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Manuscripts from the Cairo Genizah as Educative Tools

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Abstract: The study of manuscripts provides an excellent portal into the past. This is particularly evident through the window that the Cairo Genizah provides into how knowledge and skills crucial to the survival of society were passed on. In this article, starting with the basic curriculum of reading and writing and moving to the more sophisticated learning of specific skills to serve the community or learn a trade, I examine the contribution of manuscripts to education in that period. Delving into many visual treasures infused with religious practice and meaning, one discovers that the more things change, the more they stay the same.

Keywords: Genizah, manuscripts, education, reading, writing, cantillation

Passing on knowledge and skills to the next generation is crucial to the survival of culture and civilisation. Ancient manuscripts bear witness to the role that ink on parchment or paper played in that transmission—from learning the basic skills of reading or writing, whether in school or with a private tutor, to the more complex documents that evidence participation in the liturgical, ritual or business life of the community.

This article takes a handful of examples from the Jewish communities represented by the fragments surviving from the Cairo Genizah, mostly from the famous store room for discarded manuscripts at the Ben Ezra Synagogue in Fustat, which contained hundreds of thousands of manuscript fragments dating from the sixth to the nineteenth centuries.[1] With two exceptions (Fig. 4 below), the manuscripts cited in this article all stem from the Cambridge University Library Taylor-Schechter collection (CUL T-S, henceforth T-S),[2] and

[1] Others under this collective term come from the Karaite Dar Simha synagogue and the Basatin Cemetery on the edge of Cairo. Some manuscripts in collections are not specifically identified as coming from the *Genizot* (plural) but are likely from these sources.

[2] See https://www.lib.cam.ac.uk/collections/departments/taylor-schechter-genizah-research-unit (accessed 6 December 2024).

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Described on the Friedberg Genizah Project (FGP) website (Worman Catalogue) as 'Teaching Aids, Pen Trials, Writing Exercises, Scribblings, Jotting (sic)', there are there are many such examples, and one short article cannot possibly hope to cover the whole gamut of this material.[4] In Cambridge alone, Series T-S K5 contains 108 individual shelfmarks and T-S NS 70 contains 130, plus some minute fragments (though not all are educational materials). What follows are observations based on some highlights.

My aim is to show how teaching or self-learning and improvement were facilitated by these pedagogical manuscripts. To impose a structure, I have tackled the examples in the order of the 'age' and 'competency' of the writers.

'Through the Genizah we learn how children studied with writing boards balanced on their knees, clustered around the textbook' (Outhwaite, Schmierer-Lee, and Burgess 2018: 20), often a single textbook so children had to learn to read upside down or sideways, based on where they sat.[5] These textbooks were written by the teacher/private tutor with a *qulmus* (reed pen) on rag paper or parchment, following a specific format and order. 'As writing material became more plentiful through the introduction of paper to Egypt' (Posegay and Schmierer-Lee 2024: 237), they also served to practice copying, as we will explore below. Additionally, there are examples of more advanced study, beyond the basics.

However, as Goitein (1971: 171) points out, in the 'society reflected by the Geniza records, study had an additional function: it was an act of devotion, it was worship. To give as much time as possible to the reading and discussion of holy texts was religiously meritorious'.[6]

[3] My thanks to Prof. Ben Outhwaite for his assistance here, and for his insightful comments, as always. While this article was being finalised, a new work to celebrate the 50th anniversary of the Cambridge Genizah Unit was going into print (Posegay and Schmierer-Lee 2024). My thanks to Dr. Melonie Schmierer-Lee for passing me an advanced copy of chapter nine, 'Education' (Posegay and Schmierer-Lee 2024: 237–62), which contains many examples, extracts from translations, and images bringing this subject to life, one of which I added here. This research was made possible by the support of the Rothschild Foundation Hanadiv Europe. The third part of this article is based on specific investigations I undertook on a particular education-orientated fragment that appeared as a Cambridge Genizah Unit Fragment of the Month (FOTM). For more detailed information and transcriptions of the texts see Michaels (2022). The other sections are drawn largely from the T-S K5 and T-S NS 70 folders, but with reference to some other materials, and additive comments, to avoid too much overlap with other articles on the subject drawing from the same bank of materials, which are referenced below.

[4] See https://www.nli.org.il/en/manuscripts/NNL_ALEPH990052443720205171/NLI#$FL168347220 (accessed 26 August 2025).

[5] As Olszowy-Schlanger (2003: 56) notes, 'this practice is well attested in Geniza fragments'. She also notes there 'a letter by *dayyan* R. Yehiel ben R. Elyakim', who discusses this practice: לנער לאליקים נחלהו לאטו בקריאתו והרגילהו לקרות מארבע הפאות מלמעלה ומלמטה (for the child, [i.e.] for Elyakim, it makes him slow [lit. 'it is inheritance'] in his reading, and it is regular for him to read from four corners, up and down) (Olszowy-Schlanger 2003: 56; T-S J20.3 ed. Mann, *Jews* II, 301–2; Goitein 1971: 53). Some of the individuals who frequent the *Mizrachi* synagogue I attend learnt like this, even into modern times, and have this skill, particularly friends hailing from Yemen.

[6] For a fuller understanding of the educational context, see Goitein (1971: 171–272, chapter six 'Education and the

This underlies much of what I will cover below from elementary to more sophisticated levels of educational attainment. That said, lest we think that the sacred task that sat behind their studies inspired children to greater achievements, not all of them were attentive to their studies and 'notes sent home from exasperated teachers reveal the punishments given to naughty children, and the crimes of school room bullies'.[7] *Plus ça change, plus c'est la même chose*, as we will see.

The basic curriculum was quite fixed as a pedagogical method, as witnessed by the criticism of other methods by Isaac ben Samuel in twelfth-century Fustat in T-S 13J23.20. He was greatly disturbed by 'the controversial reading method of "whole word recognition" ' and 'a teacher ... who instructs the boys without [first teaching them] the alphabet and vowel signs'. He further states that 'this is by no means permissible, for the alphabet and the vowel signs are the basis of all teaching; through the alphabet God has given us His message' (Posegay and Schmierer-Lee 2024: 241), thus reinforcing the religious foundation of this method.

Based on going through the educational corpus represented by T-S K5 and T-S NS 70, the core format of the little textbooks seems to comprise of:

1. the *ʾalef-bet* (alphabet), sometimes plain, and sometimes with an outline in coloured ink drawn around it;
2. *ʾalef-bet* with vowel combinations, again sometimes plain, and sometimes with an outline;
3. 'kabbalistic' letter combinations;
4. blessing before reading/learning the Torah;
5. a passage from the start of *Vayiqraʾ* (Leviticus), though occasionally *Berešit* (Genesis).

There are variants on this structure.[8] Also, but likely separately, we see practice sentences employing pangrams—where each letter of the alphabet appears.

Each section was followed with the word חזק *ḥazaq* (be strong),[9] often with an outline or bubble letters. Mostly the materials are in black ink, but sometimes coloured inks are used. We see these sections written out competently by a teacher (sometimes it is difficult to

Professional Class'); also Joshua 1:8.

[7] Outhwaite, Schmierer-Lee, and Burgess (2018: 20). See also the examples of T-S 8J28.7, a letter from a teacher about a particularly disruptive child, Abu Mansur, and T-S Ar.53.65 about schoolyard bullies brought on p. 21. Both were written in Egypt in the eleventh-twelfth century.

[8] For further details on the makeup and nature of these small format exercise books dated between the eleventh and thirteenth centuries, see Olszowy-Schlanger (2003: 57–59).

[9] Likely echoing the statement made at the completion of each of the five books of the Torah in the synagogue reading cycle, חזק חזק ונתחזק *ḥazaq ḥazaq veniṯḥazeq* (be strong, be strong and we will be strengthened).

tell whether it may have been an older student) and then, in other fragments, copied by the child with occasional drawings or doodles when their attention had clearly wandered. These are all explored in more detail below.

