sithon of Aleppo. He recorded the questions and answers in a work which he called *Meorot Natan*. Moshe Goshen-Gottstein discovered a manuscript copy of the work, and it was published by Rafael I. Zer, accompanied by extensive discussion.<sup>6</sup>

Two of the questions pertain to the section of the text that appears in the fragment under discussion. The first concerns the word הצפרדעים (Exod 8:7). The question includes the word with the vowels: הַצִּפְרְדֵּיִם, and the answer asserts: כולוהן [בחטף פתח] כ"ח"פ, אלא בח"פ [א"כ = אינו כן], ("Not so, but all with *hataf patah*"). From this response we gather that in all eight occurrences of this word (Exod 7:29-8:9), and perhaps also in the word בצפרדעים (Exod 7:27), the letter *šade* is vocalized with a *hataf patah*.<sup>7</sup>

In our fragment, the word appears three times (chapter 8, vv. 3, 8, 9), and in each instance it is cut off. Only in the third occurrence are we able to discern the vowel for the letter *šade*: the *šewa* is clearly visible; to the left of it there is a dot whose significance is unclear; and to the left of that is the *patah* that belongs to the letter *pe*. When the fragment was first published, I noted this problem and wrote, "Nevertheless, perhaps there was a *hataf patah* here, and only part of it has been preserved" (p. 47). This hypothesis is now strengthened in light of an examination of the fragment in the original: the

<sup>6</sup> See M.H. Goshen-Gottstein, "A Recovered Part of the Aleppo Codex," *Textus* 5 (1966), 53-59; R.I. Zer, "Meorot Nathan by Rabbi Ya'akov Sapir," *Lěšonenu* 50 (1986), 151-213 (Heb.)

<sup>7</sup> The testimony of the *Meorot Natan* is backed up by the parallels in the newspaper *Halevanon*, as well as in the Kimhi Bible. The vowel system of the Codex likewise requires a *hataf-patah* here. See Ofer, "Fragment," 46-47.

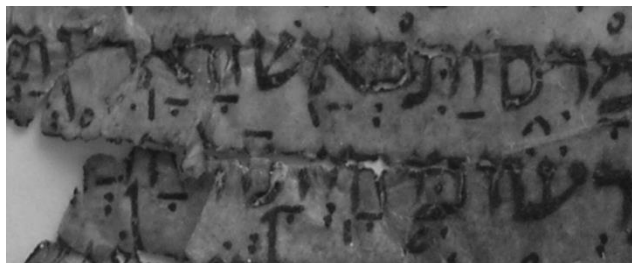
right edge of the *patah* is clearly visible, while the remainder has been lost to a fold or tear in the parchment. Below is an enlarged photograph:<sup>8</sup>



Photograph 3: The word *Ḥas̱farde'im*

The second question from the *Meorot Natan* relevant to this fragment concerns the word הַרוּחָה (8:11). The questioner offers the following vocalization: הַרוּחָה, and the response, [א"כ [=אינו כן] אלא בח"פ [=בחטף פתח], and the response, [א"כ [=אינו כן] אלא בח"פ [=בחטף פתח]] = "Not so, but with *hataf patah*".

This word was not visible while the fragment was stuck to its sheath, but after it was removed and spread out, the remnants of the word and the *hataf patah* to which the respondent referred, may be discerned.



Photograph 4: The word *Ḥarwaḥa* (הַרוּחָה)

It seems that the vowel here was written in a special way – as a *patah* with the *sewa* underneath it. The reason for this is that the letter *lamed* that appears on the next line, extending upwards, limits the space available for vowels on the

<sup>8</sup> The piece of parchment inside the ם at the end of the word dropped off during the treatment, and does not appear in the photograph on the right. The shred was later found and integrated back in its place (See the photograph on the left, showing the remnants of the letters עים).



line above it. This manner of vocalization has been noted by Israel Yeivin in his book on the Codex.<sup>9</sup>

Below is a photograph of the two words in the Codex that he mentions in this context (Josh 22:23; 2 Sam 18:22):



Photograph 5: *Hataf-patah* written as a *patah* with the *šewa* underneath it

### Line fillers

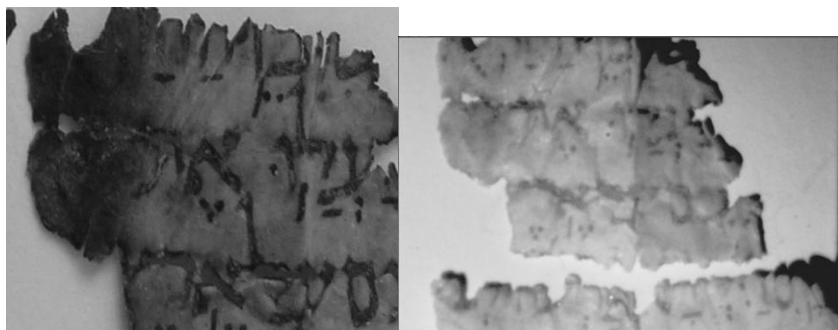
Marks intended to fill lines are the “signature” of the writer,<sup>10</sup> and it is therefore useful to establish whether the new fragment includes the line filling marks that are characteristic of the rest of the Codex. At first glance I was not able to identify such marks, but upon closer examination of an infra-red photograph, I was able to discern two characteristic line filling marks, and perhaps also a third:

