Palaeography as a Tool in the Reading and Dating of the Dead Sea Scrolls

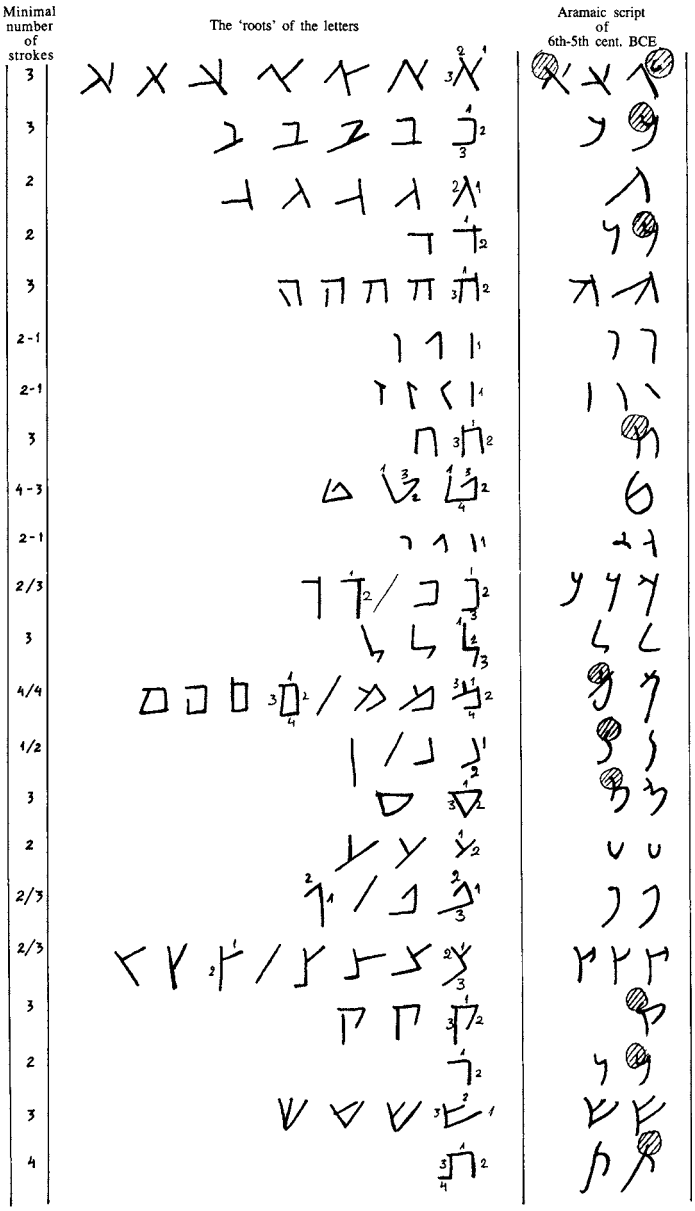
Ada Yardeni

1. Introduction

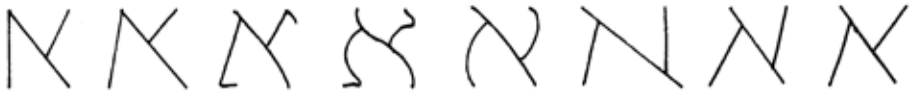
Palaeography (the study of ancient writing) deals with the *formal evolution of the letter signs*. The Hebrew alphabet contains 22 conventional graphic signs. Representing 23 consonants, five of which have a variant form when appearing at the end of a word (making it 28 different signs). If several people were asked to write the first letter of the Hebrew alphabet, meaning, the letter Alef, in the modern Hebrew script style, the results will vary in detail from one person to another, even though all of them would use a *similar writing instrument* on a *similar writing surface*. The differences will be in size, in the *form* and in the *direction of the strokes*, and in *their meeting points* with each other. Despite these differences, we would be able to identify the letter as Alef, and distinguish it from other letters in the alphabet, such as, for example, Bet. This is so, because all these people use a *common script style*. In that style each letter has a *limited number of basic strokes* (for example, 3 for Alef, 3 for Bet, 2 for Gimel, 2 for Dalet, etc.), which may be called the "root" of the letter. In order that various letters with an equal number of basic strokes would not look alike (e.g., Bet and Kaf, Gimel and Nun, Dalet and Resh) each two strokes have a *limited range of meeting points* with each other, as well as a *limited range of directions*. One should distinguish between *stylistic freatures* and *personal features* of handwriting. Thus, the size of the letters, the precise *angle of their tilt*, and, to a certain extent, the *form of the individual strokes*, often reflect the writer's skill and training, as well as his character, age and his mental and physical condition. These belong to the realm of Graphology. In order to identify a script sign in a written text, we usually *ignore the personal factor* and relate only to the conventional basic forms of the letters in the script style used by the writer. The ability of the human brain to perceive only the conventional forms of the script, while ignoring its personal features, enables us to communicate with each other in writing, provided we use a common script style, and in spite of the differences between our personal handwritings.