Learning to read

At the most basic the child needs to know the symbols that represent the letters of the Hebrew *ʾalef-bet* (alphabet),[10] and we see these written out with the medial letters (standard Hebrew letter forms) followed by those medial letters that have corresponding *sofiyot* (final letters in Hebrew, that take a different form at the end of a word). P7 of T-S K5.4 (Fig. 1) is an example of an alphabet list. As mentioned above, this is accompanied by the word חזק *ḥazaq* (be strong), which is clearly there to applaud and reward the child as they name the letters.[11] T-S K5.8 (Fig. 1) also has a very finely written alphabet page together with a verse, Psalm 121:7, יְיָ יִשְׁמָרְךָ מִכָּל־רָע יִשְׁמֹר אֶת־נַפְשֶׁךָ *Hashem yišmorkha mikkol raʿ yišmor et nafšekha* (may God[12] guard you from all evil, may He guard your soul), which is a different kind of reassurance for the child. Something similar happens with T-S K5.3 (again with חֲזַק *ḥazaq* present, though vocalised, see Fig. 1), but here the letters are in random order. So perhaps they started reading the letters in order, and then had to recognise them out of sequence.

Fig. 1: From left to right: P7 of T-S K5.4, T-S K5.8, and T-S K5.3.

Moving on in ability, we encounter possibly the most famous image of a Genizah fragment, T-S K5.13—the 'poster boy', so to speak, used on promotional bags, badges and featuring in numerous books (Fig. 2).

[10] The children would have spoken Arabic as a first language and learnt the Arabic script too, while Hebrew was being used as a language of prayer. For a discussion of this, see Olszowy-Schlanger (2003: 49–52).

[11] Another example is on T-S K5.4 P6, though *ḥazaq* may not be present, as that section is not extant.

[12] Here, as is the case in many Genizah and other documents, to avoid writing God's Holy Names in a non-Biblical manuscript, which could be damaged, three letters *yod* יִי are written instead. Often these are written in a pyramid shape with one above the other two.

Fig. 2: The rather famous T-S K5.13.

The entry on the CUDL website describes this as a 'beautifully illuminated carpet page consisting of a *menora* and the six-pointed stars,[13] followed by alphabetical exercises from a children's Hebrew textbook. The consonants, *alef* to *he* are presented with different Tiberian vowels, interspersed with star designs'.[14] It is clearly executed so beautifully to appeal to the child with a wonderful image of the seven-branched Temple *menora* and outlined letters with supposedly coloured-in insides. With the illumination, it 'would have been expensive to produce and probably shared amongst several children in the school' (Outhwaite, Schmierer-Lee, and Burgess 2018: 21).

Goitein (1971: 178) suggests that this was part of a game with the teacher drawing the outlines and the pupils filling them in with different colours, and Olszowy-Schlanger (2003: 60) repeats this idea. However, this idea of being 'coloured-in' is simply not correct. From digital close ups and viewing the manuscript in the CUL Reading Room, the stroke order shows that the letters were written first by a skilled writer—certainly not a child—and then likely the teacher has made them more attractive by going around them with an outline, which one can see sometimes going over the top of the black letters. Indeed, further evidence that this is purely a decoration by adults can be seen from the extensive use of same mechanic, with written letters surrounded by a drawn outline, in decorated כתובות *kettubot* (marriage documents) within the Genizah. Children would certainly not have an involvement in this.[15]

[13] The *Magen David* (lit. 'shield of David').
[14] See https://cudl.lib.cam.ac.uk/view/MS-TS-K-00005-00013/1 (accessed 5 December 2024).
[15] See Posegay and Schmierer-Lee (2024: 219–29) for examples, CUL T-S 16.73, T-S 20.62, T-S 24.17, and T-S 16.104.

Fig. 3: Similar letters with added outlines in T-S K5.10.

The same phenomenon is also seen in the version in T-S K5.10 (Fig. 3, left), where the subsequent outline clearly sometimes goes on top of the black letters. It is possible that the child drew around them in red, though unlikely, given its probable repeated use as a teaching aid with several children. However, there was certainly no colouring in. A possible exception on T-S K5.10 is the חֲזָק vocalised here *ḥazeq*, where the outlines look as if they were first drawn confidently by the teacher, and then it possibly was part of a child's reward to fill in that particular word only, since the colour goes up to the black edge and sometimes over it. The ink has broken up, so it is difficult to tell.

We see a particularly beautiful example of these decorated letters in a textbook held in the JTS (Jewish Theological Seminary), showing both the alphabets with vowels and combinations of letters. Again, the outline is drawn around a letter formed by a competent teacher, though oddly here, the ascender of the letter ל *lamed* enters into the line above with the כ *kaf* (Fig. 4, far right), which would certainly have made reading more difficult. Surely the need to conserve paper was not that extreme?

Fig. 4: Left to right: two sides from MS 7737 fol.1 (Alt: ENA 3555.4) and from MS 7737 fol. 2 (Alt: ENA 3566.7, ENA 3567.6) showing letters with vowels and letter combinations. Images provided by The Library of The Jewish Theological Seminary, used with permission.

Regardless, these decorative mechanisms are clearly an attempt to make learning entertaining and fun, similar to a custom that was developed in twelfth-century Germany, where letters of the alphabet were written on a slate, covered with honey, which the child could lick off, thereby associating learning and sweetness and fulfilling the statement in Ezekiel 3:3 of an eaten scroll being as 'sweet as honey' (Golinkin 2007).

Beauty of form aside, the function of T-S K5.13 and other manuscripts like it in the Genizah was to serve as an alphabetic primer. Each letter is shown with a different vowel sign underneath or to the side, generally eight—in this case, *qamaṣ*, *pataḥ*, *segol*, *ṣerei*, *ḥiriq*, *ḥolam ḥaser*, *qubuṣ* and *šuruq*. For example, using *gimel*, we have גָּ גַ גֶ גֶּ גִ גּ *ga*, *ga*,[16] *ge*, *gei*, *gi* and *go*[17] (bottom of Fig. 2). גֻ גּוּ *gu* and *gu*[18] are featured on the next page (Fig. 5), but גּוֹ *go*, the *ḥolem male'* version, is missing from the list, as is *ḥiriq male'* גִי *giy*. Also absent is גְ with the vowel *shewa* (two vertical dots under a letter), whether vocal or silent, or as a composite חטף *ḥataf* (a reduced vowel, lit. 'abducted vowel') form under the guttural letters *'alef*, *he*, or *'ayin*. Possibly these combinations were considered more complex, only necessary for older students and not relevant at this early reading stage.

Fig. 5: Close-up detail of the reverse of T-S K5.13 showing the rest of the letters ג *gimel*.

This alphabetical methodology for learning vocalised reading is very common, and in the Cambridge corpus alone we see it featured in many fragments. In this respect it differs little from the book אלפון עברי *Alfon Ivri*, from which I learnt Hebrew as a child well over half a century ago.

From there, we see reading moving from one letter and a vowel to two-, three- or four-letter combinations, mostly unvocalised, but sometimes with vocalisation. However, these consonant combinations bear no relation to actual Hebrew words. They are nonetheless not random, and are consistent between the textbooks.[19] One such manuscript, T-S K.5.14, shows a well-known acronym מנצפך *menaṣpakh* (detail shown in Fig. 6), which is a reminder

[16] In modern Hebrew these two vowels—one short, one long—sound the same, though the *qamaṣ* can also be pronounced 'o', known as a *qamaṣ gadol* (large *qamaṣ*). Back when these children were learning, the pronunciation would have varied.

[17] Pronounced 'o' as in 'ox'.

[18] Again, in modern Hebrew the short and long vowels are pronounced the same, but would have varied in the past.

[19] For a detailed discussion and transcription of the phenomena of these consonant groupings, see Olszowy-Schlanger (2003: 60–63), who recognises and comments only on *'atbaš* (see discussion below).