The first line filling:

מִצֵּרִים וַיַּעֲשׂוּ־כֵן הַחֲרָטִים  
בְּלִטְיָהֶם וַיַּעֲלוּ אֶת־י  
הַצִּפְרָדִּים עַל־אֶרֶץ

<sup>9</sup> “Rarely, owing to lack of place, the *šewa* and the vowel which together comprise the *hataf*, are written one below the other. For instance: וַיַּעֲלֵם (Judg 16:3); הַתְּפֹרֶרֶה (Isa 24:19); מֵאַחֲרֵי (Josh 22:23); אַחֲרֵי (2 Sam 18:22) – in the latter two examples owing to the [top] edge of the *lamed* [that is located] on the next line” (I. Yeivin, *The Aleppo Codex of the Bible: A Study of Its Vocalization and Accentuation* [Jerusalem: Magnes Press, 1968], 17 [Heb.]).

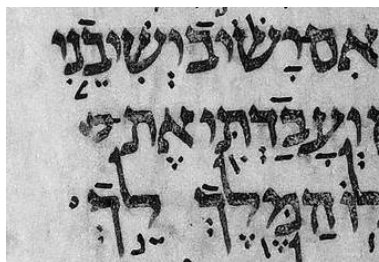
<sup>10</sup> See M. Glatzer, “The Aleppo Codex: Codicological and Paleographical Aspects,” *Sefunot* 19 [n.s. 4] (1989), 215-221 (Heb.).



Photograph 6: A line filler (at the end of the second line)

The characteristic line fillings of the Codex are visible here in the infra-red photograph (left), after the word **אֶת־**. The filler marks resemble a pointed letter *yod*, followed by an *aleph* that is cut off. The marks are not discernible in the regular photograph (right) because the parchment in this area was damaged by fire.

Compare, for example, a copy of the Codex at 2 Sam 15:8:



Photograph 7: A line filler in the Aleppo Codex

Another line filling in the new fragment would seem to appear at the top of the verso side:

וַיֹּאמֶר יְהוָה אֶל־מֹשֶׁה י  
הַשָּׁכֶם בְּבִקְרֹה וְהִתְיַצֵּב לִפְנֵי  
פְּרֹעֹה הַנֶּה יוֹצֵא הַמִּצֵּה  
וְאָמַרְתָּ אֵלָיו כֹּה אָמַר יְהוָה



Photograph 8: Another line filler? (first line)

At the very top of the fragment there is a filling mark in the shape of a sharpened letter *yod* – the characteristic shape used in the Codex.

A more difficult puzzle is posed by the third line: was the letter here the letter *he* at the end of the word *המימה*, or was this, too, a line-filling?

*Location of the fragment on the page and in the quire and calculating the number of leaves of the Pentateuch in the Codex*

An examination of the new fragment from the Book of Exodus provides a new datum which may help us to reconstruct the way in which the Pentateuch was written in the codex, and to calculate the original number of leaves in it. For the purpose of this calculation I re-assessed the estimated number of leaves. In contrast to previous estimates, which were based on a comparison with some other manuscript or with a printed edition of the Pentateuch, the calculation below is based directly on the codex itself. I shall first present the calculation, and then discuss additional data which may aid in the reconstruction.

The portions of the Pentateuch from the codex that are currently extant, either in the original or in photographed form, are:

a. Photograph of one page from the Book of Genesis ("Wickes photograph"). The page starts at Gen 26:34 (הַחֲתִי וְאֵת בְּשֵׁמֶת) and ends at Gen 27:30 (וַיְהִי אֵדֶךְ).<sup>11</sup>

b. The new fragment from the Book of Exodus, consisting of a shred of a page: the left column of recto includes at least most of 8:12; the right column of verso includes at least the beginning of 8:16. We may adopt the working assumption that recto ends in the middle of verse 14, after the words וַיֹּאמְרוּ הַחֲרֹטְמִים ("the magicians said"). The error in either direction would be a maximum of 91 characters.

c. Photograph of a double-page spread from the Book of Deuteronomy ("Segall photograph"). The verso on the right begins at Deut 4:38 (גְּדֹלִים וְעֲצִמִּים) – "greater and mightier", and the recto of the next folio on the left ends at Deut 6:3 (יִיטֵב לָךְ וְאֲשֶׁר) – "be well with you and that".<sup>12</sup>

d. The last leaves of the Pentateuch from the codex itself, including eleven pages. The text starts here at Deut 28:17 (וּמִשְׁאֲרֵתְךָ). Three of the pages include the Song of "Ha'azinu", which is written according to a special structure. The last page is also written in a special form. The second column is written in a "gradually shortening" form, while the third column is empty.

