

An Ancient Scroll of the Book of Exodus: The Reunion of Two Separate Fragments

Edna Engel, Hebrew Palaeography
Project, Israel Academy of Sciences
and Humanities

Mordechay Mishor, Academy of the
Hebrew Language

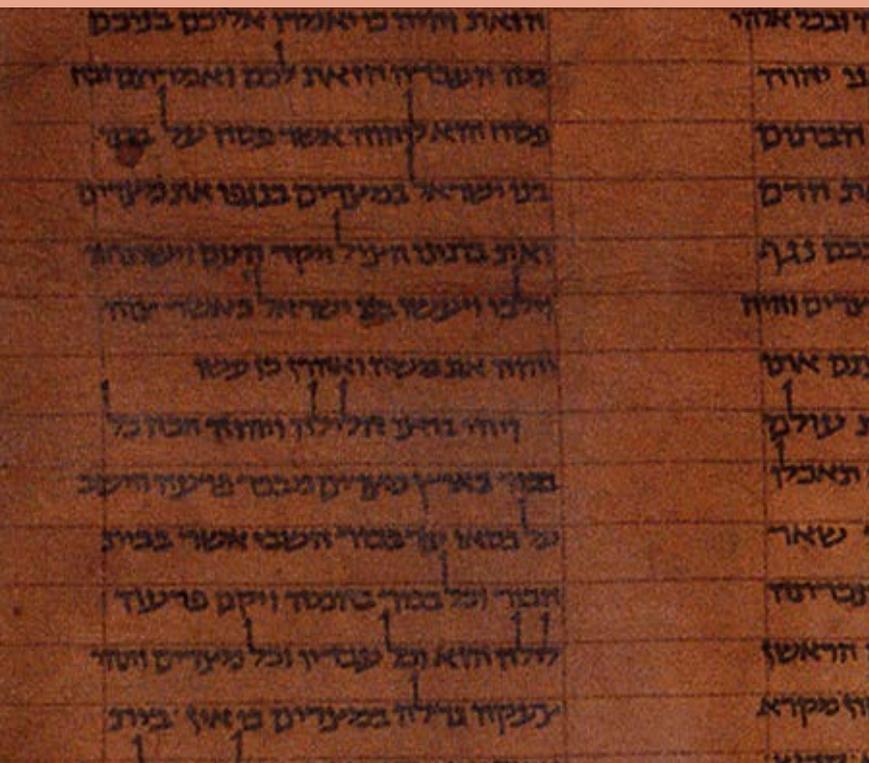


Fig. 1
Detail of MS London, 7th–8th century,
gvil. Courtesy of the Loewentheil Family,
New York

In May 2007, on the eve of the Jewish festival of Shavuot (Pentecost), a rare fragment of an ancient Torah scroll was placed on display at the Shrine of the Book in The Israel Museum, Jerusalem. Known as MS Ashkar-Gilson No. 2 (hereafter MS Ashkar; figs. 2a–c, 4), the manuscript contains a passage from the book of Exodus (13:19–16:1) that includes the “Song of the Sea.” When visiting the exhibit, Dr. Mordechay Mishor, a member of the Academy of the Hebrew Language, was struck by the similarity between MS Ashkar and another manuscript, formerly known as MS London, Jews’ College 31 (hereafter MS London; figs. 1, 3), also a fragment of a Torah scroll containing a text from Exodus (9:18–13:2). Suggesting that the two might be parts of the same original scroll, Mishor turned to Dr. Edna Engel of the Hebrew Palaeography Project at the Israel Academy of Sciences and Humanities for paleographic verification.

Engel’s preliminary paleographic examination revealed a perfect match between the manuscripts; the two researchers decided to collaborate on a detailed study, and with the enthusiastic support of Dr. Adolfo Roitman, Director of the Shrine of the Book, they began reconstructing the scroll’s remarkable story. Engel and Mishor set out to establish contact with the custodians and owners of the two manuscripts, beginning with Duke University’s Manuscript Department, which gave them permission to work with facsimiles of MS Ashkar and to publish the results of their study. The current owner of MS London was located as well; he, too, readily consented to cooperate on the challenge of reuniting the two manuscripts. The result was the joining of two ancient *gvil*¹ fragments from opposite ends of the world and the reconstruction of a section of one of the oldest surviving Torah scrolls.²

Until the late 1970s, MS Ashkar was part of the Hebrew manuscript collection of Dr. Fuad Ashkar, a Lebanese-born American

physician. Dr. Ashkar was unaware of the importance of the partially blackened sheet of *gvil* in his possession until he made contact with Professor James H. Charlesworth of Duke University,³ who commissioned Carbon-14 tests to confirm his suspicion that the manuscript was written in the seventh or eighth century.⁴ The document was placed in Duke University's Rare Book, Manuscript, and Special Collections Library for safekeeping. In 2004, Charlesworth apprised Roitman of the existence of the fragment and consented to having it brought to the Israel Museum for examination and display. After long months of conservation and restoration by Michael Maggen, Head of the Paper Conservation Laboratory at the Israel Museum, it was placed on exhibition in the Shrine of the Book.⁵

MS London was formerly preserved in the library of Jews' College, London,⁶ but it is not known how and when it wound up there. The librarian, Ms. R. P. Lehmann, asked paleographer S. A. Birnbaum to appraise the *gvil* fragment, and after a thorough examination Birnbaum published an extensive description of the manuscript, which he assigned to the eighth century.⁷ Rare books and manuscripts dealer Stephan Loewentheil, proprietor of the 19th Century Rare Book and Photograph Shop, bought the manuscript at a public auction and still owns it.⁸

In what follows, we maintain – based on textual and paleographic evidence – that the two fragments are part of a single scroll (hereafter MS London-Ashkar; fig. 5).⁹

I. Introduction

The Dead Sea Scrolls found in the Qumran caves and the documents and letters from the caves of Wadi Murabba'at and Nahal Hever in the Judean Desert are the oldest datable manuscripts written in the "Jewish"

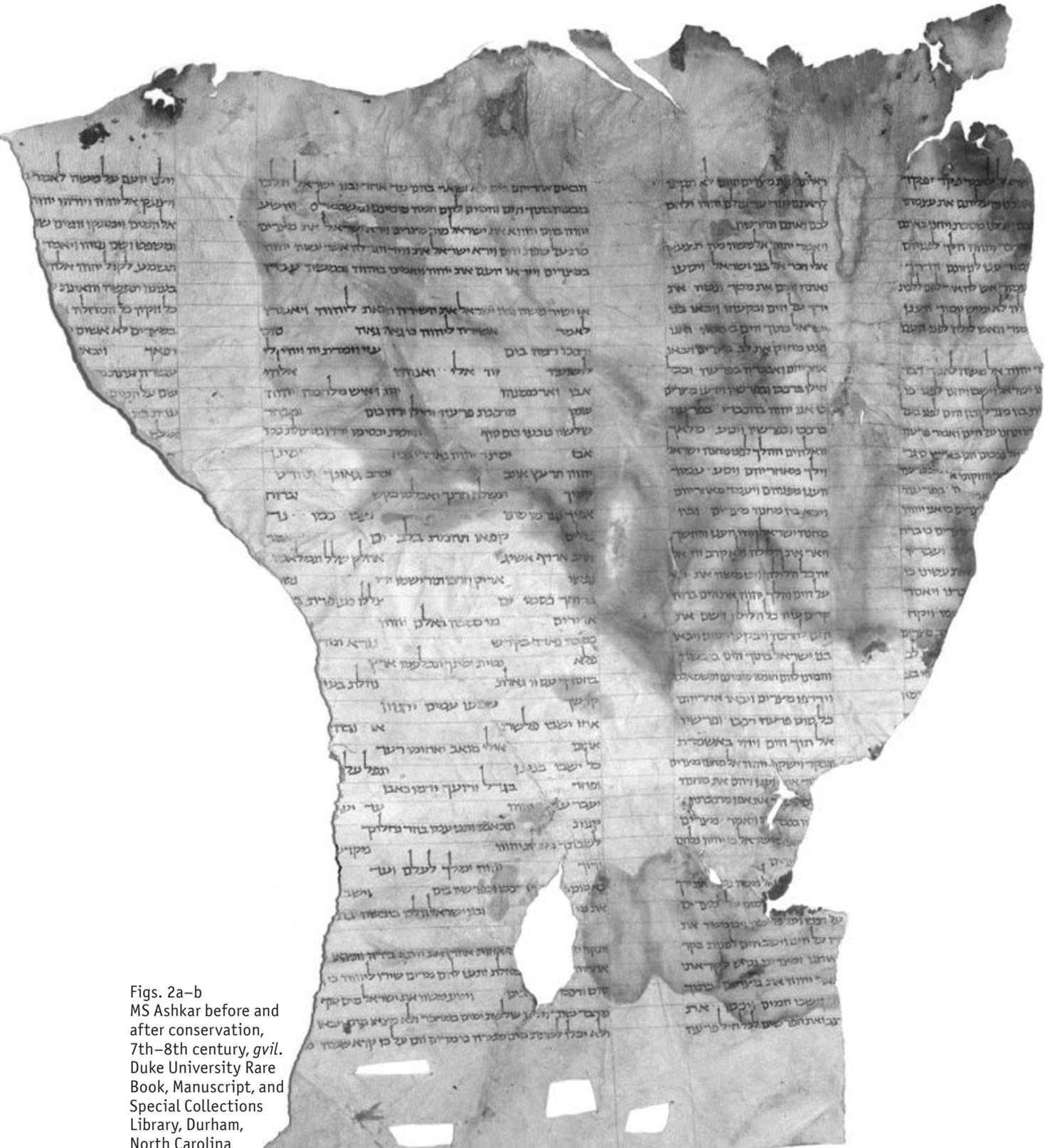
script.¹⁰ They are first-hand evidence of the religious and cultural traditions of the Jews living in the late Second Temple Period (first century BCE – first century CE) and the time of the Bar Kokhba Revolt (early second century CE). Indeed, there are dated Jewish manuscripts, including splendid biblical codices, from the tenth century on, but almost no dated or datable texts have survived from the intervening eight hundred years. Consequently, any written material that can be assigned to that "silent era" is of inestimable value.

The combined London-Ashkar manuscript is one such scroll. Although it is undated, Carbon-14 testing and paleographic analysis leave no doubt that the scroll was written in those interim years, specifically, in the seventh or eighth century; closer examination suggests an Egyptian provenance.¹¹

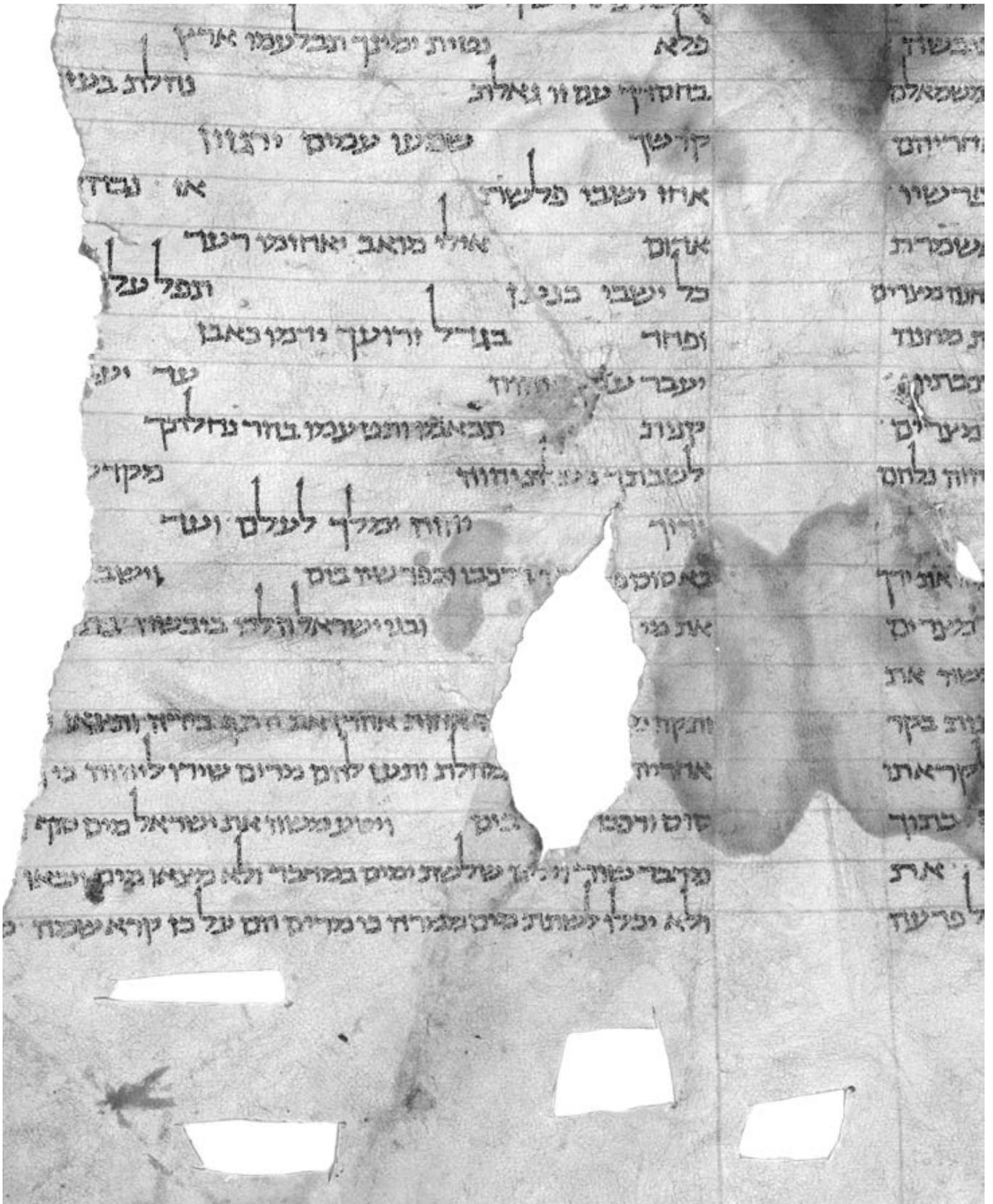
The significance of the reunited manuscript lies not only in the fact that it comes from the above-mentioned "silent era," but that after the first- and second-century scrolls from the Judean Desert, the London-Ashkar scroll is the earliest biblical text containing significant extant sections. There are reasonable grounds for assuming that it was read regularly in a synagogue,¹² but – as we shall see below – there are arguments for and against this conjecture.

The scroll was a well-known literary format in ancient Jewish tradition. Much has been written about its antiquity as well as the shift from scroll to codex, the forerunner of the modern bound volume. This transition took place among non-Jewish cultures in the early centuries of the Common Era, but was delayed somewhat in the Jewish world. In fact, we find no reference in Jewish literature to the writing of codices before the end of the eighth century.¹³ Ancient scrolls were written on *gvil* – pieces of animal skin that are thicker than parchment and written on





Figs. 2a-b
MS Ashkar before and
after conservation,
7th–8th century, *gvil*.
Duke University Rare
Book, Manuscript, and
Special Collections
Library, Durham,
North Carolina



only the hairy side.¹⁴ Jewish religious sources reveal a preference for the use of *gvil* for Torah scrolls, but do not prohibit the use of parchment instead.¹⁵

Although the MS London-Ashkar scroll is written on *gvil*, it does not necessarily mean that it was used in the synagogue. The scroll format continued to be used for various kinds of texts until the early Middle Ages, though it remains obligatory for liturgical use in the synagogue until today. The scribal tradition of Torah scrolls supports the idea that MS London-Ashkar was intended for liturgical use. Like the Torah scroll, this manuscript was written in an elegant hand by a skilled professional scribe who complied with a uniform tradition of complex rules and detailed textual prescriptions that has been observed meticulously in every region of the Jewish Diaspora.¹⁶ MS London-Ashkar adheres to this tradition and is characterized by the following main features in compliance with rabbinic literature.