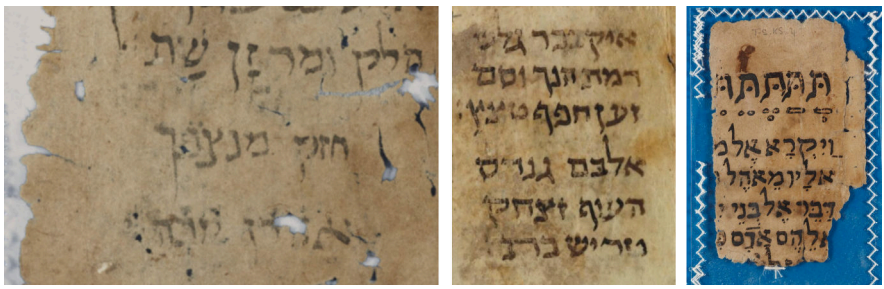

Fig. 6: Left, a detail showing the acronym מנצפך from T-S K5.14; centre, a detail from P2 of T-S K5.49 showing letter combinations; right, Leviticus starting after the alphabet from P9 of T-S K5.4.

to the pupils of the consonants that have both medial and final letters: *mem*, *nun*, *ṣade*, *pe*, and *kaf*, so that they use them appropriately within the words they write.

T-S K.5.49 (Fig. 6) provides some examples of letter combinations. Across the corpus, we see combined sequential three-letter groups, e.g. אבג בגד גדה: the first three letters of the alphabet, followed by letters two to four, letters three to five, etc. Other fragments use techniques known collectively as נוטריקון *notariqon*, 'kabbalistic' methods of letter transformation, fundamentally ciphers. These include the use of *ʾatbaš*, e.g. את בש, where the first and last letters are together, followed by the second and penultimate, third and twentieth, etc., and *ʾalbam*, e.g. אל בם, where the first and middle letters are joined and then the second together with the one that follows the middle letter, etc.[20] But more esoterically, these manuscripts for children contain *ʾachas beta*, e.g. אחס בטע גיך דכץ, relating to the Sefirot of Zeir Anpin (lit. 'Emanations of the Small Face'), 'a method of alphabetic transformation wherein the first twenty-one letters of the *alef-beit* are initially divided into three equal groups of seven letters, which are then tripled together in "direct order"'.[21] Also, *ʾayiq bekar*, e.g אים בכר דמת גלש, a very convoluted cipher methodology indeed, where 'the 27 letters of the full *alef-beit* (including the five letters with a final form ...) are initially divided into three equal groups of nine letters, which are then tripled together in "direct order"'.[22] It is certainly odd that children's primers should make use of these incredibly complex 'kabbalistic' ciphers, and it is not clear why this is the case. Perhaps it was just for the edification of the teacher.

Reading exercises are often followed by the blessing for learning/reading *Torah*, as we saw above (Fig. 3) on T-S K5.10, or the start of ויקרא *Vayiqraʾ* (Leviticus), as we find on P9 of

[20] Both these ciphers ignore the final letters and work with the twenty-two medial letters only.

[21] Space does not permit a full elucidation of these various kabbalistic ciphers. See https://inner.org/aleftran/achas.htm (accessed 05 December 2024).

[22] See https://inner.org/aleftran/ayik.htm (accessed 05 December 2024).

T-S 5.4 (Fig. 6). This movement from letter learning to specific texts echoes the religious content in which the letters were learnt, inculcating the religious culture as well as the ability to read. *Vayiqraʾ*, the priestly book containing dry and sometimes turgid instructions for the priesthood and the sacrifices, might sound like an odd place for a child to start their learning, given the more entertaining stories in Genesis and Exodus, such as Noah's Ark, the Tower of Babel, etc., which we see in illustrated children's books today. However, subsequent to the Temple's destruction and perhaps in memory of it, the tradition was to begin a child's learning with *Vayiqraʾ*. This is explained in the *midrashic* text, *Yalqut Shimʾoni* (Gathering of Simon), *Ṣav* 479:[23]

> אמר רבי אסי מפני מה מתחילין לתינוקות בתורת כהנים יתחילו להן מבראשית אמר הקבה הואיל והתינוקות טהורים והקרבנות טהורים יבואו טהורים ויתעסקו בטהרות
>
> Why do young children start with *Torat Kohanim* [Instruction for the Priests, another name for Leviticus]? Let them start with Genesis? Since the Holy One, Blessed be He said, sacrifices are pure and the children are pure, let the pure come and deal with the pure.

However, an alternative explanation, and earlier source, is provided in *Masekhet Sofrim* (The Scribal Tractate), likely redacted in the eighth century but containing earlier material.[24] There, special dispensation is given to the copying of that particular text for children (5:9):

> אין עושין שמע הלל מגלה לתינוקות ר׳ יהודה מתיר מן בראשית עד המבול מן ויקרא עד ויהי ביום השמיני ושאר כל הספרים אסור אם עתיד הוא להוסיף עליו מותר
>
> One does not make a scroll of the *Shema*[25] or of the *Hallel*[26] for children. R. Judah permits [writing] from '*In the beginning*' to the story of the flood [Gen. 1:1–6:8], and from [the beginning of] Leviticus to'*And it came to pass on the eighth day*' [Lev. 1:1–9:1]. But for the rest of all the books [of Scripture the writing of extracts is] forbidden [unless] the scribe intends to add to it, [then] it is permissible.

Hence the text of Leviticus is commonly found in the textbooks in the Genizah (as are some from Genesis, the other permitted section).

[23] Compiled between the eleventh and fourteenth centuries. For some background to this work, see https://www.jewishvirtuallibrary.org/yalkut-shimoni#google_vignette (accessed 5 December 2024).

[24] For some background to this minor tractate of the Talmud see https://www.jewishvirtuallibrary.org/soferim-2 (accessed 5 December 2024).

[25] Considered the central prayer in Judaism, containing three sections of Torah, Deut. 6:4–9, Deut. 11:13–21, and Num. 15:37–41.

[26] A subset of the book of Psalms, comprising Psalms 113 to 118, recited on festive days, either in part or in full.

Learning to write

In the Genizah, examples of 'manuscripts in juvenile handwriting show[ing] children practising their alphabet and copying biblical verses' (Outhwaite, Schmierer-Lee, and Burgess 2018: 20) are plentiful. However, not all pupils moved on to writing.[27] Indeed, many entered adulthood unable to write their name or only able to do so in poor, shaky block lettering. Those fortunate enough to learn to write would have been trained using the models shown above. Dr. Estara Arrant, in her PhD dissertation, looks at these unskilled hands in some detail.[28] Some are children and young adults learning. Some would have been adults whose writing was undeveloped and poor quality. However, since many were not intending to be professional *sofrim* (scribes), their concern was very much legibility to allow the message to be conveyed—as opposed to enhanced calligraphic skills and creating an artefact of great beauty to adorn the *mitsvah*. Instead, their focus would have been documentary; writing letters and recording business transactions. Some more talented individuals would have gone on to copy religious works, but as manuscripts for self-study instead of communal use.

There are, again, many examples in the Genizah. The primers used for reading discussed above then became a springboard for writing, with the children copying the sequences of letters with and without vocalisation, and similarly writing out verses of Torah or תנ"ך *Tanakh* (the Hebrew Bible)[29] as practice. This is obvious from the quality of the writing in sheets copied by youngsters, such as the two examples below from T-S K5.19 (Fig. 7). The pages stem either from different children or from the same child at different stages of development.

As with reading, the student progresses from letters to the word combinations to copying out biblical texts, such as verses from *Vayiqra'*, already mentioned, such as we see in T-S NS 70.3 (Fig. 8).

One example of how the repetition and practice of the writing skill reminds those of us of an older generation of doing 'lines', writing out repeatedly some suitably penitent phase.[30] Here, though, it is not a punishment. The writer is copying the phrases that are in front

[27] 'These exercises were ... solely a means to learn reading. Once the pupils had mastered the reading, the art of writing was not further pursued in the regular elementary school ... . Only at a higher stage of schooling was the art of writing taught systematically ... [for] future government officials, physicians, religious scholars and merchants' (Goitein 1971: 179).