The exact text of the Pentateuch in the Aleppo Codex is known to us. We also know the place of every open or closed section and the empty lines that separate each book from the other (according to Maimonides' list). There is also evidence about the structure of the song of Moses. It is possible, therefore, to count the characters (letters and spaces) that were lost, and to estimate how many pages each segment includes. The data appear in table 1.

<sup>11</sup> See A. Shamosh, *Ha-Keter: The Story of the Aleppo Codex* (Jerusalem: Yad Ben-Zvi, 1987), plate 1 (after p. 8) (Heb.).

<sup>12</sup> See *ibid*, 54.

**Table 1**

|   | Characters<br>and spaces | Closed<br>passages | Open<br>passages | Blank<br>space<br>between<br>books | Special<br>format                                |
|---|--------------------------|--------------------|------------------|------------------------------------|--|
| 1-2. Gen 1:1-26:34                        | 45,805                   | 26                 | 34               | 0                                  |  |
| 3. Gen 26:34-27:30<br>(Wickes photograph) | 1,812                    | 0                  | 1                | 0                                  |  |
| 4. Gen 27:30-Exod 8:14                    | 64,513                   | 27                 | 20               | 1                                  |  |
| 5. Exod 8:14 - Deut 4:38                  | 214,591                  | 206 <sup>13</sup>  | 205              | 3                                  | Song of the Sea                                  |
| 6. Deut 4:38-6:3<br>(Segall photograph)   | 3,354                    | 2                  | 11               | 0                                  |  |
| 7. Deut 6:3-28:17                         | 39,071                   | 21                 | 96               | 0                                  |  |
| 8. Deut 28:17-34:12<br>(extant pages)     | 15,630                   | 9                  | 12               | 0                                  | <i>Ha'azinu</i><br>Last page<br>of<br>Pentateuch |
| Total                                     | 384,776                  | 291                | 379              | 4                                  |  |

In order to translate these data into numbers of pages we have to calculate the three characteristic dimensions of the codex:

1. The average number of characters in one page of the codex (that does not have a space for the beginning of a new passage). Every page has three equal columns of 28 lines. Consequently the average numbers of characters per page, per column and per line are interdependent.

<sup>13</sup> In addition to the open passages listed by Maimonides I have added one more in Leviticus 7 following the testimony of Rabbi Attiya regarding the Aleppo Codex. Cf. Y. Ofer, "M.D. Cassuto's Notes on the Aleppo Codex," *Sefunot* 19 [n.s. 4] (1989), 325-330 (Heb.).

2. The average number of characters equivalent to the space left for a closed passage.

3. The average number of characters equivalent to the space of an open passage.

I calculated these parameters on the basis of a broad sample from the codex. The results I found were: 1,774 characters per page (i.e., 591 characters per column, 21.1 characters per line). These three numbers include one space after every word. The average space for a closed passage was equivalent to 7 characters, and the average space for an open passage equivalent to 19 characters.

With the help of these data it is possible to return to the data above and "translate" the spaces between passages to characters, and to add them to the total number of characters:<sup>14</sup>

**Table 2**

|                                | Characters<br>(including<br>spaces between<br>passages) | Estimate of<br>pages in<br>the Aleppo<br>Codex | Actual<br>pages in<br>verifiable<br>sections | Comments |
|--------------------------------|---|--|--|----------|
| 1-2. Gen 1:1-26:34             | 46,537  | 26.23  |  |          |
| 3. Gen 26:34-27:30<br>(Wickes) | 1,819   | 1.03   | 1  |          |
| 4. Gen 27:30- Exod<br>8:14     | 65,250  | 36.78  |  |          |
| 5. Exod 8:14-Deut<br>4:38      | 220,192   | 124.12   |  |          |

<sup>14</sup> In this calculation I have taken into consideration both the extant leaves of the codex and the missing ones. The results for extant pages are close to the actual number of pages, actualizing the calculation. I have also taken into account the special format of *Ha'azinu* and the Song of the Sea. *Ha'azinu* is in the extant pages and for the calculation the three pages on which it was written were discounted. The last page of the Pentateuch was also discounted. Regarding the format of the Song of the Sea in the codex and the calculation of its characters, see the appendix.

|   |        |       |   |  |
|---|--------|-------|---|--|
| 6. Deut 4:38-6:3<br>(Segal)   | 3,467  | 1.95  | 2 |  |
| 7. Deut 6:3-28:17   | 40,142 | 22.63 |   |  |
| 8a. Deut 28:17 –<br>End of Pentateuch:<br>Special format<br>pages                 |        |       | 4 | <i>Ha'azinu</i><br>& the last<br>page of the<br>Pentateuch |
| 8b. Deut 28:17 –<br>End of Pentateuch<br>(remainder of the<br>text) <sup>15</sup> | 11,907 | 6.71  | 7 |  |

At this point I will enumerate the additional data and considerations related to the transcription of poetry in the Aleppo Codex. Clearly some of these considerations are speculative, and not all of them may be reconciled together. After presenting them I shall try to explain how most of them can be fulfilled:

1. The codex was written on quires of ten leaves each. The Pentateuch began on the first leaf of a quire, the last pages of the extant codex begin on the ninth leaf of a quire.<sup>16</sup>

It is difficult to presume that there was a diversion from this pattern, which is consistent throughout the existing part of the codex.