Number of columns

There are seven columns in MS London and at least four in MS Ashkar. According to the Talmud Bavli *Menahot* 30a: “A man should use sheets [of *gvil* or parchment] that contain between three and eight columns; he should not use one that contains fewer or more columns.”

Line length

In MS London-Ashkar, the number of letters per line ranges from 16 to 27.¹⁷ The Talmudic passage quoted above states that the width of a column should not exceed “such as למשפחתים three times” (i.e., 27 letters in biblical spelling, as in Exodus 12:21 and Numbers 33:54, or, according to Maimonides, 30 letters in plene spelling: למשפחותיכם; see *Mishneh Torah, Hilkhot Sefer Torah* 7:4).

Column length

Each column in MS London-Ashkar has 42 lines. According to Tractate *Soferim* 2:11, there may be 42, 60, 72, or 98 lines per column.¹⁸ The column length of MS London-Ashkar affords the Song of the Sea section an elegant symmetry (five lines at the top of the column, a blank line, the 30 lines of the body of the song, another blank line, and five more lines below that; (figs. 2b, 4).

Ruling technique

MS London-Ashkar complies with the halakhic guidelines – horizontal rules mark the lines and vertical rules indicate the margins. Both are aligned with “pricking marks” on either side of the sheet. According to Tractate *Soferim* I 1:15, “If he wrote on a sheet that was not ruled, the scroll is invalid.”

Section breaks (*parashiyot*)

MS London-Ashkar closely adheres to the original Tiberian tradition. On the different types of section breaks, see Talmud Bavli *Shabbat* 103b: “An open section may not be written closed, nor a closed section open.”¹⁹

Format

The format of the Song of the Sea and the verses before and after it complies with the guidelines in Tractate *Soferim* and the Masorah.

Text

The text of the scroll is compatible with the detailed orthography prescribed by the Masoretic guidelines. There are six columns in the Torah that must begin with a specified word.²⁰ One such instance occurs in MS Ashkar, with the word הבאים (“who were coming”) in Exodus 14:28 (figs. 2b, 4). According to *’Adat Devorim*, all other columns in a Torah scroll must begin with the letter *vav* (a tradition referred to as *vavei*

Fig. 2c
Detail of MS Ashkar

ha'ammudim [a word-play on “the *vavim* of the columns” and “the hooks of the pillars” in the Tabernacle]). MS London-Ashkar does not follow this rule; to the best of our knowledge, there is no evidence that this custom was observed before the thirteenth century either in Torah scrolls or in codices. Even after the tradition became widespread, it was regarded in the Middle Ages as excessive elegance, to which some authorities were strongly opposed.

Left justification

According to Talmud Bavli *Menahot* 30a–b, “if [at the end of a line] he has [to write] a word of five letters he must not write two letters in the column and three outside [in the margin], but three in the column and two outside.”²¹ The scribe of MS London-Ashkar was careful to left-justify his lines and employed several standard methods of medieval Hebrew scribes: (1) He used a variety of graphic forms to fill out the line – one or several short wavy lines (e.g., MS London 10:13), a circle, or several small circles (e.g., MS London 10:14). Circles drawn in the middle of the line (e.g., MS London 10:13, between נשא and את) may have served the same purpose. (2) The scribe sometimes writes the last letter, or letter and a half, in the margin, leaving space between this letter and the end of the line. (3) He stretches the last letter in the line horizontally so that its roof reaches the left margin.²²

Given the fact that the scribe of MS London-Ashkar scrupulously complied with the other laws for writing a Torah scroll, his methods for observing the last one – keeping the left margin straight – are somewhat unexpected.²³ Indeed, even though nothing in the laws of writing Torah scrolls relates to filling out the line using graphic elements, it would seem to be invalid under the guidelines in force today. The acceptability of this method was discussed by Sirat, who noticed that the

scribe of an ancient Torah scroll filled out a line with dots.²⁴ Accordingly, she maintained that this use of symbols raises the question of what is deemed to be an addition to the consonantal text, which alone is permitted in a liturgical scroll.²⁵ She concluded that not everything considered an inviolable rule today was considered as such in the early Middle Ages; and we should not infer that those rules, which were established in a later period, were known to the scribes of ancient scrolls. Sirat’s conclusion suggests, therefore, that the technical means employed by the scribe of MS London-Ashkar to justify his lines do not preclude the possibility that the scroll was considered fit for use in the synagogue.

In either case, even if MS London-Ashkar had not been part of a scroll for liturgical use, its uniqueness and importance remain undiminished. Its highly precise dating and presumed place of writing make it an extremely important link to the “silent era.”

* * *

The second verse of the Song of the Sea in MS Ashkar includes the line, “This is my God and I will adorn Him” (וְאֲדָנֶיךָ; Exodus 15:2) – “adorn” being used here metaphorically as “glorify.” However, the sages understood “adorn” literally to support the idea of attaining an aesthetic ideal in the observance of the precepts: “I will adorn Him’: Adorn yourself before Him in the fulfillment of precepts. Make in His honor ... a beautiful Torah scroll, and write it with fine ink, with a fine reed pen, by a skilled penman” (Talmud Bavli *Shabbat* 133b).

Looking at the clean and elegant design of the Torah scroll of which these two manuscripts are a part, we cannot help but marvel at the work of that ancient skilled penman who labored painstakingly to be

faithful to the significance that the sages attached to this verse of the Song of the Sea.

II. The Textual Connection between MS London and MS Ashkar

Mordechay Mishor

MS London and MS Ashkar: Two Consecutive Sheets

MS London is a complete *gvil* sheet containing seven columns of biblical text, from the middle of Exodus 9:18 until one word before the end of Exodus 13:2 (בֹּאֲדָם וּבְכַהֲמָה לִי הוּא). In contrast, MS Ashkar is damaged at both ends; only four columns have survived, and the two outermost ones are severely damaged. Its text is also from Exodus, from the middle of 13:19 (אֵת בְּנֵי יִשְׂרָאֵל לְאֹמֶר) until 16:1 (fig. 4).

There is a gap of 16 verses and two partial verses – from 13:2 (end) until 19 – between the end of MS London and the first surviving column of MS Ashkar. The number of words in this missing text would fill one column; thus, we may infer that the damaged column at the right end of MS Ashkar was preceded by another one, which constituted the first column of the original *gvil* sheet and the direct continuation of MS London. The top of that column completed Exodus 13:2, which began at the very end of MS London: [הוּא] | בֹּאֲדָם וּבְכַהֲמָה לִי | הוּא. The end of the column led directly into the middle of verse 19 (כִּי הַשְּׁבַע הַשְּׂבִיעִי | אֵת בְּנֵי יִשְׂרָאֵל לְאֹמֶר) of the surviving column. (fig. 5)

The numerical data are as follows: MS London is written in seven columns. There are a total of 1,708 words on the sheet. The number of words per column ranges from 208 to 266, or, consecutively: 237, 261, 266, 246, 241, 249, and 208 (the 208-word column is particularly narrow, perhaps because it was the last one on the sheet). The average number of words per column is 244. The

first surviving column of MS Ashkar (from the end of 13:19 to the middle of 14:13) contains 244 words (quite coincidentally, the average figure for the columns of MS London). Between the end of the text of MS London (Exodus 13:2) and the beginning of the damaged column at the beginning of MS Ashkar (Exodus 13:19) there are 263 words missing. This number clearly corresponds to one column (for comparison's sake, columns two and three of MS London have 261 and 266 words, respectively). Thus, the first column of the sheet on which MS Ashkar is written is the direct continuation of MS London (fig. 5).

With this data we can reconstruct MS Ashkar as follows (fig. 4):

- Column One, completely reconstructed: 263 words, from the end of Exodus 13:2 to the middle of 13:19;
- Column Two, severely damaged: 244 words, from the middle of 13:19 to the middle of 14:13;
- Column Three, almost perfectly preserved: 223 words, from the middle of 14:13 to the middle of 14:28;
- Column Four, containing the Song of the Sea, is double-width and written according to the Masoretic guidelines for the layout of that passage and the verses preceding it;
- Column Five is calculated to have contained some 260 words, but only the top of the column has survived;
- On the assumption that the sheet was the same length as MS London (which has seven columns), and given the fact that the column with the Song of the Sea is double-width, it seems likely that MS Ashkar originally had one more column on the left, making a total of six.

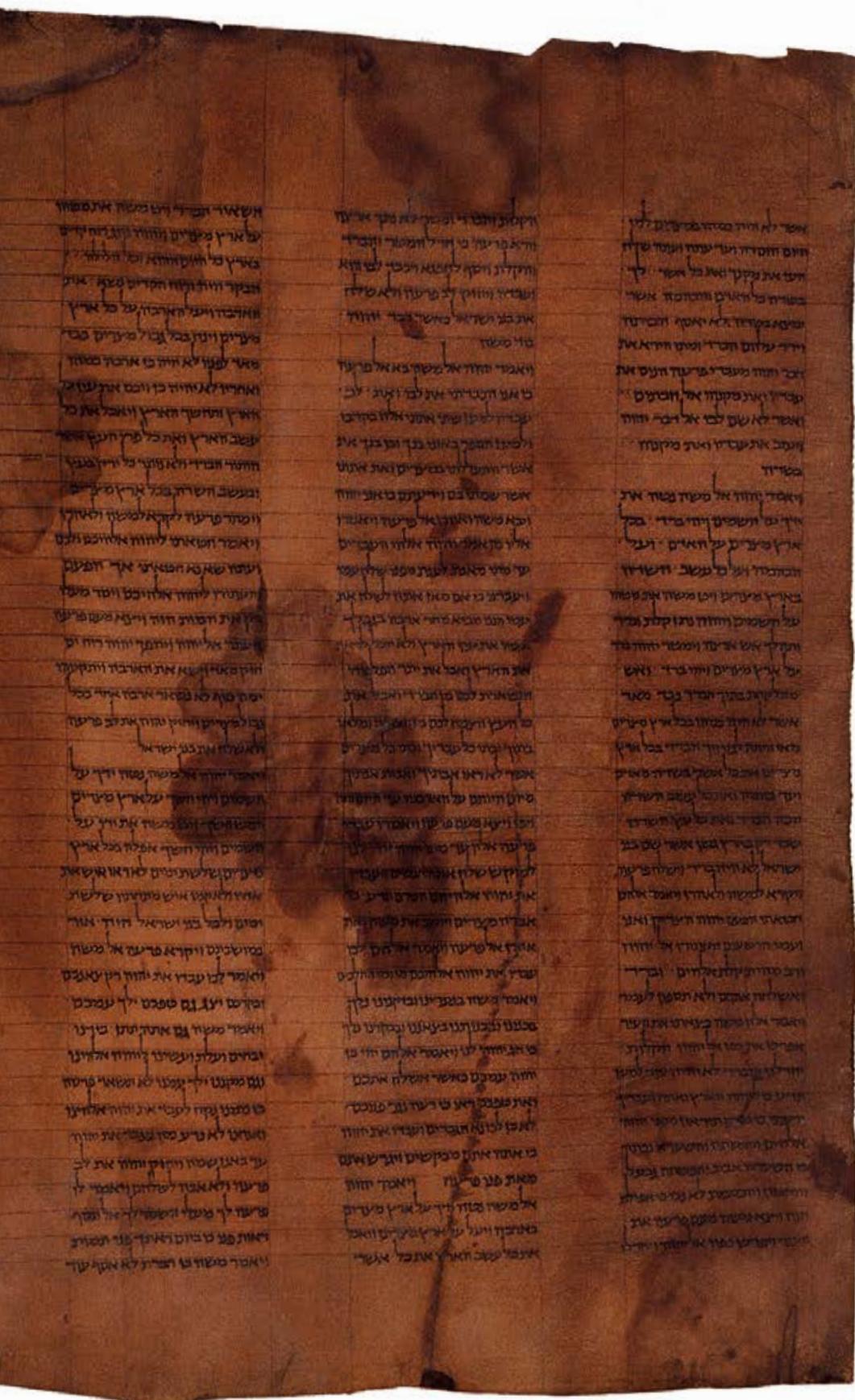


Fig. 3
MS London

The Text

Having established that MS London and MS Ashkar are two consecutive sheets of a single Torah scroll, they can now be treated as one: MS London-Ashkar. In order to categorize MS London-Ashkar, its text was compared to the reconstructed text of the Aleppo Codex (hereafter **A**), after J. S. Penkower,²⁶ and with the Masoretic guidelines in MS Leningrad b19A (hereafter **L**).²⁷

Spelling, section breaks, layout of the Song of the Sea

As Birnbaum has noted,²⁸ the text of MS London is identical to the Masoretic Text (hereafter **MT**), and this is true of MS Ashkar as well.

Here we should note a distinctive orthographical feature of the conjoined forms **אחרי־כן** (= **אחרי־כן**; 10:11),²⁹ **ואחרי־כן** (= **ואחרי־כן**; 11:1), and **ואחרי־כן** (= **ואחרי־כן**; 11:8). According to the traditional cantillation marks, each pair is linked by a *maqaf* (hyphen). Note that these words were not squeezed together due to a lack of space at the end of the line; the absence of a space between them was intentional.

With regard to the section breaks, Birnbaum noted one divergence: the Masorah has a *parashah setumah* (closed section) in Exodus 12:1 whereas MS London is marked by a *parashah petubah* (open section).³⁰

The Song of the Sea and the lines before and after it are written in accordance with the scribal tradition: the first line at the top of the column begins with the word **הבאים**, the next with **ביבשה**, followed in the next line by **יהוה**, then **מת**, and, finally, **במצרים**. This is followed by a blank line, after which the song is written “blank over text and text over blank” (**אריח על גבי אריח**), in keeping with the principle handed down in rabbinic literature in the name of Rav (died

mid-third century CE; Talmud Yerushalmi *Megillah* 3:6 [74b]; Tractate *Soferim* 12:9).³¹

The song itself is written on thirty lines (Tractate *Soferim* 12:10); lines 29–30 are written according to the conjectured text of **A**:

בא סוס פרעה ברכבו ובפרשיו בים וישב יהוה עליהם
את מי הים ובני ישראל הלכו ביבשה בתוך הים

This layout has typological value since is not found in all manuscript types.

After the Song of the Sea there is again the traditional blank line followed by five more lines that run until the bottom of the column. Their arrangement is not identical with those in **A**, but the first line begins with the word **ותקה**, the next with **אחריה**, and the third with **סוס**, as in **A**; the last two lines, however, begin with **מדבר** and **ולא יכלו** – unlike **A**, where they begin with **ויצאו** and **ויבאו**. It should be noted that the scribe apparently was not constrained to write the lines this way. There is a closed section break in the middle of the third line (the one that begins with **סוס**); the scribe simply could have made it a bit wider, adding approximately seven more letter widths, so that the next line would begin with **ויצאו** and the following one with **ויבאו**, as in **A**.

Typology

To determine the typology of MS London-Ashkar I relied on Penkower,³² who described a sheet from a Torah scroll known as **TSC** (Torah Scroll Christie’s), dated to the tenth or eleventh century, containing the text of Exodus 10:10–16:15. Until the exposure of MS Ashkar in 2007, **TSC** was the oldest surviving Torah fragment containing the Song of the Sea, and because **TSC** overlaps MS London-Ashkar to a great extent (Exodus 10:10–16:1, except for the damaged portions of MS Ashkar), we can rely on Penkower’s description of **TSC** and the comparative information provided in his article.³³

Comparing TSC with the Oriental, Sephardic, Ashkenazic, and Yemenite traditions, Penkower found that it matched the Oriental type, which is represented by five medieval codices: the Aleppo Codex (A); MS Sassoon 507 (now MS Jerusalem 24° 5702) (S); MS British Library Or. 4445 (B); MS Cairo 3 (C3); and MS Leningrad b19A (L). MS London Jews' College 31 was not among the manuscripts examined for comparison.³⁴

Textual variants

Penkower's examination of the textual variants (mostly plene and defective spellings) in the Oriental manuscripts he examined³⁵ revealed that MS London-Ashkar is the only one that corresponds fully to A (except for the few places already noted, where spacing was not observed) as well as to the marginal Masoretic notes in L, even in those places where the text of L itself does not comply. TSC, which is a fragment of a Torah scroll intended for liturgical use and thus should have been faithful to the guidelines for writing Torah scrolls, deviates from A in nine or ten places. Eight or nine of these places have been emended, generally by inserting or removing a mater lectionis but also by supplying an entire missing word, such as אַת (10:13), which was inserted between the lines. The words אַל כֹּל עֲדַת יִשְׂרָאֵל לֵאמֹר בְּעֶשֶׂר (3:12) are written over an erasure; Penkower suggests that the word עֲדַת or בְּעֶשֶׂר had been omitted by the original scribe. In one place (11:1) a letter has been emended, אַחֲרֵי כֵּן (אָן), and it is possible (again according to Penkower) that the scribe had originally written אַחֲרֵיכֶם.