[28] See Arrant (2021: 80–84, 109–13) for some examples and discussion of features of children's and 'unprofessional' scripts.

[29] An acronym formed from תורה ***T****orah* (The Five Books of Moses, Genesis to Deuteronomy), נביאים ***N****evi'im* (The Prophets, Joshua to Malachi), כתובים ***K****etuvim* (The Writings, Psalms to 2 Chronicles).

[30] For those of a younger generation, who never experienced a traditional 'detention', this it is what Bart Simpson is doing on the blackboard, in the opening credits of each episode of the Simpsons.

Fig. 7: T-S K5.19, writing exercises copied out by the student. P2 shows examples of the various 'kabbalistic' consonant groupings that they would have copied from a model provided by the teacher.

of him, over and over again, as a means of writing a pangram, i.e. a sentence that covers all twenty-seven letters of the alphabet—including the five סופיות *sofiyot* (final letters)—in a single phrase, in much the same way as the common English pangram 'the quick brown fox jumped over the lazy dog'. Some common phrases were identified by Menachem Zulay, though because they have been constructed deliberately as pangrams, they do not make complete sense.[31]

The first sounds a bit like a reprimand, הָקֵץ עָצֵל דַּיָּךְ מִנּוּם גָּרֵשׁ כָּזָב פֶּן תֹּסֶף חֵטְא (lit. 'in the end, you are lazy, because you are a false exile, because you will add to sin'), but the second is a little more difficult to fathom, אַתָּה גֹחִי צוּר מִבֶּטֶן כָּל זֹעֵם סַף קְדָשְׁךָ נַפֵּץ (lit. 'you drew me [O] rock from the belly, of every fury the threshold of your temple explodes'), with the first part of the phrase coming from Psalm 22:10.[32] These phrases have been constructed to have *only* the twenty-seven letters of the full alphabet. There are only a handful of verses in *Tanakh* which have each letter appearing but these also have additional letters repeated, so the concept is somewhat submerged. Constructing a meaningful pangram without repeating letters is difficult. A popular pangram phrase that is copied out in many fragments does repeat letters in order to include the full twenty-seven. The first part of this longer

[31] 'I read and wonder, what is their nature, and suddenly, in each of the two verses, twenty-two letters of the alphabet and five final letters appear before my eyes … . Were these verses used by the students of the school, for the study of the alphabet?' (Zulay 1948–1952; quoted in Elizur 2022). Elizur (2022) discusses this topic in detail and shows further imagery, such as T-S NS 129.11 and T-S AS 118.272 (accessed 25 June 2024). This blog is based on an earlier article in Hebrew and English. I have summarised the discussion in this article, whilst adding a few thoughts of my own, and other images.

[32] This reads כִּי־אַתָּה גֹחִי מִבֶּטֶן (for you drew me from the womb), though the Jewish Publication Society (JPS) translation recognises that the Hebrew is difficult to translate. According to the *Hebrew and Aramaic Lexicon of the Old Testament* (*HALOT*), the root גחה means 'to uproot' or 'to pull out'.

Fig. 8: Two sides of T-S NS 70.3 showing the pupil copying the alphabet with *niqqud* (vowel points), the 'kabbalistic' letter combinations, and a section from Leviticus.

sentence, אֹמֵר אֲנִי מַעֲשַׂי לְמֶלֶךְ לְשׁוֹנִי עֵט | סוֹפֵר מָהִיר (lit. 'I address my verses to the king; my tongue is like the pen of a skilled scribe') is part of a verse from Psalms 45:2, and it is likely that it was chosen because of its mention of the scribe's pen and the king—i.e. God. This is followed by the second part, אֶצְלְךָ חֵפֶץ גְּזֹר הַשֵּׂם טוֹב מִכֶּסֶף קִנְיַן דַּעַת (lit. 'I will give you a decree of God, better than money is the acquisition of knowledge'), which of course is very relevant, given the educational context.[33]

Whilst we are concentrating on Hebrew, it is worth noting that other practice 'lines' of a more advanced nature are present where the student is copying out lines of Judeo-Arabic in order to perfect a semi-cursive script, rather than the block forms we see here. For an example, see T-S NS 70.19.

I am a סופר סת"ם *Sofer STa"M* (Jewish Scribe),[34] and in my research into ritual scribal artifacts in the Genizah, I also spotted the אַתָּה גֹחִי *ʾata goḥi* (you drew me) phrase, discussed above, being used as writing practice. This time, on the back of a rather oddly written מזוזה *mezuzah* (a scroll attached to doors in a Jewish home in a case) employing semi-cursive script, T-S A44.36 (see Fig. 9 and below for more discussion). It also appears on the back of a 'memorandum for opticians' on T-S Ar.35.212. This merely reinforces how every scrap of paper or parchment was used, and re-used, in the pursuit of education.

[33] For example, see https://onthemainline.blogspot.com/2010/11/unique-manuscript-shows-how-13th.html (accessed 5 December 2024).

[34] *STa"M* is an acronym for ספר תורה ***S**efer **T**orah* (Torah scroll), תפילין ***T**efillin* (phylacteries) and מזוזה ***M**ezuzah* (lit. 'doorpost'), the main ritual objects written by a Jewish scribe. For more on these ritual objects and other scribal activities, see https://www.sofer.co.uk/activities (accessed 5 December 2024).

Fig. 9: From left to right: The phrases being written out over and over again in T-S NS 110.11 (at the end, surrounded with dots as if his name is up in lights, is the name of the writer, Saʿadya b. Judah); the back of the semi-cursive *mezuzah* T-S A44.36; the reverse of the medical slip, T-S Ar.35.212.

Learning to chant

Reading a religious text is all very well for study, but in Judaism there is a performative aspect to prayer. None more so, than that of the בעל קורא *baʿal qoreʾ* (lit. 'master of reading') who chants the Torah portions from the בימה *bima* (lectern/reading desk) in a service on the Sabbath and festivals. Additionally, younger boys would read the accompanying תרגום *Targum*—Aramaic translation—even though by the period represented by the Genizah fragments, Aramaic was not the *lingua franca* and perhaps only the learned congregants fully understood it. Indeed, Goitein (1971: 175) states that 'the main aim of the school was the preparation of its pupils for taking an active part in the synagogue service', though clearly, as discussed above, there was also a need for some rudimentary level of literacy for trade and certain professions, and an advanced level in others.

Thus, נקודות *neqqudot* (vowels) that ensure the correct pronunciation were joined with a separate oral tradition recorded in the Masoretic texts by טעמים *ṭeʿamim*, which are musical

annotations, also known as the trope. The Hebrew means lit. 'tastes' or 'flavours'. They dictate the tune to be used. They also signify pauses and emphasis and indicate the position of the main stress in the pronunciation of that word.

Whilst biblical codices sport these notations to aid the reader, the *Torah* scrolls from which the individual chants, have neither vowels nor notes (or, for that matter, punctuation), since הלכה *halakha* (Jewish Law) only permits the writing of the consonant text, and in a particular defined way.