2. On the basis of an examination of the extant codex Mordechai Glatzer determined that all of the quires begin on the hair side of the leaf and each one consists of five folios.<sup>17</sup> The arrangement of the leaves follow “Gregory’s Law”: Every double-page spread is uniform, flesh side opposite flesh side or hair side opposite hair side. Thus the following is the structure of every quire: (1) hair/flesh (2) flesh/hair (3) hair/flesh (4) flesh/hair (5) hair/flesh //middle of the quire // (6) flesh/hair (7) hair/flesh (8) flesh/hair (9)

<sup>15</sup> This text includes 11,716 chars, 6 open sections and 11 closed sections.

<sup>16</sup> Glatzer, “Aleppo Codex,” 171, 265.

<sup>17</sup> *Ibid*, p. 199.

hair/flesh (10) flesh/hair. In other words: odd-numbered leaves are arranged "hair/flesh" and even-numbered leaves are arranged "flesh/hair".

3. Cassuto testified: "אלה תולדות שם" (Gen 11:10) – before this verse the previous passage appeared at the end of the page (*corrected: leaf*) and a blank line remained on which was written "נ" (document 15ה, p. 2). This form of marking is common in the codex.<sup>18</sup> This simply meant that the letter *nun* was written at the end of a page of the codex.<sup>19</sup>

4. The Wickes photograph is evidently a recto page. Proof of that is the multiplicity of notes from the Masora Parva in the left margins of the page. The Masorete could decide whether to insert each note of the Masora Parva to the right of the column or the left; he usually tended to write the notes on external margins of the page and minimize his use of the internal margins.

5. Glatzer<sup>20</sup> identified in the upper left column of the Wickes photograph a marking that looks like that of the middle of a quire, and consequently asserted that the photo was of leaf 6r of a quire.

6. In the fragment that survived from Exodus Michael Magen and Mordechai Glatzer identified the recto (צפרדעים, i.e., the plague of frogs) as the hair side and the verso (ערוב, i.e., the plague of swarms of insects) is the flesh side. This conclusion is based on the fact that the flesh side of parchment is generally lighter in shade than the hair side. A stronger proof may be derived from the etching of the line: Glatzer<sup>21</sup> determined that the etching was done with a stylus, always on the flesh side of the parchment. Michael Magen sent me a photograph of the new fragment made by means of RTI (Reflectance Transformation Imaging), and pointed out the etching of three

<sup>18</sup> Y. Ofer, "Masorrah Issues: The Notation of Open and Closed Sections," *Megadim* 2 (1987), 95 (Heb.); Glatzer, "Aleppo Codex," 221.

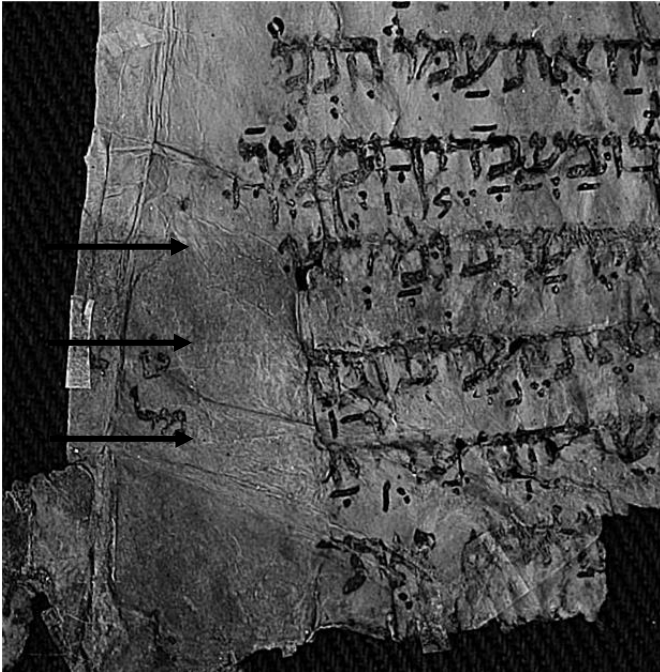
<sup>19</sup> In my article (Ofer, "Cassuto," 282) I explained that he meant the last line on a page, not necessarily in the left column, but that is problematic. Why did he change the word 'page' to 'leaf'? Did he mean that this marking appeared specifically on the bottom of verso pages? In many places in his lists he wrote first 'pages' (עמודים) and afterwards corrected the term to 'leaves' (דפים). Cf. the photograph (Ofer, "Cassuto," 283); this may be a case of hyper-correction.

<sup>20</sup> Glatzer, "Aleppo Codex," 200, note 15.

<sup>21</sup> *Ibid*, 212.



lines on the verso side, the plague of – ערוב swarms of insects (cf. photograph). The recto is therefore the hair side and this was an odd-numbered leaf in the quire.