We cannot know if these are scribal errors or evidence of a different scribal tradition, especially in the case of variants common to two manuscripts, such as הַנִּזְוֹת (12:10), where S=C3; הַרְאֵשׁוֹן (12:15b), where L=TSC; מִצְוֹת (13:6), where B=TSC; and

חֲמָה (14: 22), where L=TSC. In any case, MS London-Ashkar corresponds to the text of A.

Section breaks (*parashiyot*)

The manuscripts examined by Penkower diverge significantly both from A and among themselves.³⁶ The closest to A is TSC, which seems to have only two deviations: one can be reconstructed in the damaged portion at the beginning of the manuscript, 10:12 (an open *parashah* instead of a closed one, with no indication of an emendation); the other at 13:11, where the hand that emended the manuscript scratched out the words מִימִיָּה at the end of the line and rewrote them, squeezed together; on the next line, he scratched out the word וְהָיָה and rewrote it in stretched letters to fill the entire space.³⁷ All of the other manuscripts have deviations from A – two in S, seven or eight in B, nine in C3, and four in L, none of which was emended.³⁸

As noted above with regard to section breaks, MS London-Ashkar deviates from A in only one place (12:1), where, unlike A, it has an open *parashah*. This variant is shared with L and C3, which also have an open *parashah* here.

The Song of the Sea and the preceding and following lines

The layout of 15:19 – lines 29–30 of the Song of the Sea in MS London-Ashkar (in which line 30 begins with the words אֵת מִי הָיִים) – is characteristic of the Oriental type, and we find the same layout in A, B, C3, and L. (In S, which is also Oriental, the verse is written without a break.) Following Maimonides' *Hilkhot Sefer Torah*, this tradition was preserved in the Yemenite type. In the Sephardic type, line 30 begins with the word הָיִים. In the Ashkenazic type, the verse is written on two or three lines without a break.³⁹

וילנו העם על משה לאמר מה נשתה
 ויצעק אל יהוה ויורהו יהוה עץ וישלך
 אל המים וימתקו המים שם שם לו חק
 ומשפט ושם נסהו ויאמר אם שמוע
 תשמע לקול יהוה אלהיך והישר
 בעיניו תעשה והאזנת למצותיו ושמרת
 כל חקיו כל המחלה אשר שמת
 במצרים לא אשים עליך כי אני יהוה
 רפאך ויבאו אילמה ושם שתים
 עשרה עינת מים ושבעים תמרים ויחנו
 שם על המים ויסעו מאילם ויבאו כל
 עדת בני ישראל אל מדבר סין אשר בין
 אילם ובין סיני בחמשה עשר יום
 לחדש השני לצאתם מארץ מצרים
 וילינו כל עדת בני ישראל על משה
 ועל אהרן במדבר ויאמרו אלהם בני
 ישראל מי יתן מותנו ביד יהוה בארץ
 מצרים בשבתנו על סיר הבשר באכלנו
 לחם לשבע כי הוצאתם אתנו אל
 המדבר הזה להמית את כל הקהל
 הזה ברעב ויאמר יהוה אל משה
 הנני ממטיר לכם לחם מן השמים
 ויצא העם ולקטו דבר יום ביומו
 למען אנסנו הילך בתורתך אם לא
 והיה ביום הששי והכינו את אשר
 יביאו והיה משנה על אשר ילקטו
 יום יום ויאמר משה ואהרן אל כל
 בני ישראל ערב וידעתם כי יהוה
 הוציא אתכם מארץ מצרים ובקר
 וראיתם את כבוד יהוה בשמעו את
 תלנתיכם על יהוה ונחנו מה כי
 תלוננו עלינו ויאמר משה בתת יהוה
 לכם בערב בשר לאכל ולחם בבקר
 לשבע בשמע יהוה את תלנתיכם
 אשר אתם מלינם עליו ונחנו מה לא
 עלינו תלנתיכם כי על יהוה ויאמר
 משה אל אהרן אמר אל כל עדת בני
 ישראל קרבו לפני יהוה כי שמע את
 תלנתיכם ויהי כדבר אהרן אל כל
 עדת בני ישראל ויפנו אל המדבר והנה
 כבוד יהוה נראה בענן
 וידבר יהוה אל משה לאמר שמעתי

הבאים אחריהם בים לא נשאר בהם עד אחד ובני ישראל הלכו
 ביבשה בתוך הים והמים להם חמה מימינם ומשמאלם ויושע
 יהוה ביום ההוא את ישראל מיד מצרים וירא ישראל את מצרים
 מת על שפת הים וירא ישראל את היד הגדלה אשר עשה יהוה
 במצרים וייראו העם את יהוה ויאמינו ביהוה ובמשה עבדו

אז ישיר משה ובני ישראל את השירה הזאת ליהוה ויאמרו
 לאמר
 ורכבו רמה בים
 לישועה
 אבי וארממנהו
 שמו
 שלשיו טבעו בים סוף
 אבן
 יהוה תרעץ אויב
 קמיק
 אפיך נערמו מים
 נזלים
 אויב ארדף אשיג
 נפשי
 ברוחך כסמו ים
 אדירים
 כמכה נאדר בקדש
 פלא
 בחסדך עם זו גאלת
 קדשך
 אחזי ישבי פלשת
 אדום
 כל ישבי כנען
 ופחד
 יעבר עמך יהוה
 קנית
 לשבתך פעלת יהוה
 ידיך
 בא סוס פרעה וברכבו בים
 את מי הים
 אשירה ליהוה כי גאה גאה
 עזי וזמרת יה ויהי לי
 זה אלי .. ואנוהו
 יהוה איש מלחמה יהוה
 מרכבת פרעה וחילו ירה בים ומבחר
 תהמת יכסימו ירדו במצולת כמו
 ימינך יהוה נאדרי בכח ימינך
 וברב גאונך תהרס
 תשלח חרנך יאכלמו כקש וברוח
 נצבו כמו .. נד
 קפאו תהמת בלב ים
 אמר
 אריק חרבי תורישמו ידי
 נשפת
 צללו כעופרת במים
 מי
 מי כמכה באלם יהוה
 נורא תהלת עשה
 נחית
 נהלת בעזך אל נוה
 חיל
 שמעו עמים ירגזון
 אז . נבהלו . אלופי
 נמגו
 תפל עליהם אימתה
 עד
 בגדל זרועך ידמו כאבן
 עד יעבר עם זו
 מכון
 מקדש אדני כוננו
 כי
 יהוה ימלך לעלם ועד
 וישב יהוה עליהם
 ובני ישראל הלכו ביבשה בתוך הים

ותקח מרים הנביאה אחות אהרן את התף בידה ותצאן כל הנשים
 אחריה בתפים ובמחלת ותען להם מרים שירו ליהוה כי גאה גאה
 סוס ורכבו רמה בים ויסע משה את ישראל מים סוף ויצאו אל
 מדבר שור וילכו שלשת ימים במדבר ולא מצאו מים ויבאו מרתה
 ולא יכלו לשתת מים ממרה כי מרים הם על כן קרא שמה מרה

Fig. 4
Transcript of MS Ashkar (missing parts restored in gray)

ראיתם את מצרים היום לא תספו ·
לראתם עוד עד עולם יהוה ילחם
לכם ואתם תחרשון
ויאמר יהוה אל משה מה תצעק ·
אלי דבר אל בני ישראל · ויסעו ·
ואתה הרם את מטך ונטה · את
ידך על הים ובקעהו ויבאו בני
ישראל בתוך הים ביבשה · ואני
הנני מחזק את לב מצרים ויבאו
אחריהם ואכבדה בפרעה · ובכל
חילו ברכבו ובפרשיו וידעו מצרים
כי אני יהוה בהכבדי · · בפרעה
ברכבו ובפרשיו ויסע · מלאך
האלהים ההלך לפני מחנה ישראל
וילך מאחריהם ויסע · עמוד
הענן מפניהם ויעמד מאחריהם
ויבא בין מחנה מצרים · ובין ·
מחנה ישראל ויהי הענן והחשך
ויאר את הלילה ולא קרב זה אל
זה כל הלילה ויט משה את ידו
על הים ויולך יהוה את הים ברוח
קדים עזה כל הלילה וישם · את
הים לחרבה ויבקעו המים ויבאו
בני ישראל בתוך הים ביבשה ·
והמים להם חומה מימנם ומשמאלם
וירדפו מצרים ויבאו אחריהם
כל סוס פרעה רכבו · ופרשיו ·
אל תוך הים ויהי באשמרת
הבקר וישקף יהוה אל מחנה מצרים
בעמוד אש וענן ויהם את מחנה
מצרים ויסר את אפן מרכבתיו · ·
וינהגהו בכבדת ויאמר · מצרים ·
אנוסה מפני ישראל כי יהוה נלחם
להם במצרים

ויאמר יהוה אל משה נטה את ידך
על הים וישבו המים על · מצרים
על רכבו ועל פרשיו ויט משה את
ידו על הים וישב הים לפנות בקר
לאיתנו ומצרים נסים לקראתו
וינער יהוה את מצרים · בתוך
הים וישבו המים ויכסו · את
הרכב ואת הפרשים לכל חיל פרעה

את בני ישראל לאמר פקד יפקד
אלהים אתכם והעליתם את עצמתי
מזה אתכם ויסעו מסכת ויחנו באתם
בקצה המדבר ויהוה הלך לפניהם
יומם בעמוד ענן לנחתם · הדרך ·
ולילה בעמוד אש להאיר להם ללכת
יומם ולילה לא ימיש עמוד הענן
ועמוד האש לילה לפני העם

וידבר יהוה אל משה לאמר דבר
אל בני ישראל וישבו ויחנו לפני פי
החירת בין מגדל ובין הים לפני בעל
צפן נכחו תחנו על הים ואמר פרעה
לבני ישראל נבכים הם בארץ סגר
עליהם המדבר וחזקתי את לב פרעה
ורדף אחריהם ואכבדה · בפרעה
ובכל חילו וידעו מצרים כי אני יהוה
ויעשו כן ויגד למלך מצרים כי ברח
העם ויהפך לבב פרעה · ועבדיו ·
אל העם ויאמרו מה זאת עשינו כי
שלחנו את ישראל מעבדנו ויאסר
את רכבו ואת עמו לקח עמו · ויקח
שש מאות רכב בחור וכל רכב מצרים
ושלשם על כלו ויחזק יהוה את לב
פרעה מלך מצרים וירדף אחרי בני
ישראל ובני ישראל יצאים ביד רמה
וירדפו מצרים אחריהם וישיגו אותם
חנים על הים כל סוס רכב פרעה
ופרשיו וחילו על פי החירת לפני
בעל צפן ופרעה הקריב וישאו בני
ישראל את עיניהם והנה מצרים
נסע אחריהם וייראו מאד ויצעקו
בני ישראל אל יהוה ויאמרו אל
משה המבלי אין קברים במצרים
לקחתנו למות במדבר מה זאת
עשית לנו להוציאנו ממצרים הלא
זה הדבר אשר דברנו אליך במצרים
לאמר חדל ממנו ונעבדה את מצרים
כי טוב לנו עבד את מצרים ממתנו
במדבר ויאמר משה אל העם אל
תיראו התיצבו וראו את ישועת
יהוה אשר יעשה לכם היום כי אשר

משה אל העם זכור את
שר יצאתם ממצרים מבית
חזק יד הוציא יהוה אתכם
כל חמץ היום אתם יצאים
ב ויהי כי יביאך יהוה אל
י והחתי והאמרי והחוי
ר נשבע לאבתך לתת לך
ב ודבש ועבדת את העבדה
י הזה שבעת ימים תאכל
השביעי חג ליהוה מצות
בעת הימים ולא יראה לך
דאה לך שאר בכל גבלך
ביום ההוא לאמר בעבור
ה לי בצאתי ממצרים והיה
ל ידך ולזכרון בין עיניך
תורת יהוה בפך כי ביד
יהוה ממצרים ושמרת את
למועדה מימים ימימה

י יהוה אל ארץ הכנעני
לך ולאבתך ונתנה לך
פטר רחם ליהוה וכל פטר
אשר יהיה לך הזכרים
טר חמר תפדה בשה ואם
רפתו וכל בכור אדם בבניך
כי ישאלך בנך מחר לאמר
רת אליו בחזק יד הוציאנו
ם מבית עבדים והי כי
ל לשלחנו ויהרג יהוה כל
מצרים מבכר אדם ועד
על כן אני זבח ליהוה כל
זכרים וכל בכור בני אפדה
ל ידכה ולטוטפת בין עיניך
הוציאנו יהוה ממצרים

ישלח פרעה את העם
להים דרך ארץ פלשתים
וא כי אמר אלהים פן
בראתם מלחמה ושבו
טב אלהים את העם דרך
סוף וחמשים עלו בני
רץ מצרים ויקח משה
סף עמו כי השבע השביעי

את בני ישראל לאמר פקד יפקד
אלהים אתכם והעליתם את עצמתי
מזה אתכם ויסעו מסכת ויחנו באתם
בקצה המדבר ויהוה הלך לפניהם
יומם בעמוד ענן לנחתם · הדוך ·
ולילה בעמוד אש להאיר להם ללכת
יומם ולילה לא ימיש עמוד הענן
יומם ועמוד האש לילה לפני העם

וידבר יהוה אל משה לאמר דבר
אל בני ישראל וישבו ויחנו לפני פי
החירת בין מגדל ובין הים לפני בעל
צפן נכחו תחנו על הים ואמר פרעה
לבני ישראל נבכים הם בארץ סגר
עליהם המדבר וחזקתי את לב פרעה
ורדף אחריהם ואכבדה · בפרעה
ובכל חילו וידעו מצרים כי אני יהוה
ויעשו כן ויגד למלך מצרים כי ברח
העם ויהפך ללבב פרעה · ועבדיו ·

אל העם ויאמרו מה זאת עשינו כי
שלחנו את ישראל מעבדנו ויאסר
את רכבו ואת עמו לקח עמו · ויקח
שש מאות רכב בחור וכל רכב מצרים
ושלשם על כלו ויחזק יהוה את לב
פרעה מלך מצרים וירדף אחרי בני
ישראל ובני ישראל יצאים ביד רמה
וירדפו מצרים אחריהם ושיגו אותם
חנים על הים כל סוס רכב פרעה
ופרשיו וחילו על פי החירת לפני
בעל צפן ופרעה הקריב וישאו בני
ישראל את עיניהם והנה מצרים נסע
אחריהם וייראו מאד ויצעקו בני
ישראל אל יהוה ויאמרו אל משה
המבלי אין קברים במצרים לקחתנו
למות במדבר מה זאת עשית לנו
להוציאנו ממצרים הלא זה הדבר
אשר דברנו אליך במצרים לאמר
חדל ממנו ונעבדה את מצרים כי
טוב לנו עבד את מצרים ממתנו
במדבר ויאמר משה אל העם אל
תיראו התיצבו וראו את ישועת
יהוה אשר יעשה לכם היום כי אשר