In Cairo, like anywhere, Jews gathered the young boys who would need to be called to the *Torah* on their thirteenth birthday to become *bar mitsvah* (lit. 'son of the commandment'), but also for ongoing participation in the services. Unlike today, the Rabbi, חזן *ḥazzan* (cantor) or other *baʿal qoreʾ* would not always act as an agent for the person called to the Torah for an עליה *ʿaliyah* (lit. 'a going up'). Instead, that person might be expected to chant the סדרה *sedra* (section of the weekly Shabbat or festivals readings) if he were capable. To do this requires the individual to be able to read the text without vowels, but also to chant using the right notes, all of which needs to be done from memory, having practiced from a תקון קראים *tiqqun qorʾim* (reader's guide) prior to the service.[35]

Just as one would have done in Cairo, when one learns these *ṭeʿamim* (musical annotations) from a list, one sings the name of the note to the tune of the note. So, I can quite easily reel off typical standard musical phrases such as *mahpakh, pašṭa, zaqef qaṭon, zaqef gadol* (see below for detailed discussion of these terms). As you are chanting, in your head you have to combine a musical note that has a name with the word that is written and sing the word and not the name, with the emphasis on the right syllable. It is a shame that the written word cannot convey the sounds that I will discuss below, but they would be different to more modern tunes anyway. To assist the reader I have added some links and explanations into the footnotes to sound files that can give an approximation of the sound of the trope.[36]

One way of learning is embodied by T-S Misc. 22.264 (Fig. 10), a trope trainer I investigated in the Genizah Fragment of the Month (FOTM) for July 2022.[37]

The musical notation system we employ today was developed by the Masoretes in the

[35] For example, a core scribal manual, *Qeset ha-Sofer* 16:6 explains, סתּ המנוקד פסול ... אם היה הסתּ כבר כתוב בהכשר ואחכּ עשו בו נקודות או סימני טעמים מהני בהן גרידה כמו באשר טעיות (a *Sefer Torah* that has vowels is invalid ... [and] if the *Sefer Torah* was already written in a valid manner, and afterwards one made vowels or trope signs in it, then it is appropriate for them to be scraped like [you would deal with] other errors). In my scribal work, I have repaired several *sifrey* (scrolls) where vowels were added to help a *Bar* or *Bat- Mitzvah*, removing those additions.

[36] For those interested in hearing some variants, https://www.chabad.org/multimedia/music_cdo/aid/931078/jewish/Torah-Reading-Trop.htm (accessed 5 December 2024) gives recordings of the notes, though modern. Closer temporally, for a reconstruction of how the notes and pronunciation may have sounded in Masoretic times, see the links to 'Oral Performances' in Khan (2020a: 620) (open access). Closer geographically, http://www.karaites.org/torah-audio.html (accessed 10 December 2024) provides sound files of the whole Torah and Haftarot (though these are different from the standard tradition). Reportedly, many of the melodies are the same as normal Egyptian Jewry,

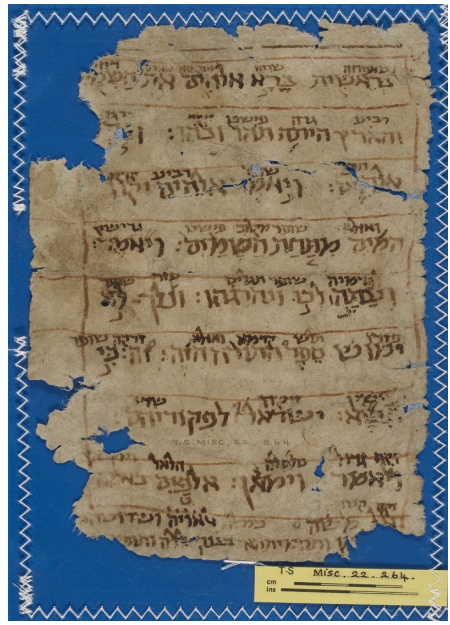

Fig. 10: T-S Misc. 22.264 recto, the trope trainer.

eighth to tenth centuries. However, they did not invent this, but were codifying the tunes referenced in Mishnaic times (c. 10–220 CE), likely from earlier traditions that accompanied the declaiming of the *Torah* text in the marketplace and synagogue.[38] For example in *b. Megillah* 32a, we read,

> וְאָמַר רַבִּי שְׁפַטְיָה אָמַר רַבִּי יוֹחָנָן כָּל הַקּוֹרֵא בְּלֹא נְעִימָה וְשׁוֹנֶה בְּלֹא זְמִרָה עָלָיו הַכָּתוּב אוֹמֵר וְגַם אֲנִי נָתַתִּי לָהֶם חֻקִּים לֹא טוֹבִים וְגוֹ׳
>
> And Rabbi Shefatya said that Rabbi Yoḥanan [b. Napacha][39] said: 'Concerning anyone who reads [from the *Torah*] without a melody or studies [the *Mishna*]

though the *revi'a* is apparently quite different.

[37] As a *ba'al qore'* who periodically *leins* (the Yiddish word typically used for chanting) from the Torah in my own and other synagogues, T-S Misc. 22.264 leapt out at me. This also features in Posegay and Schmierer-Lee (2024: 251).

[38] Khan notes that 'the cantillation is a layer of reading that has roots in late antiquity' (2020a: 51), also that 'the division [of the sentence by the notes] expressed by the cantillation are two different layers of exegetical tradition, which occasionally do not correspond with one another. In a number of cases, the cantillation divisions conflicted with the [other layer, the] *qere* [(what is read), i.e. the meaning of the sentence]' (2020a: 50). He also notes that 'the Targums [Aramaic translations] frequently reflect an interpretation of the text that corresponds [better] to the divisions of the cantillation' (2020a: 53).

[39] Second generation *'Amora*, who studied under R. Yehuda ha-Nasi and followed him as the director of the academy at Tiberias. Died in AD 279.

> without a song, the verse states: "So too I gave them statutes that were not good, and judgments whereby they should not live" ' (Ezek. 20:25).

Initially the reader (or singer), was assisted by means of hand signals from the סומך *somekh* (assistant, lit. 'supporter') who gave general directions as to the notes to use.[40] This system was called 'chironomy'. Indeed, hand signals to assist the modern reader are still present in some synagogues, and even enjoying a resurgence. These, however, were largely replaced by the twenty-eight symbols[41] that are placed above or below words.

There are many cantillation-related pages in the Genizah, such as T-S Misc.10.179 and T-S AS 139.14 (Fig. 11), and many others.[42]

Each of these show a listing of the names of the notes and the graphemes that represent them. Moreover, the order of notes given, the spellings, vocalisation and the names of the notes, and how comprehensive the list was, varies between fragments.[43] The names of the individual notes reflect either the shape of the grapheme employed or the melody associated with the sign, which would also help the student remember. For example, מונח *munaḥ* (sustained/rest) is called ֒[44] שופר *šofar* in Genizah fragments, because of its bent shape, like the shofar (ram's horn) used to blow notes on the High Holidays (Fig. 12). ֜ פזר *pazer* (scattered) is perhaps more a reflection of the sound, which is a kind of moving in and out.[45] Also, we see reference to the even rarer ֓ שלשלת *šalšelet* (chain), called in Judaeo-Arabic סלסלה *silsila* (chain), which echoes both the zigzag shape of the sign and the extremely long wavering note.

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[40] Referenced in *b. Berakhot* 62a, מַפְּנֵי מָה אֵין מְקַנְּחִין בְּיָמִין אֶלָּא בִּשְׂמֹאל ... נַחְמָן בַּר יִצְחָק אָמַר מִפְּנֵי שֶׁמַּרְאָה בָּהּ טַעֲמֵי תּוֹרָה ('Why does one not wipe with the right [hand] and rather the left ... ? Naḥman bar Yiṣḥaq said: Because [the right] reveals the notes of the *Torah*' [i.e. through the hand gestures]).

[41] Enumerated in detailed in Binder (1959: 19–22). Hebrew and Aramaic names and translations used in this article are drawn largely from Binder, cross-referenced with section 5.3.3 'The Accentuation Signs' in the 'Masorah' article in *Encyclopaedia Judaica* ('Masorah' 1971: 1454–8) and Wickes (1881: 10–23). I have employed the Askhkenazi names for comparison with the modern terms, but Sefardi, Italian, Mizraḥi, and Yemenite traditions also have different naming conventions. I am particularly grateful to both Prof. Ben Outhwaite and Prof. Geoffrey Khan for their suggestions and guidance with the Arabic names for the *ṭeʿamim* that feature in this fragment and in others.