Photograph 9: Etching signs of three lines on the verso side

7. Glatzer<sup>22</sup> identified the central-quire marker on the upper right corner of Segall's photograph. This sign belongs to the other side of the leaf (i.e., the recto), which is folded towards the verso side and can be seen in the photograph. On the basis of that Glatzer determined that the Segall photograph was of leaf 6v and leaf 7r of a quire.

8. Cassuto calculated the leaves of the Pentateuch and reached the number 114 or 124. He had difficulty identifying the internal division of the quires accurately.<sup>23</sup>

<sup>22</sup> *Ibid*, 200, note 16.

<sup>23</sup> Ofer, "Cassuto," 281-283.

*What may we conclude from all of this data?*

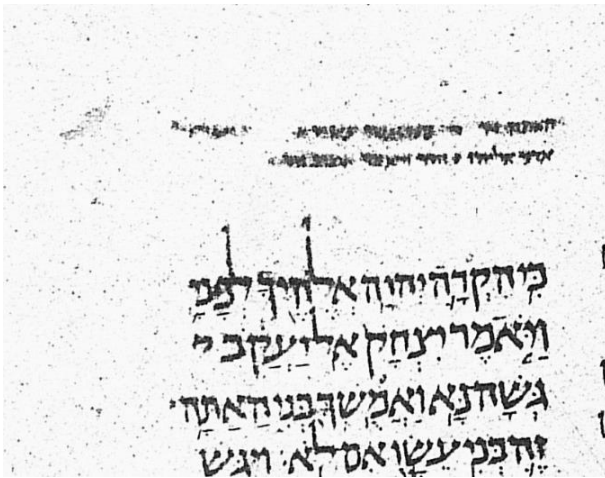
Starting from the end: The calculation shows that there were 23 pages between the Segall photograph and the extant pages of the Aleppo Codex (see section 7 in table 2, above). This confirms Glatzer's hypothesis: The Segall photograph is of 6v and 7r of a quire, and the missing pages after it begin with 7v and end on 8v.

However, it is difficult to support Glatzer's assumption that the Wickes photograph is of 6r of a quire. If that were the case, then there should have been 29 pages from the beginning of the Pentateuch until that photograph (1v-15v), but the calculation indicates only 26.22 pages (a deviation of 9.59%).<sup>24</sup> We can conclude that the Wickes photograph is 5r of a quire, and was situated 27 pages (1r-14v) after the beginning of the Pentateuch. This reconstruction conforms to Cassuto's note on Gen 11:10 – The letter *nun* to which Cassuto referred was evidently at the end of fol. 6r of the Pentateuch.<sup>25</sup>

Thus it seems that the stain Glatzer observed was not a sign of the middle of a quire.

<sup>24</sup> The average for a page of the codex is based on 1774 characters, and the statistical deviation is 72.7 characters. According to Glatzer's assumption the average per page in the section under discussion is 1604 characters, which deviates by 2.33 from the average, which is entirely unreasonable. According to my assumption, the average number of characters in the section under discussion is 1723, which is only a deviation of 0.70 from the general average. In order to make statistical calculations here and below I have consulted Professors M. Koppel, M. Pollak and E. Merzbach, and I wish to express my gratitude to them. The results of the calculation and the conclusions drawn from it are my responsibility alone.

<sup>25</sup> From the beginning of the Pentateuch to Gen 11:10 there are 16,647 characters, 18 open passages and 18 closed passages. All of these add up to 17,115 characters, equivalent to 9.65 pages; thus we may presume that there were 10 pages from the beginning of the Pentateuch until this page (fols. 1v-6r). From that point until the Wickes photograph there are 29,158 characters, 8 open passages and 16 closed passages. These amount to 29,422 characters or 16.59 pages; consequently, we may presume that there were 17 pages from that point until the Wickes photograph (6v-14v).



Photograph 10: Wickes' photograph - the stain in the left-upper corner

Now we should examine the location of the fragment from Exodus: Between the Wickes photograph and the end of the recto of the leaf from which the fragment came there should have been  $36.76 \pm 0.05$  pages. Since the fragment from Exodus belongs to an odd-numbered page, we must presume that there were 36 pages, namely 15v-33r.<sup>26</sup>

It remains now to calculate the number of pages in the large section between the fragment from Exodus and the Segall photograph (section 5 in table 2). The calculation gives the result of 123.86 pages, and we can assume that there were actually 126 pages, from fol. 33v to 96r.<sup>27</sup> As pointed out above, the Segall photograph is of pages 6b and 7r of a quire.

Thus the structure of the Pentateuch in the Aleppo Codex, according to my hypothesis is as follows:

<sup>26</sup> Accordingly, the average number of character per page is 1811, which deviates by 0.51 from the general average. According to Glatzer's assumption that the Wickes photograph was of fol. 16r, the fragment from Exodus should be fol. 35, and there were 38 intervening pages. The average per page is 1716, a deviation of 0.80 from the general average.

<sup>27</sup> The average per page is 1,743, which is a deviation of 0.43 from the general average.