ראיתם את מצרים היום לא תספו ·
לראתם עוד עד עולם יהוה ילחם
לכם ואתם תחרשון

ויאמר יהוה אל משה מה תצעק ·
אלי דבר אל בני ישראל · ויסעו ·
ואתה הרם את מטך ונטה · את
ידך על הים ובקעהו ויבאו בני
ישראל בתוך הים ביבשה · ואני
הנני מחזק את לב מצרים ויבאו
אחריהם ואכבדה בפרעה · ובכל
חילו ברכבו ובפרשיו וידעו מצרים
כי אני יהוה בהכבדי · · בפרעה
ברכבו ובפרשיו ויסע · מלאך ·
האלהים ההלך לפני מחנה ישראל
וילך מאחריהם ויסע · עמוד
הענן מפניהם ויעמד מאחריהם
ויבא בין מחנה מצרים · ובין ·
מחנה ישראל והי הענן והחשך
ויאר את הלילה ולא קרב זה אל
זה כל הלילה ויט משה את ידו
על הים ויולך יהוה את הים ברוח
קדים עזה כל הלילה וישם · את
הים לחרבה ויבקעו המים ויבאו
בני ישראל בתוך הים ביבשה ·
והמים להם חומה מימנם ומשמאלם
וירדפו מצרים ויבאו אחריהם
כל סוס פרעה רכבו · ופרשיו ·
אל תוך הים והי באשמרת
הבקר וישקף יהוה אל מחנה מצרים
בעמוד אש וענן ויהם את מחנה
מצרים ויסר את אפן מרכבתיו · ·
וינהגו בכבדת ויאמר · מצרים ·
אנוסה מפני ישראל כי יהוה נלחם
להם במצרים

ויאמר יהוה אל משה נטה את ידך
על הים וישבו המים על · מצרים
על רכבו ועל פרשיו ויט משה את
ידו על הים וישב הים לפנות בקר
לאיתנו ומצרים נסים לקראתו
וינער יהוה את מצרים · בתוך
הים וישבו המים ויכסו · את
הרכב ואת הפרשים לכל חיל פרעה

Fig. 5
Reconstruction of the sequence of the sheets: the last two columns of MS London,
the seam, and the first three columns of MS Ashkar (missing parts restored in gray)

תאכלו מצות

ויקרא משה לכל זקני ישראל ויאמר אלהם משם וקחו לכם צאן למשפחותיכם ושחטו הפסח ולקחתם אגדת אזוב וטבלתם בדם אשר בסף והגעתם אל המשקוף ואל שתי המזוזות מן הדם אשר בסף ואתם לא תצאו איש מפתח ביתו עד בקר ועבר יהוה לנגף את מצרים וראה את הדם על המשקוף ועל שתי המזוזות ופסח יהוה . על . הפתח ולא יתן המשחית לבא אל בתיכם לנגף ושמרתם את הדבר הזה לחק לך ולבניך עד עולם והיה . כי תבאו אל הארץ אשר יתן יהוה לכם כאשר דבר ושמרתם את העבדה . הזאת והיה כי יאמרו אליכם בניכם מה העבדה הזאת לכם ואמרתם זבח פסח הוא ליהוה אשר פסח על בתי בני ישראל במצרים בנגפו את מצרים ואת בתינו הציל ויקד העם וישתחוו וילכו ויעשו בני ישראל כאשר צוה יהוה את משה ואהרן כן עשו ויהי בחצי הלילה ויהוה הכה כל בכור בארץ מצרים מבכר פרעה הישב על כסאו עד בכור השבי אשר בבית הבור וכל בכור בהמה ויקם פרעה . לילה הוא וכל עבדיו וכל מצרים ותהי צעקה גדלה במצרים כי אין . בית אשר אין שם מת ויקרא למשה ולאהרן לילה ויאמר קומו צאו מתוך עמי גם אתם גם בני ישראל ולכו עבדו את יהוה כדברכם גם צאנכם גם בקרכם קחו כאשר דברתם ולכו וברכתם גם אתי ותחזק מצרים על העם למהר לשלחם מן הארץ כי אמרו . כלנו . מתים וישא העם את בצקו טרם . יחמץ משארתם צררת בשמלתם . על שכמם ובני ישראל עשו כדבר משה וישאלו ממצרים כלי כסף וכלי זהב ושמלת ויהוה נתן את חן העם בעיני מצרים וישאלום וינצלו את מצרים

ויסעו בני ישראל מרעמסס סכתה כשש מאות אלף רגלי . הגברים לבד מטף וגם ערב רב עלה אתם וצאן ובקר מקנה כבד מאד ויאפו את הבצק . אשר הוציאו ממצרים . עגת . מצות כי לא חמץ . כי . גרשו ממצרים ולא יכלו להתמהמה וגם צדה לא עשו להם ומושב בני ישראל אשר ישבו במצרים שלשים שנה וארבע מאות שנה ויהי מקץ שלשים שנה וארבע . מאות שנה ויהי בעצם . היום הזה יצאו כל צבאות . יהוה מארץ מצרים ליל שמרים . הוא ליהוה להוציאם מארץ מצרים הוא הלילה הזה ליהוה שמרים לכל בני . ישראל . לדרתם

ויאמר יהוה אל משה ואהרן זאת חקת הפסח כל בן נכר לא יאכל בו וכל עבד איש מקנת כסף ומלתה אתו אז יאכל . בו . תושב ושכיר לא יאכל בו בבית אחד יאכל לא תוציא מן הבית מן הבשר חוצה . ועצם . לא תשברו בו כל עדת ישראל יעשו אתו וכי יגור אתך גר . ועשה . פסח ליהוה המול לו כל זכר . ואז יקרב לעשתו והיה כאזרח הארץ וכל ערל לא יאכל . בו תורה אחת יהיה לאזרח ולגר הגר בתוכם ויעשו כל . בני . ישראל כאשר צוה יהוה את משה ואת אהרן כן עשו ויהי בעצם היום הזה הוציא יהוה את בני ישראל מארץ מצרים על צבאתם

וידבר יהוה אל משה לאמר קדש לי כל בכור פטר כל רחם בבני ישראל באדם ובבהמה לי

הוא ויאמר היום הזה אל עבדים כי בה מזה ולא יאפו בחדש האביב ארץ הכנעני והיבوسی אשר ארץ זבת חלב הזאת בחדש מצת וביום יאכל את שמן חמץ ולא י והגדת לבנך זה עשה יהוה לך לאות ע למען תהיה חזקה הוצאך החקה הזאת

והיה כי יבא כאשר נשבע והעברת כל שגר בהמה ליהוה וכל פ לא תפדה וע תפדה והיה מה זאת ואמ יהוה ממצרי הקשה פרעה בכור בארץ בכור בהמה פטר רחם הז והיה לאות ע כי בחזק יד ה ויהי ב ולא נחם א כי קרוב ה ינחם העם מצרימה וי המדבר י ישראל מא את עצמות יו

All the types agree with regard to the lines preceding the Song of the Sea. Beginning the column with the word **הבאים** is attributed to an ancient tradition, “according to the Torah scroll revised by Ezra Hasofer” (*Adat Devorim*, MS Firkovich 22a). In many manuscripts, the width of the last lines at the end of the preceding column is modified so that the column with the Song of the Sea can begin with **הבאים**.⁴⁰ The scribe of TSC had to add an extra line to the previous column.⁴¹ The scribe of MS London-Ashkar calculated the previous column precisely and did not have to modify the letters or spaces in order to comply with this tradition.

In the next four lines, MS London-Ashkar conforms to the tradition (= A) that is also reflected in TSC, L, and other manuscripts. Manuscripts display variants in the lines below the blank line that follows the Song of the Sea; the uniformity in the Yemenite type, following A, seems to be based on Maimonides’ guidelines. This is also the practice of TSC but not of C3, L, and S. Note that *Adat Devorim* specifies the first words of the five lines preceding the Song of the Sea, but not the lines following it.

Distinctive textual variants in MS London-Ashkar

We have already noted a distinct feature of MS London-Ashkar, i.e., the conjoined letters of three hyphenated words: **לכונא** (= **לכו-נא**; 10:11); **אחריכן** (= **אחרי-כן**; 11:1), and **ואחרי-כן** (= **ואחרי-כן**; 11:8).

The closed-up form **לכונא** is also found in L, where the spaces between the words are sometimes negligible, especially at the end of a line, as in **ויצאו אל** (= **ויצאו אל**; 15:22). Generally speaking, the scribe of L seems to have taken the liberty to dispense with the space in hyphenated words such as **בארי-אף** (= **בארי-אף**; 11:8). The omission of the space before the word **נא** appears, albeit only occasionally, in

rabbinic literature.⁴² For example – **שלחנא** (= **שלחנא**): **ביום השביעי אמי לו שלחנא ביר תשלה** (Exodus 4:13, in Midrash on Psalms 18, 22 [ed. Buber, 75b]; MS Cambridge Or. 786); **בשעה שאמרתה לי לך אל פרעה אמרתי אליך שלחנא ביר תשלה** (Exodus 4:11, in Midrash on Proverbs, fragment [ed. Ginzberg, I, 165]). This tradition is also documented in several of the Dead Sea Scrolls, including six places in 1QIsa^a: 5:3: **שפוטנא** (MT: **שפט-נא**; 19:12: **ויגידנא** (MT: **ויגידו-נא**; 36:8: **התערבונא** (MT: **התערב-נא**; 38:3: **זכורנא** (MT: **זכר-נא**; 47:12: **ועמודינא** (MT: **עמדי-נא**; 64:8: **הבטנא** (MT: **הבט-נא**). This is also the version of a parabiblical text (4Q382 f. 9.6 [DJD XIII, 368]) that includes an excerpt from 2 Kings 2:4 (reflecting the version of the Septuagint): **ויאמר לו: (ויאמר אליה) אל אלישע שיבנה פה אליהו אלישע שב-נא פה**.

L also has **אחריכן** as one word in Exodus 11:1. The conjoined spelling of **אחרי-כן** and **ואחרי-כן** is found in several old manuscripts and printed texts,⁴³ including L (except for line-ends, where there is room for **אחרי** only, as in 11:8); the scribe of L writes the words as a single unit even where the combination is not hyphenated, as in Genesis 45:15. The phenomenon is also attested in biblical passages quoted in manuscripts of rabbinic literature, such as: **ואחריכן יצאו ברכוש גדול** (Genesis 15:14, in *Mekhilta, Pisha* 14 [ed. Horowitz-Rabin, 49], MS Oxford 151); **ויקרא אל משה וישבו אליו אהרן וכל הנשי ואחריכן נגשו יגו** (Exodus 34:32, in *Sifre Numbers* 73 [ed. Horowitz, 68], MS Vatican 32); **ואחריכן יצאו אחיו וידו אחות בעקב עשו** (Genesis 25:26, *Sifre Deuteronomy* 343 [ed. Finkelstein, 397], MS Vatican 32); **ואחריכן יצאו ברכוש גדול** (Genesis 15:14, Genesis Rabbah 44:20 [ed. Theodor-Albeck, 442], MS Vatican 30).

As for the section breaks, we found one deviation from A: in Exodus 12:1, MS London-Ashkar has an open *parashah*, like L and C3, whereas A has a closed one. These

few differences between MS London-Ashkar and A indicate the former's possible link to the tradition reflected in L.

General Evaluation

We now can offer a general evaluation of the work of the MS London-Ashkar scribe in light of the various manuscripts of the Oriental type. All of the manuscripts available to Penkower, including TSC, show traces of emendations meant to harmonize with the MT (the conjectured text of A), although most of them still have variants that were not emended. There were nine or ten orthographical variants in the original text of TSC, eight or nine of which were emended; at least two in S (and perhaps three more), all of which were emended; four in B, three of which were emended; ten in C3, all of which were emended; and nine in L, three or four of which were emended. Most divergences from the text of A with regard to section breaks were not emended (two in S; seven or eight in B; nine in C3, and four in L); but note the emendation in TSC, where a somewhat crude technique was used to open a break that was originally written as closed (13:11). In contrast to all these manuscripts, MS London-Ashkar shows no signs of emendations.⁴⁴ The scribe exhibited an impressively diligent adherence to the MT.

III. The Paleography of MS

London-Ashkar

Edna Engel

Considering the paucity of extant texts from the second through ninth centuries, any manuscript that can confidently be dated to that period is extremely valuable, constituting an important link between the Hebrew script first adopted as the Jewish form of writing and the script commonly used by Jews in

the Middle Ages. The Hebrew script did not undergo major changes between its emergence from the Aramaic script and its development as a square script. Nevertheless, over the centuries there were variations in its styles and features, with a gradual progression from the "proto-square" script to the mature square script that lends elegance to the dated manuscripts of the tenth and eleventh centuries.

The laboratory dating of MS Ashkar, identical to Birnbaum's dating of MS London, allows us to assign MS London-Ashkar to the seventh or eighth century. Here, then, in the context of the evolution of Hebrew script in this period, I focus on the script that is used in the two fragments of this scroll in order to corroborate the dating and try to identify where the scroll was written.

To demonstrate the affinities of the script used in the two manuscripts that comprise MS London-Ashkar, their common characteristics were placed on an axis of development between two historical poles for which we have datable texts – the latest of the Dead Sea Scrolls and the Wadi Murabba'at texts (first and second centuries CE) and fragments from the Cairo Genizah (eighth and ninth centuries CE). After having located the reunited manuscript on this time axis, the paleographic description focused on the similarities between the script of MS London-Ashkar and that of a manuscript of known provenance.

The Paleographic Features of MS London-Ashkar⁴⁵

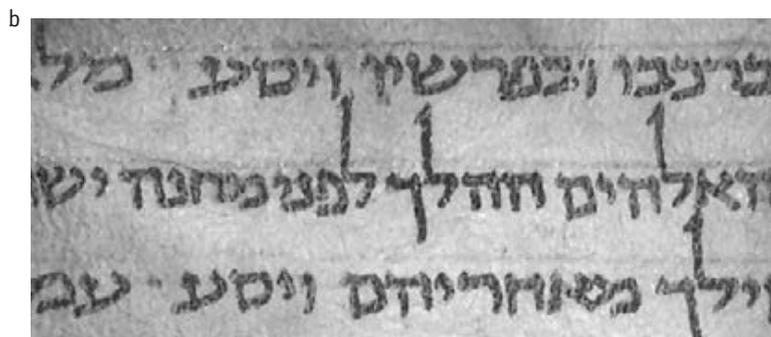
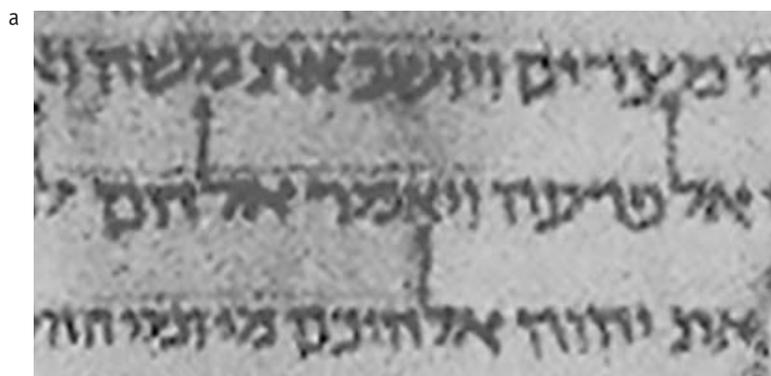
The following form-related parameters have been drawn to describe the script of MS London-Ashkar: (1) textural features, including the proportions of the letters in a word and a line, joined letters, and so on; (2) elements shared by several letters, including

the common upper horizontals of the open letters *bet*, *dalet*, *heb*, *bet*, *kaf*, *kof*, and *resh*; the right verticals of *dalet*, *heb*, *bet*, and *resh*; the shape of the connection between the horizontal and vertical lines; the base of the letters *bet*, *kaf*, *mem*, *nun*, *ayin*, *peh*, *zadi*, and *tav*; the narrow “roof” of the letters *gimel*, *zayin*, *nun*, and final *nun*; and the left legs of *tet*, *ayin*, *zadi*, final *zadi*, and *shin*;⁴⁶ (3) a description of several individual letters.⁴⁷

Texture (fig. 6)

Letters measuring approximately 3.5 mm wide hang from the ruled line and are written close together within a word, imparting a distinctive texture to the script. Despite the many variations in letter size and shape, the two manuscripts have a regular and harmonious texture manifested by the various fixed features. This regularity is produced in part by the consistent repetition of these features and in part by the consistent recurrence of dissimilar ones that could be expected to disrupt the uniform rhythm.