The formal change occurring in each letter in the course of time is the result of several factors. These include *technical factors*, such as the *type* and *shape of the writing tools and materials*, the *manner* and the *angle of holding the writing implement*, and the *speed of writing*. The *influence of other script styles* or *artistic fashions* is also a common factor causing changes in the forms of the letter signs. In addition, a *deliberate change* in the form of the letter-signs through *imitation* of given forms, or the *creation of new forms*, also may occur. When a change prevails within a certain group of people, in a certain place, at a certain period of time, this change may be regarded as a *stylistic change*.

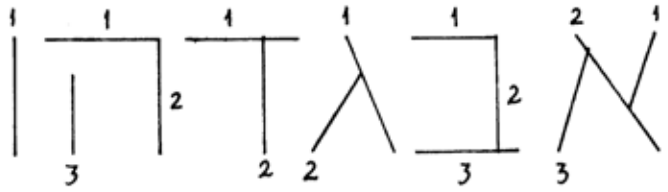
In order to determine these changes in a certain handwriting, the palaeographer examines the *structure of the letter-sign*, its *various strokes* – the *basic ones as well as the additional ornaments*, the *number* of the strokes, their *relative size* and *thickness*, their *directions*, their *meeting points*, and



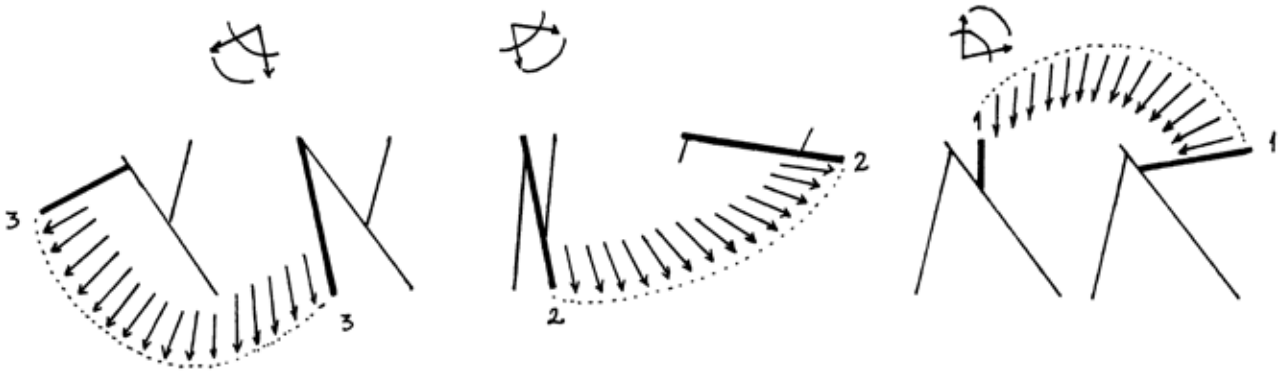
The "roots" of the Hebrew letters



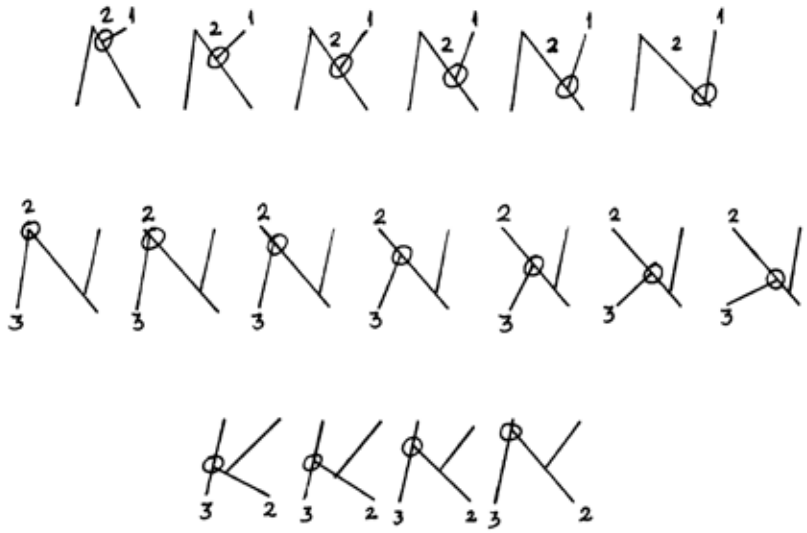
Various forms of ʾAlef



The basic strokes in different letters



The range of directions of the three basic strokes of ʾAlef



Meeting-points of the three basic strokes of Alef

the *order in which they were drawn* in the particular letter-sign. The palaeographer also measures the *width* of the letter as against its *height*, the *relative size* of the different letters, and so on. The results are then *compared to other handwritings* of the same group or of another one, in order to find the *different features* (for identifying an *individual scribe*) or, the *common features* (for identifying a *common style*). Thus, palaeographic examination