**Table 3**

|   | Estimated<br>pages in<br>the codex | Actual<br>pages | Pages of the codex<br>(numbered from the<br>beginning of the Torah) |
|---|------------------------------------|-----------------|---|
| 1. Gen 1:1-11:9   | 9.6                                | 10              | 1v-6r   |
| 2. Gen 11:10-26:34  | 16.58                              | 17              | 6v-14v  |
| 3. Gen 26:34-27:30 (Wickes)   | 1.03                               | 1               | 15r   |
| 4. Gen 27:30-Exod 8:14  | 36.76                              | 36              | 15v-33r   |
| 5. Exod 8:14-Deut 4:38  | 123.86                             | 126             | 33v-96r   |
| 6. Deut 4:38-6:3 (Segall)   | 1.95                               | 2               | 96v-97r   |
| 7. Deut 6:3-28:17   | 22.62                              | 23              | 97v-108v  |
| 8a. Deut 28:17-end of<br>Pentateuch: Pages in<br>special format ( <i>Ha'azinu</i><br>and last page) |                                    | 4               | } 109r-114r   |
| 8b. Deut 28:17- end of<br>Pentateuch (rest of the<br>text)  | 6.71                               | 7               |   |
| Total   |                                    | 226             |   |

If we add this datum to what is known about the other parts of the Aleppo Codex, the result is that there were 481 leaves in total: 7 leaves of Masora, a page with the dedicatory inscription, 113 leaves of the Torah, 211 of Prophets, 129.5 leaves of the Writings and an additional 20 leaves of the Masora and the end of the manuscript.<sup>28</sup>

*The manner of writing the Song of the Sea in the Aleppo Codex*

Cassuto gave evidence regarding the writing of the Song of the Sea in the Aleppo Codex in three places in his lists:<sup>29</sup>

<sup>28</sup> See Ofer, "Cassuto," 282.

<sup>29</sup> Ofer, "Cassuto," 327. Another evidence regarding the writing of the Song of the Sea in the Aleppo Codex may be derived from the glosses of Yishai Amadi on the printed edition of Ishar (1490). Amadi describes the division of the lines in the song itself and the lines before and after it, but it is impossible to conclude from his reference the location of the song on the page. Cf. J.S. Penkower, *New Evidence for*

1) "For the Song of Sea a wider column was required and the page was divided into two columns only. One of them was very narrow" (document 63א).

2) "The Song of the Sea is arranged in the form of blank space over print and adjacent to it is one narrow column. The page does not begin with the word הבאים following the rule of ביה שמ"י<sup>30</sup> (?but there are full lines?)" (document 28ה, p. 8).

3) "To ask further: ... ביה שמו" (document 41ה).

According to Maimonides the Song of the Sea should be written in 30 lines, and an additional blank line before and after it (*Hilkhot Sefer Torah*, 8:5). Maimonides also cites the custom to begin the five lines before it and the five lines after it with certain words (*ibid*, 7:10). Since every page of the Aleppo Codex consists of 28 lines, the song could not be written on one page alone, and had to be inserted into two pages. It was written in the width of two columns at least, and thus we may conclude from Cassuto's testimony that on the first page on which it was written there was a narrow column **to the right** of the song.

Did the word הבאים, the first word in the five lines preceding the song appear at the top of the page (on the left column)? In Ms. L the scribe did begin the page with that word, and in order to do so he wrote shorter lines on the previous page. It was possible to assume that the scribe of the Aleppo Codex also tried to write in a similar manner. The calculation of the pages supports this assumption. According to the estimation of the number of characters and the size of the spaces between passages, the distance between the fragment of Exodus that survived and the word הבאים (Ex 14:28) is 7.99 pages.<sup>31</sup> In that case the Song of the Sea began on fol. 37v of the Pentateuch,

*the Pentateuch Text in the Aleppo Codex* (Ramat Gan: Bar Ilan University 1992), 32 (Heb.) Cf. also the photograph there on p. 118.

<sup>30</sup> This mnemonic sign indicates six words in the Torah that should be written first in their columns. The letter ה stands for the word הבאים (Exod 14:28).

<sup>31</sup> The measurement is from the transition from recto to verso of the fragment (13,838 chars, 14 open section and 9 closed sections, which is equivalent to 14,167

and the right column on the page was sufficient to write the text that precedes the word **הבאים**. Possibly the scribe needed to write short lines or to use fillers.

As for Cassuto's testimony that "the page does not begin with the word **הבאים**" – he may not have meant to say that the second column did not begin with that word, but that there was another column on the right with which the page itself began, and thus the word **הבאים** was not the first word on the page.<sup>32</sup> When the scribe of the codex found himself approaching the text of the song, he estimated and found that he was not far from the beginning of the poem, and if he wanted to begin the page with the word **הבאים**, he would have to write a sufficiently spaced column in which most of the lines would be blank. Therefore he decided to write one column and open the second column with the word **הבאים**.

With regards to the second page on which the end of the song was written, it is reasonable to presume that it was written in the same width, but with a narrow column on its left containing the continuation of the text; this may also be derived from Cassuto's testimony, in which he did not discern between the first page of the song and the second page.