Fig. 6
Texture: a. MS
London; b. MS Ashkar



a. Recurring fixed features

- Spacing between rows and between words
- Spacing between unjoined letters
- Broad, soft, and unpressured quality of the line, with a constant width and no shading⁴⁸
- Visual links between letters, such as the elongation of the neck of the *lamed* toward the letters in the previous row, or the “nesting” of two adjacent letters having opposite slants, such as *alef* followed by *lamed*
- Relatively heavy letters produced by broad pen strokes, which contrast with their small internal spaces
- Marked squatness of the letters, with a fixed ratio of width that exceeds the height

b. Recurring variant features

- Uniform dimension of some letters versus varying dimensions of others (e.g., a final *mem* is always larger than a *beh*)
- Straight verticals in some letters (e.g., *dalet* and *heb*) versus curved verticals in others (e.g., *resh*)
- Contrast between the slants of some letters (e.g., between the rightward slant of the *alef* and the leftward slant of letters such as *dalet* and *heb*) versus the straight vertical orientation of most letters
- Contrast between the centripetal motion of the *alef* versus the centrifugal motion of the other letters

Joined letters (fig. 7)

“Nested letters” refer to the phenomenon wherein a letter encloses the following one in a word to produce a predictable configuration. The slant of the second letter is modified, as if it is trying to accommodate the letter that encloses it. Examples are a *bet* inside an *ayin*, a *yod* inside a *nun*, and an *alef* inside a *gimel* or *nun*. Similarly, a letter that touches the next one produces a predictably configured pair of letters, as when a *nun* touches a *vav* that follows it, or a *bet* touches a *resh*.

Elements shared by several letters

Bases (fig. 8)

Elongated and diagonal bases of letters are conspicuous in both parts of the scroll, thus enhancing the phenomenon of nested letters.

Long upper horizontals (fig. 9)

The left ends of the long upper horizontals (as in *heb* or *resh*) turn upward in a prominent vertical or diagonal tag. The horizontals themselves show a light downward slant to the left.

Right verticals (fig. 10)

The right verticals have a slight curvature that becomes convex toward the bottom.

Connections between horizontals and verticals (fig. 11)

The connection between the horizontals and verticals may be sharp or rounded. The leftward slant and the shortened right leg create a right-angle connection in the *heb* and *tav*.

Long verticals (descenders, fig. 12)

The long verticals (descenders) range from straight lines, as in *kof*, to lines with a slight curvature, as in final *kaf* and final *tsade*. Occasionally the line displays a conspicuous convexity, as in the final *nun* in MS London.

Short upper horizontals (fig. 13)

The short upper horizontals of the letters *gimel*, *zayin*, *nun*, and final *nun* and the left legs of *tet*, *ayin*, *tsade*, final *tsade*, and *shin* are diamond-shaped and connect to a short vertical of uniform thickness.

Particular letters

Alef (fig. 14)

The letter *alef* has the greatest variety. In fact, it is hard to specify a uniform morphology for this letter because each of its components

varies independently. The variation increases with changes in the slant of the letter as a whole, from a straight vertical movement to a sharp angle. Nevertheless, as with the texture, the variations in this letter do not mar the rhythm of the script because the variants are repeated with regular frequency.

The right head (a) is produced by a double pen stroke, inward then outward. The length of the long diagonal (b) varies from letter to letter. The left leg (c) ends in a double pen stroke, inward and outward. The connecting point between the three elements varies from letter to letter. The diagonal and the left leg may be connected anywhere between the top and the middle of the left leg (c). The head (a) is attached from the midpoint to the lower part of the diagonal (b).

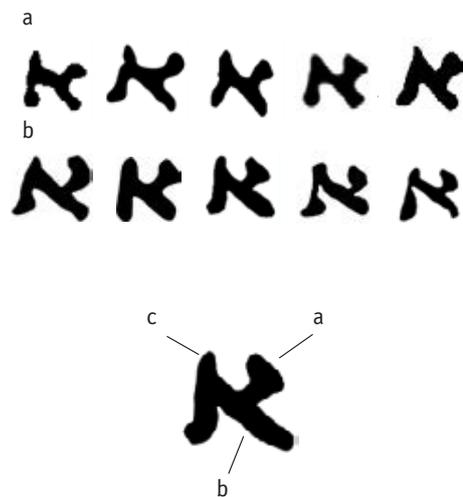


Fig. 14
Alef: a. MS London; b. MS Ashkar

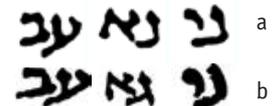


Fig. 7
Joined letters: a. MS London; b. MS Ashkar



Fig. 8
Bases: a. MS London; b. MS Ashkar



Fig. 9
Long upper horizontals: a. MS London; b. MS Ashkar



Fig. 10
Right verticals: a. MS London; b. MS Ashkar



Fig. 11
Connections between horizontals and verticals: a. MS London; b. MS Ashkar

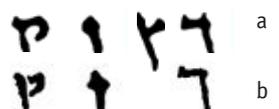


Fig. 12
Long verticals (descenders): a. MS London; b. MS Ashkar



Fig. 13
Short upper horizontals: a. MS London; b. MS Ashkar

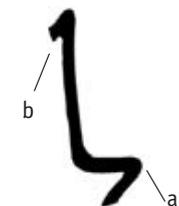
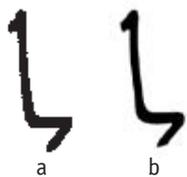


Fig. 15
Lamed: a. MS London;
b. MS Ashkar

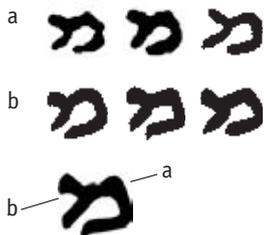


Fig. 16
Mem: a. MS London;
b. MS Ashkar



Fig. 17
Final mem: a. MS
London; b. MS Ashkar

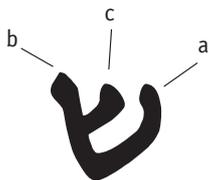


Fig. 18
Shin: a. MS London; b.
MS Ashkar

Lamed (fig. 15)

The body of the letter (a) is small and angular. Because of its small size the letter is elevated above the baseline to create a height differential with the adjacent letters. The long neck (b) encroaches upon the letters of the line above it.

Mem (fig. 16)

Component a of this letter, produced like the letter *kaf*, connects at its left edge to element b, which is shaped like the letter *yod*. This ancient form of *mem* resembles that found in the earlier Dead Sea Scrolls.

Final mem (fig. 17)

What is unique about the final *mem* is the sharp angle of the base, sometimes accompanied by a tag that rests on the baseline.

Shin (fig. 18)

The right head (a) is produced by a rightward pen stroke. The head (b) is formed by a thick rightward pen stroke. The central head (c) is diamond-shaped, resembling the short upper horizontals of other letters. The triangular connection between the two large elements creates the base of the letter. Components b and c meet near the top of the former.

On the Development of the Hebrew Script from the Second to Ninth Centuries⁴⁹

Except for the scrolls from Qumran and Wadi Murabba'at, very few fragments featuring Hebrew script written in pen and ink on papyrus, *gvil*, or parchment have survived from the eight centuries constituting the Roman, Byzantine, and early Islamic Periods. Far more numerous are the inscriptions inlaid in mosaics or those carved or engraved in, or painted on, limestone, basalt, and marble.

Most of the stone texts were discovered in the Land of Israel, but the Hebrew and Aramaic papyri, and a few fragments on *gvil*, came to light in the Egyptian Desert,⁵⁰ mainly in excavations at Oxyrhynchus and Antinoöpolis. The Greek papyri with which they were bound helped date the fragments to the Roman-Byzantine Period,⁵¹ with a lower terminus in the third century CE and an upper terminus in the late seventh or early eighth century, when the use of Greek was already in decline. The papyri include fragments of Torah scrolls and a variety of texts and documents, such as letters.⁵²

Among the oldest material in the Cairo Genizah are individual sheets bearing biblical, halakhic, liturgical, and other Hebrew texts, all invaluable aids in tracing the development of Hebrew script in the eighth and ninth centuries. These texts, most of which were written on rough parchment, are vocalized using the ancient Babylonian or Palestinian system that preceded the spread of the Tiberian vocalization signs. Along with poetic compositions written on palimpsests over sixth-century Greek, Latin, Palestinian Syriac, and other texts, they reflect writing traditions that predate the tenth century.

The diversity of writing materials, as well as the transition from *gvil* and papyrus to parchment, certainly influenced the evolution of the script. At the same time, my research has identified characteristics common to all types of script in this era, regardless of the surface and writing implement employed. These have made it possible to construct a typology of scripts for the period between the second and ninth centuries, which can be divided into three main stages: the first to third century CE; the fifth to seventh century; and the eighth and ninth centuries.

The beginnings of the Jewish script – the forerunner of the square Hebrew script – can be seen in the Dead Sea Scrolls and stone

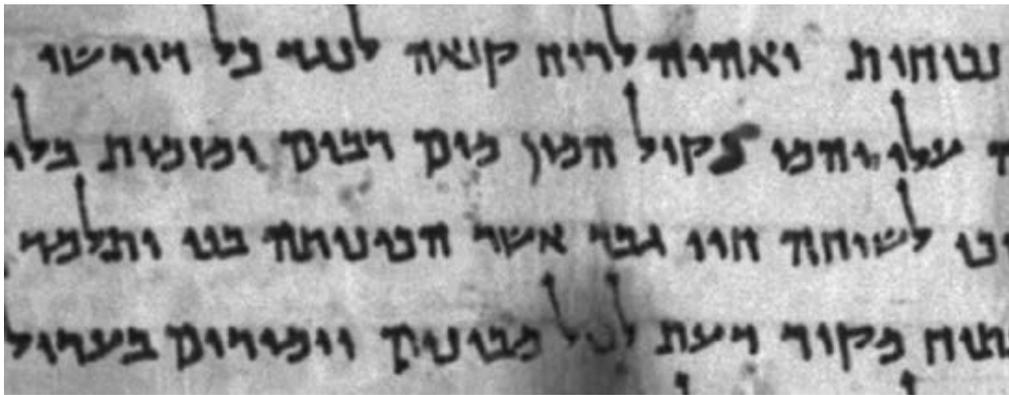


Fig. 19a
The formal script of the first main stage of the Jewish script as exemplified by the Thanksgiving Scroll (10Ha), Qumran, 1st century CE, parchment. The Hebrew University of Jerusalem, exhibited in the Shrine of the Book, Israel Museum Jerusalem

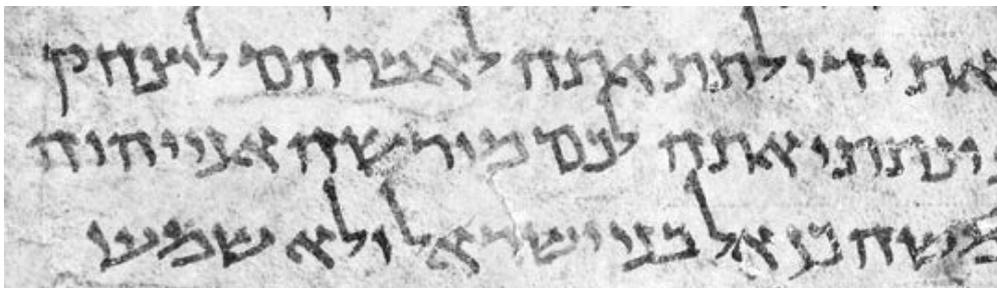


Fig. 19b
The semi-formal script of the first main stage of the Jewish script as exemplified by an Exodus Scroll fragment (Mur 1:4-5 Exodus), Wadi Murabba'at, 2nd century CE, parchment. Israel Antiquities Authority

inscriptions from the Second Temple Period.⁵³ The Jewish script evolved in several similar styles, whether written in ink or engraved in stone. In all styles there is a distinction between a representative calligraphic hand and a common hand.⁵⁴ Here I will relate to the representative calligraphic script only.

From the earliest appearance of the representative calligraphic script, there has been a clear distinction between the formal and semi-formal scripts (figs. 19a–b). Over the generations, the formal script preserved many of its features without change, including: the scrupulous attention paid to shading; the formation of letters with straight and vertical pen strokes; tags adorned with a reserved elegance; and diamond-shaped heads on the narrow “roofs” and diagonal lines. These formal characteristics are very common in the calligraphy of the scrolls and stone engravings of the Second Temple Period.⁵⁵

The interaction between the square script and a more cursive hand, and the increasing influence of cursiveness on the formal script, gave rise to a representative semi-formal script as early as the Second Temple Period. This variant, well represented in the Wadi Murabba'at scrolls (first and second centuries CE), continued to develop in parallel to the more conservative formal script. As with the latter, it has the same traits whether engraved in stone or written in ink.⁵⁶ This semi-formal script was more widespread because it was executed with broader and freer pen strokes and made writing easier. In general, it is larger and more rounded than the formal script. Whereas the verticals in the square script are straight-up-and-down, those of the semi-formal script are slanted. It is more compressed and cursive, and sometimes the elements of a letter are detached. Letters are broad, with soft, rounded, outlines.

Fig. 20
Fragment of a
ketubbah (MS
Köln, Inv. 5853),
Antinoöpolis,
417 CE. Universität
zu Köln. Institut
für Altertumskunde
Papyrussammlung

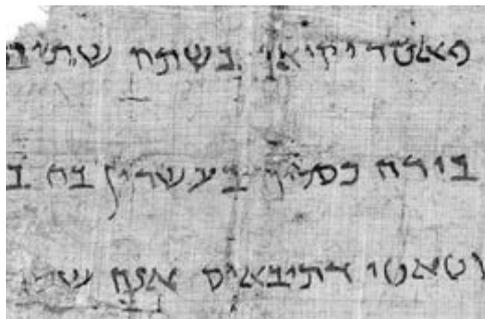


Fig. 21 (opposite)
Munich palimpsest
(Ms. München,
Palimpsest Clm
29416), 8th century
CE, parchment.
Bayerische
Staatsbibliothek
München

Fig. 22 (opposite)
Genizah fragment
(MS Cambridge,
University Library T-S
A38.15), ca. 8th–9th
century, parchment.
Cambridge University
Library

Although ornamented, the letters flow and lack shading.

Texts preserved from the period immediately following the Bar Kokhba Revolt show a decline in graphic quality that attests to stagnation in the development of the representative formal scripts. In all scripts, the characteristic calligraphic features used in the scrolls disappeared. Unlike the Second Temple Period, when many stone inscriptions are distinguished by their calligraphic excellence, texts of the second and third centuries exhibit a much simpler, semi-cursive script.

The strong influence of the common script on the formal script may explain why the semi-formal script comes into its own as the representative script, replacing the increasingly rare formal script. Indeed, a high proportion of the material that has survived from the third and fourth centuries (early Byzantine Period) through the eighth century (early Islamic Period) appears in the semi-formal script.

A papyrus fragment of a *ketubbah* from Antinoöpolis, written in Aramaic and Greek in 417 CE, is representative of the semi-formal script of that period (fig. 20).

The flexible texture of the script emphasizes broad, compressed letters written on widely spaced lines. The strokes, without shading, are undulate and of uniform thickness.

The inclination of the script fluctuates between the *alef*, which slants to the right,

and many other letters, which slant to the left. Most of the verticals have a similar inclination to the left. The upper horizontals slant toward the base line and end with a prominent tag at a slight angle. The tops of the short upper horizontals have a reverse curvature. The semi-formal style is also evident in the shapes of particular letters. The compressed form and slant of the *alef* distinguish this letter from the elongated *alef* of the formal script. As for *mem*, the tall body of the formal script is replaced by a squat form. The detached lines of some letters, like *mem* and *alef*, highlight the soft character of the script in this *ketubbah*.