[42] Checking the Friedberg Genizah Project (FGP) searching the sub-domain 'cantillation' reveals some fragments that relate to treatises on the trope, but there are also a number of fuller and partial listings for educational purposes, including T-S AS 139.40, T-S AS 139.43, T-S Misc.26.18. T-S NS 259.78, BL OR 10578N.3 (Alt: Gaster 1345.3), JTS ENA 2710.37, AIU IX A.11, Paris, Moss. I,61.2 (Alt: G 13), Paris, Moss. I,74.2 (Alt: G 26), T-S K5.26. T-S K9.11, T-S Ar.31.164 and T-S NS 194.12. No doubt there are others.

[43] Interestingly, some of the names appended to the *ṭeʿamim* are sometimes different from any of the traditions mentioned above or those in other Genizah fragments, mixing Hebrew, Aramaic, and Arabic nomenclature, showing the variation by which the trope was conveyed in different localities. This is a subject worthy of further study.

[44] I have added a unicode version of the modern note symbol against each name, showing its position above or below the letter, to assist the reader.

[45] Wickes (1881: 17) suggests it is a 'shake' or 'trill'. Though the *Encyclopaedia Judaica* ('Masorah' 1971: 1454) suggests that 'it apparently does not refer to the melody, but to the sign (פְּזָרָה Aramaic = whip).

Fig. 11: T-S Misc 10.179 and T-S AS 139.14. Examples of more simple listings of the *ṭeʿamim*.

However, T-S Misc.22.264 is very different from these other fragments.[46] Instead of presenting a simple listing, the musical notation grapheme and the accompanying name of the note are appended to parts of biblical verses in phrases and single words. Starting with the very first half of the very first verse of the Bible, Gen. 1:1, and working through the Bible in sequence, it is a short and perhaps more practical training manual for someone learning to chant from the *Torah*. It seems to represent an intermediate stage between the lists of notes and learning from the actual text, since it allows one to sing the words which are written large but still see the name of the notes which are in superscript. This represents a clear example of pedagogy at work, as one generation trained the next.[47] Either this teacher, or at some point in time some other teacher from whom this teacher is copying the text, had taken time out and scoured the Bible for examples where phrases would cover the individual notes, including those that rarely occur. This would speed up the student's learning, since otherwise it may be some time before he would encounter a פסוק *pasuq*

[46] Visiting the CUL reading room in mid-February 2022, I measured the fragment as 19.8cm high by 14.6cm wide. It is on rag paper, with barely visible laid lines. Based on the script employed, I tentatively date it to the mid-eleventh century, by comparison of the abecedary I created with examples given in Arié, Engel, and Yardeni (1987). My thanks to Dr. Vince Beiler for being a second pair of eyes to confirm my dating suggestion. It is noted by the FGP only as 'Cantillation notes—Personal handlist— preliminary description, further examination required'.

[47] For example, *b. Nedarim* 37a explains רַב אָמַר שְׂכַר שִׁימּוּר וְרַבִּי יוֹחָנָן אָמַר שְׂכַר פִּיסּוּק טְעָמִים (Rav said the payment [of a teacher] is for looking after [children] and R. Yoḥanan said payment is for [teaching] the pauses of the cantillation).

(verse) where a particularly rare musical phrasing occurred. Our teacher has mostly, but not consistently, added the vowel points (presumably to help the student further). He has then drawn boxed rules around each line to separate them off and make them even easier to deal with on the page.

Below, I have detailed the contents of the fragment to stress the complexity of what our young student is learning. The reader will note that the translations of the names of the notes relate to either the shape of the grapheme, or the nature of the sound of the note itself. A full transcription is given in the original article, see Michaels (2022). In this paper, I have given the biblical text, as it appears in the Masoretic Text in printed editions. This allows the reader to see the symbols (notes and vowels) deployed on the text as each phrase and musical note is being discussed.

The first line brings a fairly standard phrasing attached to Gen. 1:1a, בְּרֵאשִׁית בָּרָא אֱלֹהִים אֵת [הַשָּׁמַ]יִם: (In the beginning God created the heaven ...). The first note shown has an extra *ʾalef* suggesting the vocalisation is ֗ טאפחה *ṭâpīḥa* (hand-breadth), rather than the more usual טפחא *ṭipḥa*.[48] ֯ שופר *šofar* (ram's horn), we have already discussed above. Similarly, ֑ אתנ[ח]א *ʾatnaḥa* (rest), instead of the more familiar אתנחתא *ʾetnaḥta*, a note which usually marks the mid-point of a *pasuq* (verse). The ֥ מארכה *meʾarkha* (to lengthen) corresponds to our modern מירכא *meirkha*. The last note is not fully clear. It is another *ṭâpīḥa* but is not marked as such, instead using the name ֭ דחי *dekhi* (thrust back), used before a hemistich break ׀ סילוק *silluq*.[49]

We proceed to the next biblical verse with וְהָאָרֶץ הָיְתָה תֹהוּ וָבֹהוּ (and the earth was formless and void) from Gen. 1:2a, which introduces a more complex sequence for our student to learn ֒ רביע *reviaʿ*, (four-square—a reference to its diamond shape); this is followed by a further ֥ *merkha*, called here גרה, which, according to Prof. Geoffrey Khan (personal correspondence 17 Juanuary 2022), may be the Arabic *jarrâ* (runner). It is interesting to ponder what students made of the different names being used for the same notes, and how this may have confused them. This is followed by what has become known in modern times as a double ֒֒ פשטא *pašṭa* but rendered here as פישט *pišṭ* (extended/stretching).[50] The last note in line 2 is not particularly legible. It is a ֪ זקף קטון *zaqef qaṭon* (lesser upright) but is given here as [זיקף] *zeyqef*.

Reconstructing the last word of the second line with the first of the third gives us the important combination of ֥ [ד]רג[ה] *darga* (stepwise or scale), and ֯ תבר *tevir* (broken),

[48] My thanks to Prof. Geoffrey Khan who explains this as an Arabicised form, similar to קאמצה for *qameṣ*, also often called טרחא *tarḥaʾ* in other fragment listings. See Wickes (1881: 19).

[49] My thanks to Prof. Ben Outhwaite for his suggestions regarding a few notes that were damaged and thus difficult to read in the fragment.

[50] In other fragments this doubling is also referred to in Aramaic as תרין קדמין *tereyn qadmin* (twice *qadmaʾ*) since *pašṭa* and *qadmaʾ* are basically the same sign.

though lacking the *yod* seen in other fragments and the modern spelling, תביר. This musical phrase is attached to וַיַּרְא אֱלֹהִים (and God saw) from Gen 1:4a.

The next sequence involves Gen 1:9a וַיֹּאמֶר אֱלֹהִים יִקָּווּ הַמַּיִם מִתַּחַת הַשָּׁמַיִם (and God said let the waters under the heavens be gathered) and takes us across lines 3 and most of line 4. It brings the common combination of ◌ְ *šofar* and ◌ִ *revia*ʿ, but its main purpose is to introduce the combined phrase that feels like a musical rainbow forming a sort of semi-circle over the words, ◌ַ [א]קדמ *qadma* (to proceed), ◌ָ [ה]ואזל *weʾazla*, (and go on). Before the ◌ַ *pišt* we see something that the teacher appears to note in combined Hebrew and Aramaic, ◌ְ שופר מקלוב *šofar maqlûb* (upside-down *shofar*). This symbol is מהפך *mahpakh* (reversed) in modern trope, but in other fragments we see it referred to as שופר מהופך *šofar mehufakh* (backwards/inverted *shofar* [shape]), as we can see when we compare it to the ram's horn instrument (Fig. 12).

Fig. 12: An example *shofar* belonging to the author, the ram's horn blown on the Jewish High Holidays that has inspired the name of many of these notes, through its shape.

The last word in the line is our first individual word, the ubiquitous וַיֹּאמֶר *vayyomer* (and he said). However, the choice is also odd as there is no example of this word employing the note ◌ֳ גרשים *geršayim* (double *gereš* = to chase), given as גרישין *gerišin* here, in the Masoretic Text of the Torah or the book of Joshua, where the other verses that follow are drawn from. So, this is an odd choice by our teacher, unless there was a different tradition for musical notation that he was following.