Further evidence for the layout of the second page is in the lines that follow the Song of the Sea. According to Maimonides, basing himself on the Aleppo Codex, which was in Fustat in his day, these lines should open with the words: **ותקח, ואחריה, סוס, ויצאו, ויבאו** (*Hilkhoh Sefer Torah* 7:10).<sup>33</sup> Three of these five lines may be measured with precision: **ותקח** – 54 characters; **ואחריה** – 55; **ויצאו** – 53.<sup>34</sup> This length of the lines after the Song of the Sea is identical to the

chars). Since the precise point of the transition is not known, it would be more accurate to say that the distance is 7.94-8.04 pages.

<sup>32</sup> It is also possible that Cassuto did not remember exactly the way it was written in the codex when he wrote that sentence, some years after his visit to Aleppo. That may also explain what he meant about clarifying the matter of **בית שמו**.

<sup>33</sup> How these lines were written in the Aleppo Codex we know from Amadi's testimony. See above note 18.

<sup>34</sup> The line that opens with the word **סוס** includes a closed passage and consequently its length cannot be measured precisely. The fifth line, starting with the word **ויבאו**, cannot be measured accurately because Maimonides did not state with what word it should end.

length of the lines before the Song of Deborah in the codex, which was also written in the width of two columns: 11 lines before the song, containing 570 characters, i.e. 53.6 characters to the average line.<sup>35</sup> This length is also very close to the length of the lines that Maimonides cited before the Song of the Sea: these five lines contain 258 characters, i.e. an average of 51.6 characters per line.<sup>36</sup>

Moreover: The lines **before** the Song of the Sea and the lines **before** the Song of *Ha'azinu* were written according to a permanent scribal tradition. This is apparent from the layout of *Ha'azinu* in the codex, and both poems in Ms. L. In these three places the scribe planned the writing of the page that precedes the poem in such a way that the page on which it was written would begin with the appropriate word, in the former case הַבְּאִים, and in the latter וְאֶעֱדָה, using fillers for whole lines or partial lines. In the five lines before the poem in these three places the scribe spaced his letters and added fillers in order to maintain the pre-ordained structure of lines.

However, unlike Maimonides' description, an examination of these three passages shows that the lines **after** the Song of the Sea and the Song of *Ha'azinu* were written as they came out using a given width of line, and not

<sup>35</sup> The Song of Deborah takes up three pages in the codex: Only the first page is written in the space of two columns, and the following two pages are written in the full width of the page, in place of the three columns. The reason for this is simple: Since the song is lengthy, if the second page were written in the space of two columns, there would not be anything to write in a narrow column on its left, since the poem continues. That is not the case regarding the Song of the Sea, which is shorter.

<sup>36</sup> Thus the two wide columns that served for writing the Song of the Sea included the text from the word הַבְּאִים (Exod 14:28) to מִים (Exod 15:22). This text contains 1,436 characters and the spaces of two open sections and one closed section, thus equaling 1,481 characters. It took up 41 lines in all (5 lines before the poem, one blank line before it, 30 lines of poetry, another blank line and 4 more lines after the poem). That left another 15 lines, containing an average of 53 characters each. In total the two wide columns total 2,276 characters, and this number is very close to the average number of characters in four columns (comprising one and one-third pages, i.e., 2,365 characters on the average). Consequently, the calculation that we made regarding the length of fragment 5 was not thrown off by our having ignored the special layout of the Song of the Sea.



according to pre-ordained tradition. There is no indication that the scribe tried to expand a line or reduce it. In *Ha'azinu* in the Aleppo Codex the scribe returned to the left margin that was etched in advance, from which he had diverged slightly to the right, gradually and unintentionally when transcribing the poem. The words with which the five lines after the poems begin in Ms. L are not identical to those in the Aleppo Codex, indicating that there was not a standing tradition regarding their writing.<sup>37</sup>

A fuller picture is given in a study by Yossi Peretz, in which he described in detail the manner of writing of the Song of the Sea and *Ha'azinu* in early manuscripts from the East and also from Ashkenaz.<sup>38</sup> Peretz found that in only two early manuscripts did the lines after the Song of the Sea correspond to the Aleppo Codex (S1, L3), and that not one other early manuscript matched the Codex with regards to the lines after *Ha'azinu*. With regards to the lines **before** the poems, seven early manuscripts were found that matched the Aleppo Codex in the case of the Song of the Sea, and six early manuscripts that matched it in the case of *Ha'azinu*. These findings reinforce the conclusion that there was no early tradition regarding the writing of the lines that followed the poems. It is possible that the scribes of S1 and L3 copied from the Aleppo Codex the layout that followed the Song of the Sea.<sup>39</sup>

Thus we may conclude that the lines written in the Aleppo Codex after the Song of the Sea reflect writing across the width of two columns. In that case it is reasonable to assume that the poem was written in the two right-hand

<sup>37</sup> The lines after the Song of the Sea in Ms. L open with the words רמה, אחריה, ותקח, סוס, אחריה, ויצא, ויבא, basing himself evidently on the Aleppo Codex. The lines following *Ha'azinu* Ms. L open with the words: ויבא, לדבר, אשר, התורה, האדמה, while in the Aleppo Codex and according to Maimonides the opening words should be: אשר, הזאת, אשר, לדבר, ויבא.