Texts that exemplify the script styles of the sixth to eighth century include mosaic inscriptions from the Land of Israel, an engraving from southern Italy, as well as amulets, papyri, and palimpsests. Here, too, there is a distinction between the formal and semi-formal scripts, but the interrelationship between the two is also evident. Most texts from the sixth to eighth centuries, whether written in ink or engraved in stone, appear as what may best be described as a cross between the formal and semi-formal styles.

An example of this hybrid is provided by three fragments of a palimpsest scroll overwritten with a Latin text from the first half of the eighth century (hereafter the “Munich palimpsest”; figs. 21, 24). These fragments, discovered and published by Malachi Beit-Arié, contain the prayer service and liturgical poems for the Day of Atonement and were written, judging by the date of the Latin text, in the sixth or seventh century.⁵⁷

A broad and compressed script with variations in the angle, contiguous letters (e.g., *nun* and *waw*), and short upper horizontals that curl backward are characteristic of the semi-formal script of the Munich palimpsest. Here, however, the letters do

Fig. 23 (opposite)
Comparison of MS
London-Ashkar with
the semi-formal
script of the lower
terminus: a. Exodus
Scroll fragment;
b. MS London-Ashkar

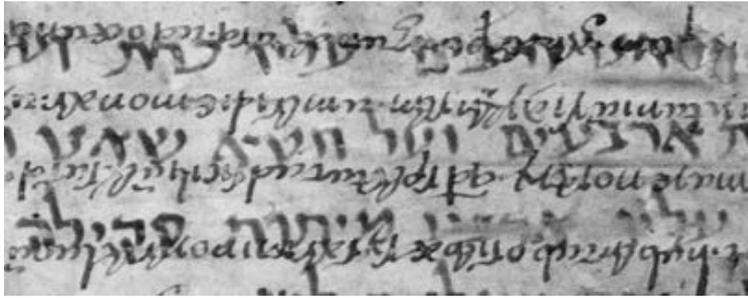


Fig. 21

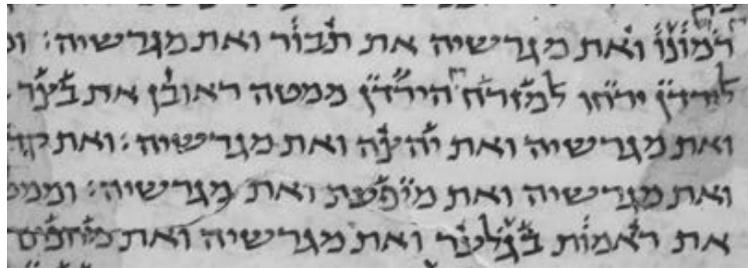
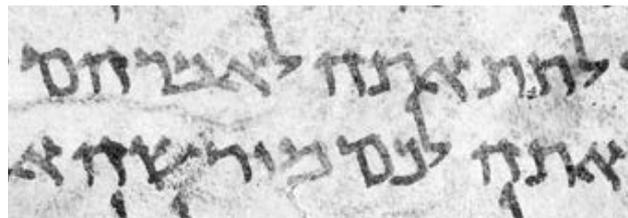
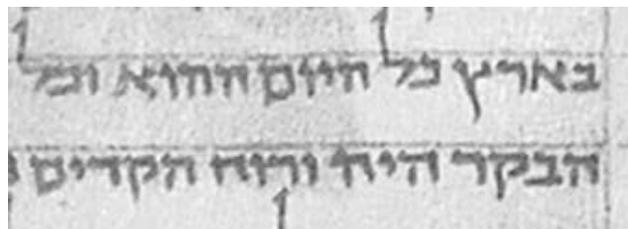


Fig. 22



a



b



Fig. 23

not have uniform lines or rounded shapes. On the contrary, the horizontals and straight verticals are connected at an angle, and the verticals show slight shading. These features evidently reflect the influence of the formal script on the semi-formal one.⁵⁸

The Hebrew script of the Islamic Period is found in the oldest texts from the Cairo Genizah (figs. 22, 25). While it still exhibits characteristics of both earlier styles and is not too far removed from the script of the sixth and seventh centuries, its affinity with the elegant square script of Oriental manuscripts of the tenth and eleventh centuries is unmistakable. Nevertheless, it does not contain a clear square script and should best be defined as “proto-square.” The strokes of the letters are still of uniform thickness with no shading. The letters in a single line are not all the same size and bear random ornamental characteristics, such as stylized tags on the horizontals and decorative curls on the verticals.

Locating MS London-Ashkar in the Range of Scripts from the Second to Ninth Centuries

The broad and compressed letters, the curvature of the lines, and the fluctuating angle of some letters associate the script of MS London-Ashkar with the semi-formal style. If we place it between the two extremes of the second–third century and the eighth–ninth century, we discover that some of its characteristics are already present in the semi-formal script of the Wadi Murabba’at scrolls, are found to some extent in the fifth and sixth centuries, and are still present in the older Genizah fragments.

Fig. 24
Münich palimpsest

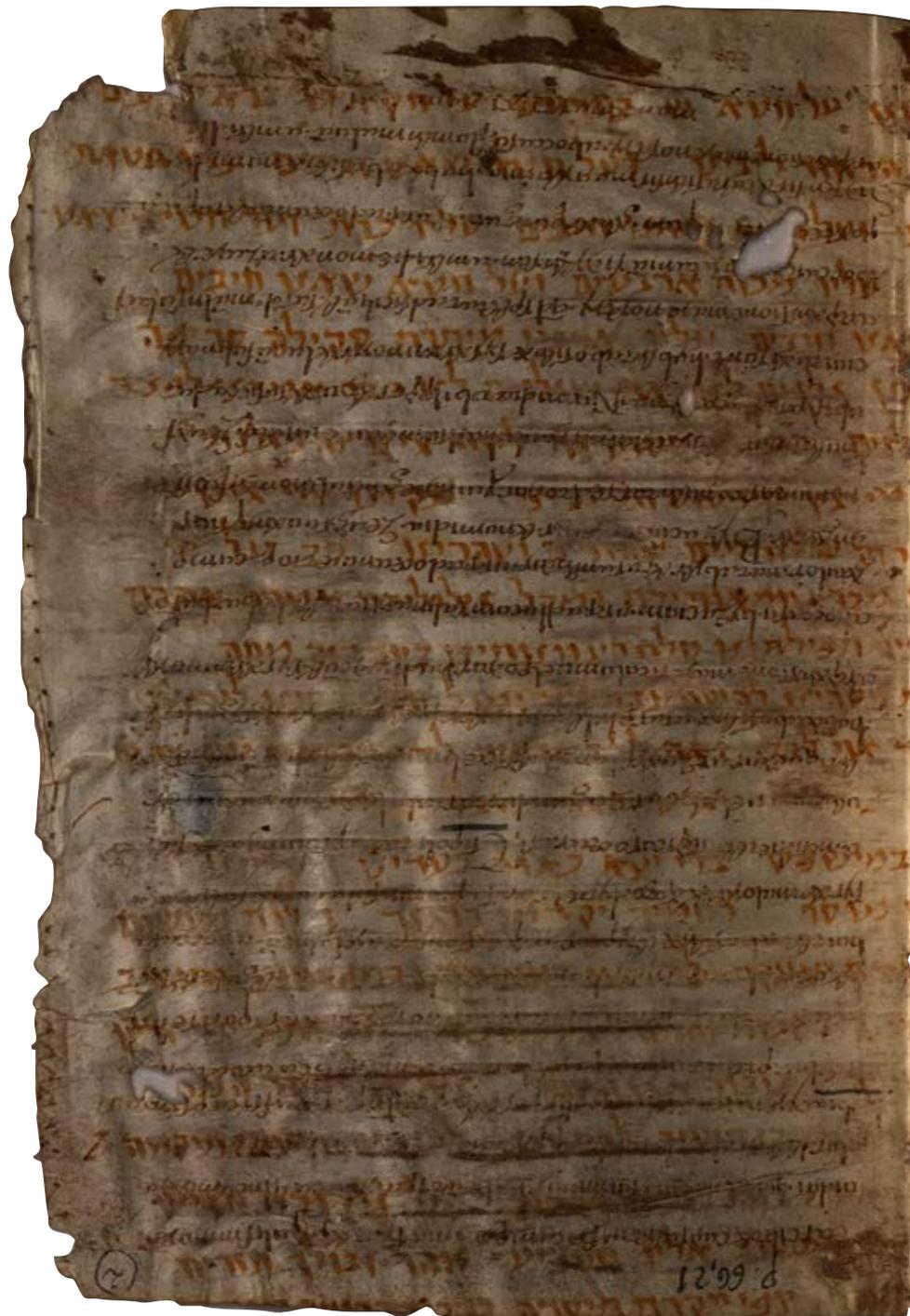
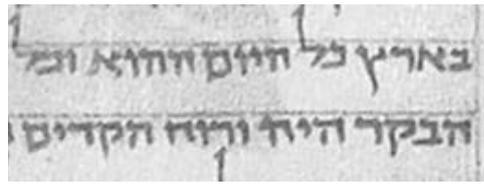
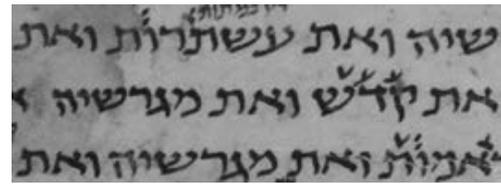


Fig. 26
Comparison of MS
London-Ashkar with
the semi-formal script
of the upper terminus:
a. MS London-Ashkar;
b. Genizah fragment



a



b

Comparison with the semi-formal script of the lower terminus: The Wadi Murabba'at script (fig. 23)

As in the Wadi Murabba'at script, the handwriting of MS London-Ashkar employs the same homogeneous and solid horizontal line, no shading, a similar flatness of the letters, and similar letter pairs. The common features of the two scripts include:

- *Alef*: A broad letter with a long diagonal that tilts the letter sharply to the right
- Final *mem*: Lower left corner with a tag resting on the baseline
- *Heb*: Leftward and downward slant with a thick tag on the horizontal; the right vertical slants to the left; the (left) leg of the letter touches the roof
- *Lamed*: Small angular body; long neck that encroaches upon the previous line
- *Alef* and *tav* touch
- Nesting of *yod* in the *nun*; contact between the *bet* and *nun*

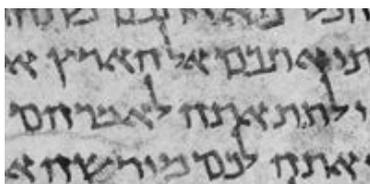
Despite these similarities, there are clear differences between the hand of MS London-Ashkar and the Wadi Murabba'at script, evident both in the shapes of many letters and in their texture. Even though

both have a homogeneous line, the broader pen strokes in the Wadi Murabba'at texts highlight the differences between the two scripts. Some of the changes in the shapes of the letters are a result of the evolution of the script over the intervening centuries, such as the size of the *lamed* in comparison to the other letters. The small-bodied and high-necked *lamed* of the Wadi Murabba'at texts was rendered lower and wider in MS London-Ashkar, even though it remains relatively smaller than the other letters.

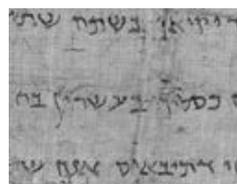
Comparison with the semi-formal script of the upper terminus: A Genizah fragment (fig. 26)

The common features of the two scripts include:

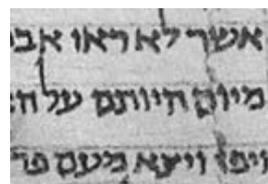
- *Alef*: A broad letter with a long diagonal that tilts the letter sharply to the right
- Final *mem*: Lower left corner with a tag resting on the base line
- *Heb*: Elongated horizontal that tilts the letter to the left
- *Lamed*: Small angular body; long neck that encroaches upon the line above it
- Nesting of letters in the preceding *gimel*



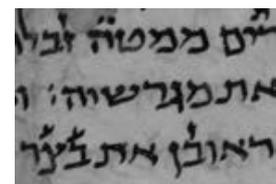
a



b



c



d

Fig. 27
Comparisons of texture: a. Exodus Scroll fragment 2nd century; b. Fragment of a *ketubbah*; c. MS London-Ashkar; d. Genizah fragment

Placing MS London-Ashkar between the two termini

Texture (fig. 27)

The closely spaced letters, compressed shape of the script, curvature of the lines, and fluctuation of the slant are common to all three stages mentioned above: The *alef* remains broad and compressed and its long diagonal tilts it to the right. By contrast, the final *mem*, slanted to the left, shifts the angle of the script to the left. The roof of the *beh* also slants the letter to the left. The short-bodied *lamed*, with its long neck encroaching upon the line above it, is also a common characteristic of all three stages, as are the nested and contiguous letters, primary features of the Jewish script in the texts from Qumran and Wadi Murabba'at. What, then, has changed? The main development in the texture of the script seems to involve the nature of the pen strokes, the evolution of which has created a less crowded texture. A gradual change in the width of the strokes has produced thinner lines in the letters and the beginning of shading. Straighter verticals, horizontals, and bases of letters have produced a more uniform texture. The variations in the slant of certain letters, such as *alef* and final *mem*, are less extreme, as is the contrast between the slants of the various letters of the alphabet. The wider spacing is facilitated by the reduced frequency of joined letters, both contiguous letters and nested pairs. Changes over time are also evident in the ornamentation, as manifested in the short upper horizontals, the left leg of the *alef*, and the trunk of the *peh*. The simple heads of the Wadi Murabba'at script have turned into diamond-shaped heads in MS London-Ashkar, and especially in the Genizah fragment.⁵⁹

Features common to a group of letters and examples of particular letters (fig. 28)

The short upper horizontals evolved from the backward curving form of the Wadi Murabba'at script into the diamond-shaped top of the *nun* in MS London-Ashkar, and then into a more calligraphically stylized diamond in the Genizah fragment.

Alef (fig. 29)

Despite the *alef*'s width, flatness, and rightward slant, it, too, exhibits gradual change. In the Wadi Murabba'at texts and in MS London-Ashkar, the connecting point between the diagonal and the left leg ranges from the apex of the letter to somewhere lower down. In the Genizah fragment, the connection is positioned at the top of the letter. Alongside the heads of the short upper horizontals, the base of the left leg of the *alef* splays to the right in the Wadi Murabba'at texts and becomes more complex in both MS London-Ashkar and the Genizah fragment. The latter displays the beginning of shading, making the left leg appear thinner than the other two elements.

Heh (fig. 30)

Even though the transverse line of the *beh* still slants to the left in the Genizah fragment, the letter is now open, the right leg is more elaborate, and the left leg has a different shape and design.

In sum, the placement of MS London-Ashkar between the two termini – the first-second century and the eighth–ninth century – corroborates the dating of MS London-Ashkar to the seventh–eight century.

An Attempted Identification of the Provenance of MS London-Ashkar

During my search for written texts from this period, I came across a tiny fragment measuring about 3 cm long with a maximum



Fig. 28
Features common to a group of letters:
a. Exodus Scroll fragment ; b. MS London-Ashkar;
c. Genizah fragment

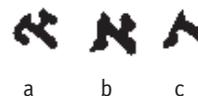


Fig. 29
Alef: a. Exodus Scroll fragment ; b. MS London-Ashkar;
c. Genizah fragment

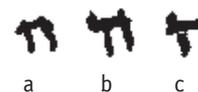


Fig. 30
Heh: a. Exodus Scroll fragment ; b. MS London-Ashkar;
c. Genizah fragment

width of 1.5 cm. Although the letters are smaller than those of MS London-Ashkar, the similarity in the writing caught my attention. The fragment was found with the Hebrew papyri at Oxyrhynchus, brought to the Bodleian Library in Oxford, and published by C. Sirat (hereafter the “Oxyrhynchus fragment”; fig. 31). It contains six truncated lines from Exodus 2:23–25. Despite its small size, it was hard to avoid the hypothesis that it was part of the Exodus scroll that was torn from the sheet preceding MS London. However, Michael Maggen’s examination of the high-resolution photograph I received from Oxford determined that the fragment is on parchment rather than *gvil* and has a different color and texture than MS London.⁶⁰

Furthermore, the letters in this fragment are about forty percent smaller than those in MS London.⁶¹ Despite the obvious differences, only a close examination by a trained eye allowed for the secure determination that the fragment is of parchment rather than *gvil* and thus not part of MS London-Ashkar. Even if the Oxyrhynchus fragment is not part of the same scroll, the unmistakable similarity in the handwriting strongly suggests that both were written by the same scribe or, at the very least, by members of the same scribal school, and thus come from the same period and region.