We then move on to Joseph's brothers plotting to throw him into the pit, וְעַתָּה | לְכוּ וְנַהַרְגֵהוּ (come now, let us kill him) from Gen. 37:20, which brings the common ◌ִ|◌ְ *munakh* [pause] *munakh revia*ʿ phrase. This is shown here as רמיה[לג] *legarmey* which, according to other fragments, is an abbreviated form of *šofar legarmey* (*shofar* standing alone),[51] though vocalised without the *yod*. This is referencing the inclusion of the פסק | *paseq* (pause), which

[51] *Encyclopaedia Judaica* ('Masorah' 1971: 1455) gives שופר מונח לגרמיה ('trumpet, horn [sustained] by itself').

indicates an actual pause between singing the two ֫ *munakh* notes, hence one is standing alone. *Revia*ʿ here is rendered in Arabic as ֪ תגליס *tajlîs*, for which Prof. Ben Outhwaite (personal correspondence 21 December 2021) notes 'the root *jls* has to do with "sitting" (like *majlîs*)—which would be a good synonym for רביע "resting" '.

We leave the *Torah* and move to the books of the Prophets for the next phrase from Josh. 1:8a, לְֽא־יָמ֗וּשׁ סֵ֚פֶר֙ הַתּוֹרָ֣ה הַזֶּ֔ה (let not this Book of the Teaching cease)—likely a very meaningful phrase for our teacher to convey to his student, given the next word מִפִּ֑יךָ (from your mouth) and the context in which this teaching is taking place. Perhaps this verse is also a subtle exhortation to the student to keep practicing. Aside from rehearsing notes that have already appeared, this phrase introduces ֭ תלש *talaš*, specifically תלשא איליטרי *talša ilyiṭri*, based on the vocalisation given in T-S Misc.10.179, and related to the Arabic *al-yusrâ* (the left), which refers to its positioning on the left of the word.[52] This corresponds to תלישא קטנה *teliša qeṭanna* (lesser drawing or plucking out) in modern usage. Outhwaite notes (personal correspondence 21 January 2021), that 'on לְֽא־ at the start of the phrase there is a *munaḥ* ... [and so] is marked differently from the standard Masoretic edition, which has *gaʿya* and *maqqef*'.[53]

This is followed by the single word זֶ֭ה(this), which would be Joshua 15:12, given that it bears the symbol for ֭ תלישא גדולה *teliša gedola* (great drawing out), which is oddly marked here as זרקה *zarqa* (scattered/throwing) when it should likely be תלשא אלימני *talšaʾ ilyumney*, based on the vocalisation in T-S Misc.10.179, and related to the Arabic *al-yumnâ* (the right), again referring to its position on the right of the word. Our teacher may have erred here. It first appears at Gen. 5:9, but bearing two notes, this one and *gerišin*, זֶ֫ה.

Lines six to seven bring us א[שָּׂ]כִֽי תִּ (ʻwhen you take [a census]ʼ) from Ex. 30:12a, repeating ֫ *munaḥ* and ֯ *gerišin*. Skipping three words in the same verse brings יִשְׂרָאֵל֯ לִפְקֻדֵיהֶ֑ם, though our teacher gives the full orthography with *waw* (*maleʾ waw*) in the second word, which is not like the reading in the Masoretic text. He introduces the combination ֯ זרקה (*zarqa*), this time correctly, with ֲ שרי *šerei*[54] or שדי, which may be the Arabic *šady*, a variant of *šadw* (singing/chanting).[55] It is not clear whether this is a *reš* or *dalet*. Either way, we would know this as ֲ סגול *segol* or סגולתא *segolta*, which is an upside-down version of the vowel sign of the same name, but also Aramaic for 'grape cluster', referring to its shape.[56]

After the introduction of combined phrases, the last two lines simply bring single notes. First is a וַיֹּ֥אמֶר (and he said) which, given the gap between the previous and the next in-

[52] According to Prof. Geoffrey Khan, personal correspondence 17 January 2022.
[53] According to Prof. Geoffrey Khan, personal correspondence 17 January 2022.
[54] 'Attested for *segolta* in some sources' according to Prof. Outhwaite, personal correspondence, 21 December 2021.
[55] According to Prof. Khan, personal correspondence 17 January 2022. Having viewed the fragment at CUL, I consider that either could be possible since the letter joins to the preceding *šin*.
[56] Oddly omitted from the listing in Wickes (1881: 12).

stance, is possibly from Gen. 37:35, where it takes a ֯ זקף גדול *zaqef gadol* (full upright).[57] וַיִּמְאֵן from Gen. 39:8 provides the vehicle for the rare note ֯ סלסלה *silsila* (chain), mentioned above, which occurs only seven times in the *Tanakh*. Even rarer is the combination of two words from Num. 35:5a [מֵאַ]לְפַּיִם בֶּה with the Arabic הלאל *hilâl* (new moon), which is more commonly known as ֯ יומו ירח בן *yeraḥ ben yomo* (moon of one day), reflecting its crescent shape.[58] It is a shame that we cannot see the name assigned on the next word which is known as ֮ קרני פרה *qarney fara* (horns of a heifer), reflecting the shape of both *teliša* notes at either end of the same word.[59]

The final entry is on אֶל־מֹשֶׁה apparently with ֯ *zaqef qaṭon* again. It could be from Ex. 3:14, its first appearance, or its last in Deut. 32:48, or elsewhere. Based on other fragment listings, we would expect to end with the indications for ׃ סוף פסוק *sof pasuq* (end of the verse). However, this seems to have been omitted from our fragment, another possible error by the teacher, this time of omission.

The teacher has made a splendid effort to help his student using the methodology displayed on this fragment. Yet, the differences in naming conventions, and a couple of errors could well have impacted negatively the student's learning.[60]

Learning a trade

Moving into adulthood and responsibility at a younger age than we would consider the norm now, some of our more literate and gifted students who embraced the joy of writing would have served as a *sofer* in the community, writing both documentary and religious texts.

'In addition to Hebrew literacy, Jewish students also learned Arabic, mathematics and calligraphy. These skills were useful for anyone pursuing careers in business, law, science, medicine, or government administration'.[61] I could discuss the roles of officials, physicians, merchants, etc. However, given my own trade, I focus on the *sofer*, since he has by far the

[57] The phrase first occurs at Gen. 3:10, then again in 3:11 and elsewhere, so it could equally be these.

[58] Wickes (1881: 12, 22) also notes that it is called גלגל *galgal* (wheel). However, this is an error, as Yeivin (1980) points out in #361 'that this servus is later misunderstood as galgal'. The shape here is a crescent but originally this sign was more like an inverted 'v' which Yeiven calls an 'etnah hafukhim, however the original name is not known'. The names above all refer to its subsequent crescent shape.

[59] I have made a speculative guess in the transcription of this element, based on seeing the fragment up close.

[60] At the bottom of the fragment after the last *ṭeʿamim* instance, there is, in Arabic, כמלת אלאוויה ושרוטהא ... ותסמיתהא ... ('I have finished the [four letters] אוי״ה and their rules ... and their names'). This refers to the names of the rules relating to the contexts in which בגדכפת letters following word-final vowels represented by the vowel letters אוי״ה either become fricative or remain plosives. A section on this topic is found in *Hidâyat al-Qârîʾ* (Khan 2020b: especially 76, 95, 276). This was common in Masoretic treatises, in general.

[61] Posegay and Schmierer-Lee (2024: 241). See, for example, T-S 13J23.20 and T-S NS J401L there.

greatest need for competence in writing and calligraphic ability, to function and serve in the community. Whilst most people would get by on a relatively modest hand, a scribe, whether for liturgical or legal documents, would need a higher level of skills, from the point of view of both legibility and beautification.