<sup>38</sup> Cf. J. Peretz, *The Pentateuch in Medieval Ashkenazi Manuscripts, Tikkunei Soferim and Torah Scrolls: Text, Open and Closed Sections and the Layout of the Songs* (Ph.D. diss., Bar Ilan University, 2008) (Heb.).

<sup>39</sup> Cf. *ibid*, 271, 308-309. Examining Ashkenazi manuscripts 22 were found in which the lines before the Song of the Sea were like those in the Aleppo Codex, and 14 manuscripts in which the lines after the Song matched it (*ibid*, 250-251). Some of these manuscripts may have been influenced by Maimonides' ruling, and therefore do not necessarily reflect an earlier scribal tradition.



columns of the page, and the continuation of the text was written in the left-hand column after the poem. The alternate option, that the scribe wrote one column using the width of two columns, but placed it in the middle of the page – is highly unlikely.

### *The Testimony of Samuel Sabbagh*

In conclusion, I quote here the information about the journey of the Exodus fragment, which was related to me by the late Mr. Samuel Sabbagh, and which I published in Hebrew in 1989, shortly after the first discovery of the fragment:<sup>40</sup>

The fragment is in the possession of Mr. Samuel Sabbagh, born in Aleppo and resident of Brooklyn, New York. He claims to have been the first to enter the synagogue in Aleppo after the riots of 1947,<sup>41</sup> picked up the torn piece of parchment, and has kept it in his wallet every since. After the riots he left Aleppo for Adana in Turkey and a short time later immigrated to Israel. In 1968 he emigrated to the United States, where he was engaged in commerce until retirement.

Mr. Michael Glatzer, the Academic Secretary of the Ben-Zvi Institute, met Mr. Sabbagh at the Sephardi Jewish Community Center in Brooklyn on October 18, 1988, took his testimony and received from him a photocopy of the fragment, made through the plastic sheath in which it was kept.

The following is Mr. Sabbagh's testimony:

A day after the riots of November 29<sup>th</sup>, 1947 in Aleppo, when I heard that they had broken into all the synagogues in Aleppo, I went to the old synagogue to see what had happened. I was the first to enter the synagogue after the riots. I found that they had broken down the door.

How did they break open a metal door? They brought Arameans (?) who were expert and poured gasoline near the door. They lit the gasoline and burned the wooden filling inside the door. After it was burnt, the metal plates collapsed and they could enter. They opened all of the holy arks and took out the Torah scrolls. They burned all of them. Not one Torah scroll remained in the city.

<sup>40</sup> Ofer, "Fragment," 41-42.

<sup>41</sup> For other testimonies about the rescuing of the Aleppo Codex remainders after the riots, see: Shamosh, *Ha-Keter*, 39-49 (chap. 3); M. Friedman, *The Aleppo Codex: A True story of Obsession, Faith, and the Pursuit of an Ancient Bible* (Chapel Hill, N.C.: Algonquin, 2012), chap. 5.

They only survived in the town of Tedef in the synagogue of Ezra the Scribe. I walked through the wreckage until I reached the "Ark of Elijah the Prophet" (where my mother used to light memorial candles, and where I also lit candles in memory of my parents). How did they open the safe that was inside the ark? They turned it over with its door facing down. Three layers of tin formed the back wall of the safe. They cut them layer by layer hoping to find money, but only found a manuscript inside – the manuscript of the Torah [i.e. the Aleppo Codex]. It was used for copying Torah scrolls. I saw that the manuscript had been damaged by fire. I saw the pages that were strewn on the ground and damaged by fire. I could have taken the whole part that remained, but my hands were trembling from the horrors I saw. I thought they would come to slaughter us all, like the Turks had slaughtered the Armenians. I only took the small fragment, which was separate. I left the rest and I told Mordechai Faham to take it. He took it and brought it to Israel and gave it to Izhak Ben-Zvi. Asher Bagdadi lived in Aleppo, but that poor fellow had nothing to do with the codex.

### *Abbreviations*

D = Miqra'ot Gedolot Bible Edition, Venice 1524-1525

L = St. Petersburg, Russian National Library, Ms. Evr. I B 19a, Bible, written 1009 (photocopy: D.N. Freedman [ed.], *The Leningrad Codex – A Facsimile Edition*, Grand Rapids 1998).

L3 = St. Petersburg, Russian National Library, Ms. Evr. II B 10, Torah, dedicated 946 (microfilm number in Jerusalem: f 62964)

M.P. = Masora Parva

M.M. = Masora Magna

S = Ms Jerusalem Heb. 24<sup>o</sup> 5702 (previously: Ms. Sassoon 507), Torah, photoprint Copenhagen 1978-1982

S1 = Ms. Sassoon 1053, Bible (Microfilm: f 8881)