I have juxtaposed the Oxyrhynchus fragment and MS London-Ashkar with a parchment Torah scroll excavated at Antinoöpolis in Egypt (hereafter the Antinoöpolis scroll)⁶² in order to show the similarity between the first two (fig. 32). Of all surviving examples of script from this period, that of the Oxyrhynchus fragment is closest to the script of MS London-Ashkar.⁶³

The texture and shape of the letters in the Oxyrhynchus fragment resemble those of

MS London-Ashkar. In both manuscripts, the letters are suspended from the ruled line and their proportions and spacing are similar. Even though the shapes of individual letters are close in all three fragments, the clear differences between the Antinoöpolis scroll, on the one hand, and the Oxyrhynchus fragment and MS London-Ashkar, on the other, chiefly in terms of texture, make the resemblance between the Oxyrhynchus fragment and MS London-Ashkar even more distinctive.⁶⁴

The uniform thick line, drawn without exerting pressure on the pen, is strikingly similar in the Oxyrhynchus fragment and in MS London-Ashkar, but different in the Antinoöpolis scroll. In contrast to the continuous line bearing a constant thickness in the first two manuscripts, the thickness of the line in the Antinoöpolis scroll varies, as can be seen chiefly in the rounded points of contact between its broad horizontals and narrower verticals. Similarly, whereas the ends of the strokes of the letters in MS London-Ashkar are truncated, they are sharply pointed in the Antinoöpolis scroll.

The angular variation that results chiefly from the contrast between the rightward slant of the *alef* and the leftward slant of the other letters is also evident in the Antinoöpolis scroll, where the rightward slant of the *alef* is more pronounced, thereby highlighting its difference from MS London-Ashkar and the Oxyrhynchus fragment. There is also a small and inconspicuous difference in the proportions of the letter. The breadth and flatness that are prominent characteristics of the scripts in MS London-Ashkar and the Oxyrhynchus fragment are less evident in the Antinoöpolis scroll, where the letter seems to be somewhat taller.

One obvious feature of MS London-Ashkar also found in the Oxyrhynchus fragment is variation in the shapes of certain

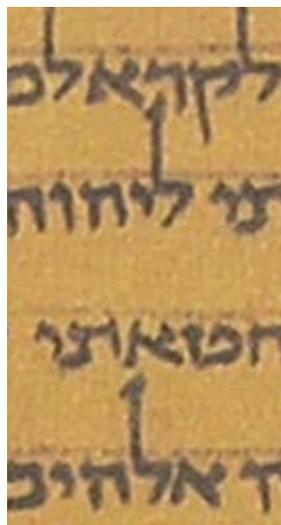
העבדה וי זעקו ותעל שועתם אל
האלהים מן העבדה וישמע אלהים
את נאקתם ויזכר אלהים את בריתו
את אברהם את יצחק ואת יעקב
וירא אלהים את בני ישראל וידע
אלהים ומשה היה רעה



Fig. 31
Oxyrhynchus fragment
(MS Oxford, Bodleian
Library, Oriental
Collections Heb.d.
89 [P]), ca. 7th–8th
century, parchment.
Oxford University
Library



a



b



c

Fig. 32
Comparison of MS
London-Ashkar with
contemporaneous
Egyptian fragments:
a. Antinoöpolis scroll
(MS Oxford, Sackler
Library [formerly
in the Ashmolean
Museum] Papyrology
Room, Antinoöpolis
frag. 47), ca. 7th–8th
century, papyrus,
Collection of the
Egypt Exploration
Society; b. MS
London-Ashkar;
c. Oxyrhynchus
fragment



Fig. 33
Comparison of individual letters:
a. Oxyrhynchus fragment; b. MS London-Ashkar; c. Antinoöpolis scroll

letters. The Antinoöpolis scroll, by contrast, shows great uniformity in the letter forms.

Despite the many changes in the form of the *alef*, there are letters in MS London-Ashkar that resemble those in the Oxyrhynchus fragment, as demonstrated by the comparison of individual letters in all three manuscripts (fig. 33).

Alef

In the Oxyrhynchus fragment and MS London-Ashkar, the elements of the *alef* are connected at the same point: The long and curved diagonal slants to the right, meeting the left leg high up, beneath the top of the letter; the right element in both meets the diagonal near its lower end. In the Antinoöpolis scroll, the diagonal approaches the midpoint of the left leg whereas the right element reaches the midpoint of the diagonal. The fading of the ink at the bottom of the left leg in the first manuscript disguises the similarity in its shape to that in the second. Nevertheless, there is a clear difference in the shape of the double pen stroke that forms the base of the left leg of the *alef* in the first two manuscripts as opposed to the third. The head of the letter is different as well – thick in the first two and thinner in the third. There is also a distinct difference in the quality of the line used to construct the letter. In the first two examples, the brush strokes are uniform, whereas in the third the thickness of the line varies. The *alef* in the third manuscript has a sharper slant than in the others.

Bet

In the first two manuscripts, the base juts out to the right of the body of the letter; this is not evident in the third manuscript.

Heb

The letter in the third manuscript has a shorter roof with a sharper downward slant than that found in the first two.

Lamed

The more angular body in the third manuscript distinguishes it from the first two.

Nun

The diamond-shaped head in the first two manuscripts is rendered as a vague shape in the third. In the third manuscript, the vertical line and the base of the letter meet higher up.

Resh

Clear shading of the letter in the third manuscript is not visible in the first two.

Tav

In the third manuscript, unlike the first two, the left leg extends beyond the roof.

Final mem

The roof of the final *mem* in the third manuscript ends with an extra stroke that creates an additional decorative element not found in the first two manuscripts.

Letter pairs

The *alef* is angled more sharply away from the *tav* in the third manuscript than in the other two.

Thus, in an attempt to identify MS London-Ashkar's provenance, it can be concluded that the close affinity of MS London-Ashkar with the Egyptian Oxyrhynchus fragment, as demonstrated by the difference of both these manuscripts from another manuscript of the same period (the Antinoöpolis scroll), confirms MS London-Ashkar's affiliation with an Egyptian school of writing.

Conclusion

MS London-Ashkar was reunited on the basis of textual criteria; the two sheets were reconstructed as part of a single scroll. The paleographic analysis describes the scribal characteristics of each part of the scroll, corroborating what is visible to the eye.

Paleographic parameters were employed to position the scroll on the axis between the first–second and eighth–ninth centuries, by which time Hebrew writing had evolved into a proto-square script on the way to the mature square script of the tenth and eleventh centuries. A comparison between the script of MS London-Ashkar and the scripts known in the three main stages between the first and ninth centuries allows us to characterize the script of MS London-Ashkar. By locating it on the axis of development between two historical poles I found that traces of the earlier Jewish script attest to the relative antiquity of MS London-Ashkar, whereas its affinity with the proto-square script of the Genizah fragment indicates its closeness to the script of the eighth–ninth century. Thus, the script of MS London-Ashkar can be defined as a representative semi-formal script

of the seventh–eighth century, confirming the Carbon-14 testing.

Comparison with the fragment from Oxyrhynchus in Egypt allows us to address the provenance of MS London-Ashkar. Although the resemblance between the scripts of the Oxyrhynchus fragment and the scroll can hardly be coincidental, the poor physical state of the fragment and the damaged elements of some letters preclude an unequivocal determination. These reservations notwithstanding, there is a distinct relationship between the Oxyrhynchus fragment and MS London-Ashkar. The demonstrable Egyptian provenance of the Oxyrhynchus fragment corroborates the hypothesis that MS London-Ashkar was written in Egypt as well,⁶⁵ and that both the fragment and the scroll were written either by the same hand or by scribes of the same school.⁶⁶

* Photos: MS Ashkar © The Israel Museum, Jerusalem, by Ardon Bar Hama; MS London © The Loewentheil Family; Thanksgiving Scroll (1QH^a) © The Israel Museum, Jerusalem, by David Harris; Exodus Scroll fragment (Mur1 [Wadi Murabaat]) © Israel Antiquities Authority; Fragment of a *ketubbah* (MS Köln, Inv. 5853), Antinoöpolis © By permission of the Universitaet zu Köln; Munich palimpsest © By permission of the Bayerische Staatsbibliothek München; Genizah fragment © By permission of the Syndics of the Cambridge University Library; Oxyrhynchus fragment: photo and transcription: © by permission of the Bodleian Libraries, University of Oxford; Antinoöpolis scroll (MS Oxford, Sackler Library [formerly in the Ashmolean Museum] Papyrology Room, Antinoöpolis frag. 47) © Photograph courtesy of the Egypt Exploration Society

**The authors presented their research in two lectures at the Shrine of the Book, The Israel Museum, Jerusalem, in March–April 2008. The manuscript of this article was delivered to the editors of IMSA in 2009.

¹ Owing to the difficulty in translating the Hebrew term *gviil*, the original term is used here in transliteration. For an explanation of the term, see Appendix 1.

- ² Another stage in the reconstruction of the scroll came when Engel recognized the similarity between the script of a tiny parchment fragment from Oxyrhynchus in Egypt and that of MS London-Ashkar (see below).
- ³ James H. Charlesworth is currently the George L. Collord Professor of New Testament Language and Literature at Princeton Theological Seminary.
- ⁴ See Appendix 2, as well as interviews with Prof. Charlesworth cited in the bibliography (Charlesworth 1980a, 1980b, 1980c).
- ⁵ For a physical description of MS Ashkar, see Appendix 1.
- ⁶ A partial photograph appears in *Encyclopedia Biblica* 5, pl. 14.
- ⁷ See Birnbaum 1959.
- ⁸ MS London is a *gvil* strip with seven columns. The *gvil* is brown or light brown, the ink dark brown. The strip is between 75.5 and 76 cm wide, has a maximum height of 51.3 cm (on the undamaged right side), and a minimum height of 46.0 cm (along the torn left edge). The left and right edges of the sheet are torn along the perforations of the stitching. Although there are tears in the middle of the strip, the only textual lacuna in the seven columns is a hole in the last column, where several words are missing on four lines. Despite several moisture stains of various sizes, all of the letters are intact and the entire text can be read without difficulty.
- ⁹ The authors would like to thank Dr. Adolfo Roitman for his assistance, initiative, and encouragement. Thanks also to Michael Maggen and Irene Levitt for their assistance and cooperation. Stephan Lowentheil and his associate, Thomas Edsall, provided invaluable help by sending us a facsimile of MS London, thereby enabling us to make a close comparison between the two manuscripts, as well as by supporting the publication of this article. We would like to thank Prof. Eric M. Meyers, Director of the Center for Jewish Studies, the American Schools of Oriental Research (ASOR), Duke University, Durham, North Carolina, as well as Prof. Linda McCurdy, Director of Research Services at the Rare Book, Manuscript, and Special Collections Library of Duke University, for allowing us to use the enhanced facsimiles of MS Ashkar. Thanks also to Prof. James H. Charlesworth for his crucial part in our project. Many thanks to all of those who edited and prepared the article for press: Mike Rogoff, who translated it into English, Silvia Rozenberg, editor of IMSA, Nancy Benovitz, and Hani Davis. Finally, thanks are due to Prof. Malachi Beit-Arié, who read a draft of the article and offered helpful suggestions.
- ¹⁰ The Jewish (or *Ashuri*) script developed from the Aramaic script and is the prototype of the modern square script.
- ¹¹ In his initial study, Charlesworth suggested that MS Ashkar came from Egypt. Similarities between the Oxyrhynchus fragment and the manuscript, to be discussed below, corroborate his hypothesis.
- ¹² In recent years, Colette Sirat has discovered a number of biblical fragments that she believes date from the first millennium CE. In addition to the three manuscripts discussed here (MS London, MS Antinoöpolis, and MS Oxyrhynchus), she mentions two other small parchment fragments of biblical scrolls (Sirat 1985): 1. Two fragments from the book of Job (MS Oxford, Ashmolean Museum, Antinoöpolis Papyri 49 and 50); and 2. Two half-columns from the book of Deuteronomy (Berlin, Staatliche Museum P 10598). In an article co-authored with Ada Yardeni and M. Dukan (Sirat et al. 1994), she describes six biblical palimpsests, which she maintains were written before the year 1000. Judging by the known scripts of that period (see Engel 1990), it is clear that none of them comes from a Torah scroll written before the ninth century. Fragments of a Torah scroll, including Cambridge T-S NS 3.21, were found by Sirat among the Cairo Genizah fragments and published by Ada Yardeni (1990), who assigns this scroll to the Byzantine Period on paleographical grounds.
- ¹³ For a summary of the change from scroll to codex, see Beit-Arié 1992–93, 10–12; see also Haran 1987–88.
- ¹⁴ Unlike *gvil*, parchment is processed so that both the flesh side and the hair side can be written on. On the preparation of *gvil* and a summary of the literary sources about it, see Glatzer 1989, 185–88.
- ¹⁵ Maimonides, *Mishneh Torah, Hilkhoh Tefillin* 1, 8–9: “It is a halakhah from Moses at Sinai that Torah scrolls be written on *gvil* and written on the hair side... Even though this is a halakhah from Moses at Sinai, a Torah scroll written on parchment is valid.”
- ¹⁶ Unlike the precise traditions regarding the material from which Torah scrolls can be made and the layout of the text, in the Middle Ages there was no uniform tradition regarding the shapes of the letters. The different styles of script that prevailed in different geographical regions, as well as the historical evolution of the shapes of letters, meant that each region and period had its own typical Torah hand. Later, however, a strict tradition developed with regard to the shapes of the letters, obliging scribes to follow specific rules for their lines and strokes. The two Talmuds (the Yerushalmi, completed by 400 CE, and the Bavli, completed around 500 CE)

enumerate some of these rules, some of which can be traced back to the *tanna'im* of the first and second centuries, such as the long passage in Bavli *Menabot* 30a that is introduced by the words “our sages taught,” which is the standard incipit for a tannaitic quotation. Other rules, such as those found in Yerushalmi *Megillah* 1:8, 71d, are designated “halakhah of Moses at Sinai,” which means statutes in force from time immemorial for which the sages no longer knew the source or rationale. Treatises summarizing the laws concerning Torah scrolls were composed at various dates after the canonization of the Talmud; these include Tractate *Sefer Torah* (ca. 600 CE), Tractate *Soferim* (ca. 800 CE), and various other works ascribed to the *geonim*. One of the most important later treatises is *Adat Devorim*, attributed in all probability to the eleventh-century Karaite author Joseph al-Kostandini. *Hilkhot Sefer Torah* (8:5) in Maimonides’ *Mishneh Torah* (twelfth century) is very important since Maimonides had access to and relied on the manuscript known today as the Aleppo Codex (*Keter Aram Zovab*); in *Hilkhot Sefer Torah* he also listed all of the open and closed section breaks (*petubot* and *setumot*) in the Torah (8:6–10). Today’s rules come from the standard halakhic code in Joseph Caro’s *Shulhan Arukh* (first printed in Venice in 1565/66), *Hilkhot Sefer Torah, Yoreh De’ah* 270–84). Detailed instructions about textual variants are listed in the Masoretic notes found all along the margins of ancient codices (references below are to the earliest source).

¹⁷ Except for the column containing the Song of the Sea, which was subject to special rules.

¹⁸ Some Torah scrolls do not comply with this specification; see Penkower 2002, 263–64.

¹⁹ See also Tractate *Soferim* 1:15. A closed section (*parashah setumah*) means that the new section begins on the same line as the one just completed, following a blank space, or on a new line, after an indentation. An open section (*parashah petubah*) means that the new section begins at the start of a new line, after an incomplete or blank line.