The prospective scribe would be set exercises by his master, as was I when I apprenticed to my teacher Vivian Solomon *z"l*. The teacher would in turn be kind or critical as regards the output of his student.[62] We see a prime example (Fig. 13) in T-S K5.9 with writing exercises by trainee scribes, comprising repetition of passages from the Bible, specifically Gen. 1:1 and Josh. 1:1, writing over previous texts and with 'further cruder repetitions of the letter *mem*',[63] which perhaps this student found difficult.

From a liturgical perspective the scribe would start with learning letter forms and practice writing using the text of מגילת אסתר *Megillat ʾEster* (Scroll of Esther), as it does not have God's Holy Names in it, and thus requires a lesser spiritual component (see further Michaels 2022). Once this had been mastered, the apprentice would learn the appropriate כוונה *kavvanah* (spiritual intention)[64] required for writing God's Names before moving on to *Sifrey Torah*, *tefillin* or מזוזות *mezuzot* (plural of *mezuzah*).

We have already mentioned the back of T-S A44.36 above (Fig. 9), but this *mezuzah* in the Genizah may also be evidence of a scribe in training, though perhaps not faring so well. Alternatively, this is a trained scribe lapsing into poor practice.

This ritual parchment scroll (Fig. 14), containing the first two paragraphs of the central *Shema* prayer, should be written in a more formal *STa"M* book-hand square script, following many halakhic (legal) rules. This scribe has started well, and has managed three lines from שְׁמַע יִשְׂרָאֵל ('Hear O Israel', Deut. 6:4) up to עַל־לְבָבֶךָ ('upon your hearts', end of Deut. 6:6) in the required book-hand. However, (ironically), at the end he has struggled to fit וְשִׁנַּנְתָּם ('and you will teach [lit. "repeat"] them [to your children]', Deut. 6:7) into the line, and subsequently has lapsed into a more semi-cursive script for the rest of the text.[65] Moreover, he has failed to provide a text that is fully justified to the left margin, leaving it with a very ragged appearance. He has adhered to the rule of writing it in twenty-two lines, and ending with the words עַל־הָאָרֶץ ('over the earth', Deut. 11:21) on a separate line. Perhaps adhering

[62] For example, my letters ע *ʿayin* were never quite up to scratch for my teacher.

[63] See https://cudl.lib.cam.ac.uk/view/MS-TS-K-00005-00009/1. The 'intricate micrographic design on f. 1v, suggests someone who was becoming a master of the craft' (accessed 5 December 2024).

[64] A concise, non-academic, definition is given by 'My Jewish Learning': 'Kavanah is the Hebrew word for direction, intention, or purpose. In its simplest meaning, it refers to concentrating the mind in the performance of a religious act, ensuring that it doesn't devolve into rote, mechanical action. It is most commonly associated with concentration and intention in Jewish prayer, but the concept of kavanah applies to all mitzvot': https://www.myjewishlearning.com/article/kavvanah-intention/ (accessed 5 December 2024).

[65] This is not noted in the catalogue entry for this fragment. On investigation, only one other *mezuzah* in the Cambridge Genizah corpus, T-S AS 11:52, is written in a more cursive script, and in that case, throughout the text.

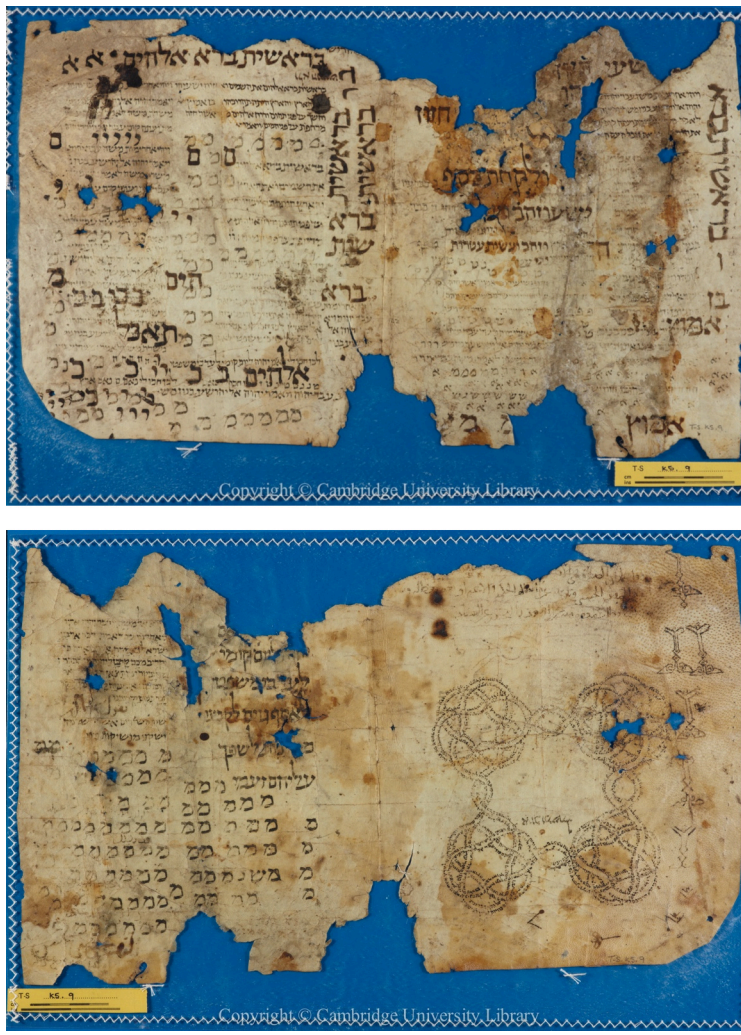

Fig. 13: Scribal practice on sheets from T-S K5.9.

to the formal script and all the rules for writing a *mezuzah* was just too much for him that day. Or he was in a hurry to complete the task. Either way, it was perhaps not his best work, and he was maybe not giving the task the full *kavvanah* it deserved.

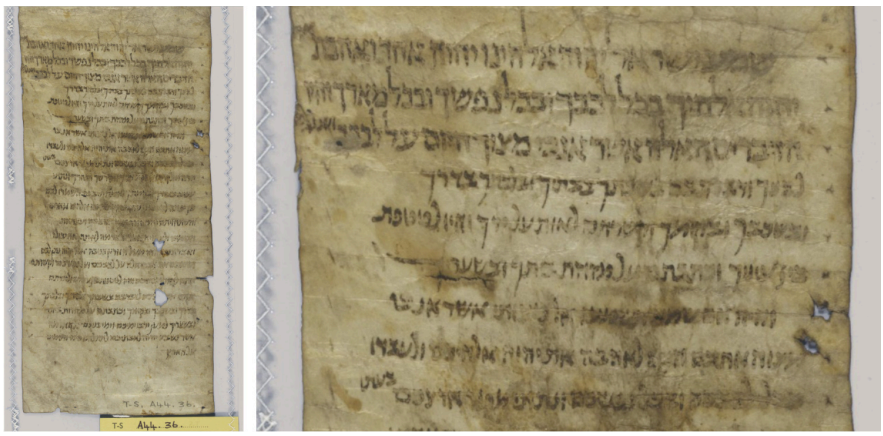

Fig. 14: The full *mezuzah* from T-S A44.36 together with a detail showing the transition from book-hand to a more cursive script.

Conclusion

As we have seen, the more things change, the more they stay the same. Much of the educational approach from Cairo preserved in the Genizah has echoes in educational practice through the centuries, almost to the present day. Teachers tried to make the learning entertaining and beautified the textbooks. Students copied the teachers, displaying various levels of writing skills and ability, sometimes losing interest and doodling in the margins. Perhaps the main difference is that the reading, writing, and chanting, communicated by the written document on paper or parchment in Hebrew, the holy tongue, were all infused with a religious dimension. Whether the subject matter was the biblical texts themselves, blessings, pangrams, or the employment of complex 'kabbalistic' ciphers in primers, this echoed the preoccupation of that society with their Jewish identity first, and secular interests second.

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