²⁰ This is already mentioned in the Masoretic notes and in *Adat Devorim*, MS Firkovich 22a.

²¹ According to *Halakhot Kezuvot*, attributed to eighth-century Yehudai Gaon: “The writing should not go more than two letters beyond the incised rule” (Margulies 1942, 158); note that as late as the sixteenth century such precision was considered to be an optional refinement: “All of these are merely excellent precepts, but if one deviated [the scroll] is valid” (*Shulhan Arukh, Yoreh De’ah* 273:5). Today the custom is to left-justify the lines in a Torah scroll by stretching certain letters. Other methods

were employed in medieval codices; see Glatzer 1989, 215–21.

²² On the various techniques for left-justification of Hebrew manuscripts, see Beit-Arié 1993, 82–84; for an updated summary of the topic see Beit-Arié 2009, chapter 7.

²³ Birnbaum (1959, 123) noted the unusual methods employed by the scribe of MS London to fill out the lines by means of graphic elements.

²⁴ Sirat et al. 1994, 864.

²⁵ So, too, according to Glatzer (1989, 220), who notes that filling out the line is not mentioned in the halakhic literature on Torah scrolls.

²⁶ Penkower 1992.

²⁷ The text of L was examined using the facsimile published by Makor.

²⁸ Birnbaum 1959, 123.

²⁹ But see 10:17 (שָׁא נָא) written as two words, and 11:2 (דָּבַר נָא) appearing on two separate lines.

³⁰ Birnbaum 1959, 123. We have evidence for the division into *parashiyot* from the Dead Sea Scrolls. In the fragments parallel to our text, published by J.E. Sanderson in *DJD* XII, there are two places with an open *parashah*; in both, the Qumran scroll corresponds to the Masoretic Text (and our scroll): the beginning of Exodus Chapter 14 (4QExod^c, frg. 14; p. 114, pl. XIX) and Chapter 14, before verse 26 (4QExod^e, frg. 18, p. 145, pl. XXI). These fragmentary texts are ascribed to the first century BCE (*DJD* XII, 100 and 145).

³¹ The Dead Sea Scrolls show no evidence of such a layout for the Song of the Sea and the verses before and after it. Parts of the song have survived in 4QExod^c (mentioned above), but the text is not divided as in the Masorah. Nevertheless, the layout is distinctive by virtue of the small spaces between the verses and within them: in v. 14, before חִיל אֲחִי; in the middle of v. 16, before עַד יַעֲבֹר; before v. 19; in the same verse, before עַם זֶה קִנְיַת וּבְנֵי יִשְׂרָאֵל; and before v. 20 (on these spaces see *DJD* XII, 99–100). The same practice was found in 4Q365 (Reworked Pentateuch^c), fragment 6b, which contains remnants of verses 17–20 of the Song (published by E. Tov and S. White in *DJD* XIII, 268, pl. XXII): there are small spaces in the middle of v. 16, before מִכֹּחַ; before v. 19; in v. 19, before and after אֵת מִימֵי <!>הַיָּם; and before v. 20, after an addition in v. 19, following Exodus 14:29 (see *DJD* XIII, 269). This fragment is attributed to the first century BCE (*DJD* XIII, 260), like 4QExod^c. Both fragments – 4QExod^c and 4Q365 – were mentioned by Prof. Charlesworth in his report (see Appendix 2). There is no way of knowing whether a format closer to that of the

Masorah also existed in that period, perhaps within a different circle of scribes. Note that two copies of the book of Psalms were discovered on Masada; one of them (Mas 1e [Mas Ps^a]) is written in two parallel columns, like the codices of the Middle Ages, while the other (Mas 1f [Mas Ps^b]) has small spaces, like the Song of the Sea in 4QExod^c and 4Q365 (*Masada* vI; Ps^a, 76–90; Ps^b, 91–97). Both scrolls are attributed to the first half of the first century CE and are therefore later than 4QExod^c and 4Q365; Ps^b seems to be older than Ps^a and may date from the end of the first century BCE (*Masada* vI, 77 and 92). It should be noted that, contrary to the consensus of scholars, the Song of the Sea in the traditional version of the Samaritan Pentateuch is *not* written in columns (Prof. Abraham Tal, personal communication).

- ³² Penkower 2002.
- ³³ Penkower 2002, 237ff.
- ³⁴ Penkower 2002, 237 n. 5, relying on Sirat's objection to Birnbaum's dating of MS London (Sirat et al. 1994, 861 n. 3).
- ³⁵ Penkower 2002, 238–42.
- ³⁶ Penkower 2002, 248–50.
- ³⁷ Penkower 2002, 248–89, 251, pl. 1.
- ³⁸ Penkower 2002, 249–50.
- ³⁹ Penkower 2002, 255–61.
- ⁴⁰ Penkower 2002, 255.
- ⁴¹ Penkower 2002, 256.
- ⁴² The rabbinical sources here and below are cited according to the databases of The Hebrew Language Historical Dictionary Project of the Academy of the Hebrew Language (*Ma'agarim*).
- ⁴³ See *The Old Testament*, note on Genesis 6:4.
- ⁴⁴ The final *mem* of the word *וּמְשַׁאֲלֵם* (14:29) is damaged because the *gvil* has peeled off; in its place there is a circular shape whose nature is unclear.
- ⁴⁵ The facsimiles of MS Ashkar are not very clear because of the poor physical condition of the original. In the facsimiles of MS London, by contrast, the letters appear in fine detail.
- ⁴⁶ That is, the letters *שעטני גז*; see Yardeni 1990.
- ⁴⁷ For details on my analytical method, see Engel 1999.
- ⁴⁸ Shading may be seen on a letter where the thickness of the horizontal lines contrasts with the thinness of the vertical lines, and vice versa.
- ⁴⁹ See Engel 1990.
- ⁵⁰ A few examples of Hebrew script have also survived from southern Italy, Spain, and southern Yemen.
- ⁵¹ For a summary of the scripts in papyrus texts, see Sirat 1985.
- ⁵² The papyrus and *gvil* fragments from Antinoöpolis are housed in the Sackler Library in Oxford, the Oxyrhynchus papyri in the Oriental collections of the Bodleian Library in Oxford.
- ⁵³ On the script of the Dead Sea Scrolls, see Avigad 1961.
- ⁵⁴ The common script has an irregular texture because of the variable spaces between letters and words and because of the variety of forms for each letter. The individual characteristics of each writer are in evidence here.
- ⁵⁵ See, for example, the Uzziah inscription – a stone carving on a tomb assigned to the end of the Hasmonean Period (Sukenik 1931). The horizontal and vertical pen strokes are straight and vertical, the tags are carefully formed, and each letter stands out individually but does not interfere with the fine texture of the line.
- ⁵⁶ A comparison between stone engravings and texts written with a calamus (reed pen), as well as the textual distinction between papyrus and parchment, support the assumption that the mode of script employed was not determined by the writing material (or type of composition); the semi-formal script was used both on parchment and papyrus, in documents as well as in biblical or liturgical texts.
- ⁵⁷ See Beit-Arié 1967–68.
- ⁵⁸ Note that the diverse features of these two examples – the *ketubbab* from Antinoöpolis and the Munich palimpsest – may reflect regional characteristics that distinguish European scripts from those originating in Egypt and the Near East. The small number of examples of script from this period makes it difficult to explore this hypothesis.
- ⁵⁹ An even more elaborate shape is found in elegant manuscripts of the tenth and eleventh centuries.
- ⁶⁰ I would like to thank Prof. Joseph Geiger, who examined the original fragment at my request. According to his description, it is of medium thickness (thicker than that of the adjacent fragments in the same display). The front is yellowish-brown with darker patches; the back, a dark reddish-brown. The ink is dark brown.
- ⁶¹ It is possible that the *gvil* shrank significantly, as leather is apt to do. On this phenomenon, see Reed 1972, 317–23; see also Glatzer 1989, 188–90.
- ⁶² See Sirat 1985, 35–37.
- ⁶³ It is important to emphasize the extremely poor quality of the extant letters in the Oxyrhynchus fragment. The fading of the letters and their tiny size, as well as the shrinkage of the leather, all

make it difficult to identify the precise elements, strokes, and slant of the letters. This hampers any comparison and certainly detracts from the precision of the findings. Enlarging the three fragments to make their lines correspond clearly demonstrates the difference in the size of the letters in the Oxyrhynchus scroll and especially the relatively large size of the letters of the Antinoöpolis scroll.

⁶⁴Whereas the shape of a letter is easy to imitate, the quality of the stroke and its movement are more characteristic of the scribe's handwriting than of the script typical of a particular period or place.

⁶⁵This was maintained by Prof. Charlesworth from the outset.

⁶⁶After reading a draft of this article, Beit-Arié remarked that the paucity of texts written with a calamus (reed pen) from this period prevents us from determining the geographical dissemination of Hebrew script at the time. Consequently, he maintains that the Oxyrhynchus fragment cannot be used to corroborate the hypothesis that MS London-Ashkar was written in Egypt. I would counter as follows: (1) My research into the development of Hebrew script in this period (Engel 1990) and in the late Middle Ages has convinced me that such a strong resemblance between two manuscripts would be inconceivable unless they were written in close proximity of time or place; (2) The correlation between the Oxyrhynchus fragment and MS London-Ashkar is unmistakable in light of the scribal differences between the fragment and other texts discovered in Egypt that relate to the same period. The range of writing styles among these finds reinforces the hypothesis that the resemblance between the fragment and MS London-Ashkar in particular is not coincidental.

Bibliography

Abbreviations

Adat Devorim Y. Alkostandini. *Sefer 'Adat Devorim*, MS Leningrad. Firkovich Collection 2.B.C161 (see below, *Ma'agarim*).

DJD XII E. Ulrich and F.M. Cross, eds. *Discoveries in the Judaean Desert XII, Qumran Cave 4, VII, Genesis to Numbers*. Oxford, 1994.

DJD XIII H. Attridge et al., eds. *Discoveries in the Judaean Desert XIII, Qumran Cave 4, VIII, Parabiblical Texts*. Part 1. Oxford, 1994.

Encyclopedia Biblica 5 Encyclopedia Biblica, Vol. 5. Jerusalem, 1968.

Ginzei Schechter L. Ginzberg, ed. *Ginzei Schechter* I. New York, 1928 (Hebrew).

Halakhoth Kezuboth M. Margulies, ed. *Halakhoth Kezuboth Attributed to R. Yehuday Gaon*. Jerusalem,

Ma'agarim The Hebrew Language Historical Dictionary Project. The Academy of the Hebrew Language. <<http://hebrew-treasures.huji.ac.il>>.

Makor *Codex Leningradensis* B19A. With an introduction by D.S. Loewinger. Jerusalem: Makor, 1971.

Masada VI S. Talmon et al., eds. *Hebrew Fragments from Masada*. Jerusalem, 1999.

Midrash on Psalms S. Buber, ed. *Midrash on Psalms*. Vilna, 1891.

Mishneh Torah Moshe ben Maimon (Maimonides), *Mishneh Torah*. New York: Shulsinger Bros., 1947.

Mekhilta H. Horowitz, and Y. Rabin, eds. *Mekhilta*. 2nd ed. Frankfurt am Main, 1931.

The Old Testament C.D. Ginsburg, ed. *The Old Testament Diligently Revised according to the Massorah and the Early Editions with the various Readings from Mss. and the Ancient versions*. London, 1926.

Sefer Torah M. Higger, ed. *Seven Minor Treatises: Sefer Torah [etc.] and Treatise Soferim II*. New York, 1930.

Shulhan Arukh J. Caro. *Shulhan Arukh*. Venice, 1565/66.

Sifre Deuteronomy L. Finkelstein, ed. *Sifre Deuteronomy*. 2nd ed. New York, 1969.

Sifre Numbers H.S. Horowitz, ed. *Sifre Numbers*. Leipzig, 1917.

Soferim M. Higger, ed. *Massekhet Soferim*. New York, 1937.

Soferim II M. Higger, ed. *Seven Minor Treatises: Sefer Torah [etc.] and Treatise Soferim II*. New York, 1930.

1QIsa^a M. Burrows, ed. *The Dead Sea Scrolls of St. Mark's Monastery I, The Isaiah*

- Manuscript and the Habakkuk Commentary*.
New Haven, 1950.
- Avigad, N.**
1961 The Palaeography of the Dead Sea Scrolls and Related Documents. In *Essays on the Dead Sea Scrolls in Memory of E.L. Sukenik*, ed. Y. Yadin and Ch. Rabin, 107–139. Jerusalem (Hebrew).
- Beit-Arié, M.**
1967–68 The Munich Palimpsest: A Hebrew Scroll Written before the Eighth Century. *Kirjath Sepher* 43: 411–28 (Hebrew).
1992–93 *Hebrew Manuscripts of East and West: Towards a Comparative Codicology*. The Panizzi Lectures 1992. London.
1993 *The Makings of the Medieval Hebrew Book*. Jerusalem.
2009 *Hebrew Codicology: Historical and Comparative Typology of Hebrew Medieval Codices Based on the Documentation of the Extant Dated Manuscripts in Quantitative Approach*. Internet version 1.0 (2008). Linked to SfarData online database of the Hebrew Palaeography Project of the Israel Academy of Sciences and Humanities (under construction at <sfardata.nli.org.il>).
- Birnbaum, S.A.**
1959 A Sheet of an Eighth Century Synagogue Scroll. *Vetus Testamentum* 9/2: 122–29.
- Charlesworth, J.H.** (interviews with)
1980a Duke Gets Fragments of Early Hebrew Bible. *Durham Morning Herald*. March 23.
1980b Duke Gets Hebrew Texts. *Winston-Salem Journal*: A6. March 23.
1980c Scholar Identifies Biblical Manuscript. *Winston-Salem Journal*. August 11.
- Engel, E.**
1990 The Development of the Hebrew Script from the Period of the Bar-Kokhba Revolt to 1000 A.D. Ph.D. diss., The Hebrew University of Jerusalem (Hebrew).
1999 The Analysis of Letter: A New Palaeographical Method. In *Methoden der Schriftbeschreibung* 4, ed. P. Rück, 43–50. Stuttgart.
- Glatzer, M.**
1989 The Aleppo Codex: Codicological and Palaeographical Aspects. *Sefunot* (New Series) 4 (19): 167–276 (Hebrew).
- Haran, M.**
1987–88 The Codex, the Pinax and the Wooden Slats. *Tarbiz* 57: 151–64 (Hebrew).
- Penkower, J.S.**
1992 *New Evidence for the Pentateuch Text in the Aleppo Codex*. Ramat Gan (Hebrew).
2002 A Sheet of Parchment from a 10th or 11th Century Torah Scroll: Determining its Type among Four Traditions (Oriental, Sefardi, Ashkenazi, Yemenite). *Textus* 21: 235–64.
- Reed, R.**
1972 *Ancient Skins, Parchments and Leathers*. London and New York.
- Sirat, C.**
1985 *Les papyrus en caractères hébraïques trouvés en Egypte*. Paris.
- Sirat, C., P. Cauderlier, M. Dukan, and M.A. Friedman, eds.**
1986 *La Ketouba de Cologne: un contrat de mariage juif à Antinoopolis*. Opladen.
- Sirat, C., M. Dukan, and A. Yardeni**
1994 Rouleaux de la Tora antérieurs à l'an mille. *Comptes Rendus, Académie des Inscriptions et Belles-Lettres* 138/4: 861–87.
- Sukenik, E.L.**
1931 An Epitaph of Uzziah King of Judah. *Tarbiz* 2: 288–92 (Hebrew).
- Yardeni, A.**
1990 The Letters פְּרָשׁוֹת וְשֵׁטְנֵי גִ'ץ and פְּתוּחוֹת וְסֵטוּמוֹת in a New Fragment of a Genesis Scroll from the Cairo Genizah. *Proceedings of the Tenth World Congress of Jewish Studies, Jerusalem, August 16–24, 1989*, D 1, 173–80. Jerusalem (Hebrew).