may assist in the classification and dating of inscriptions and manuscripts according to their style, and in identifying individual scribes. One should bear in mind, that most of the ancient epigraphic material is undated, a fact which leaves an open space for speculations and often causes disputes among scholars who use

it for arguing in favor of their historical views. Although palaeography alone cannot supply an absolute dating, it definitely can determine a *relative chronology* based on a *sequence of formal changes* which have occurred in the letter-signs in the course of time.

2. A Short Historical Survey

Turning to the historical aspects of the scripts attested in the Dead Sea scrolls, people are usually unaware of the differences between the earlier and later manuscripts and between those which were written by different scribes. Obviously, *the number of different handwritings equals the number of scribes*, most of whom used one and the same script - the so-called *"Jewish" script*. This script was one of the off-shoots of the Aramaic official script prevailing in the time of the Persian empire.

In the wake of the fall of the empire to Alexander the Great in the second half of the 4th century BCE, the Aramaic script split into local and national scripts, one of which was used in

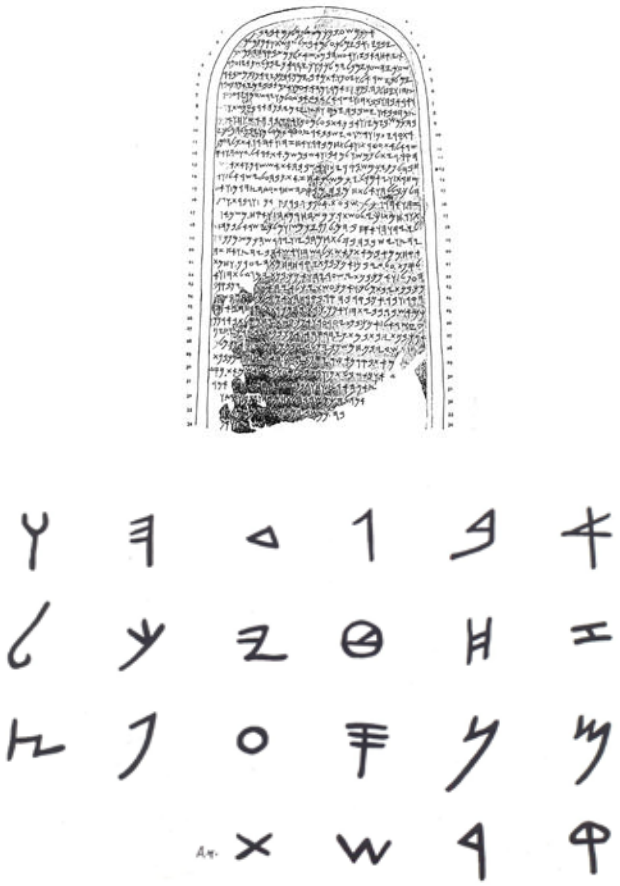
Aramaic letters of the alphabet, taken from a 5th century BCE deed from Elephantine (Cowley 30)

Judah. This script was termed "Jewish" by the known palaeographer Frank Moore Cross Jr. In addition to the "Jewish" script, the Qumran library contained also a number of manuscripts in the *early Hebrew* or *Palaeo-Hebrew script*.

Although related to each other in ancient times (both being off-shoots of the Phoenician script), the Hebrew and the Aramaic scripts evolved in different ways. Their common use by the Jews for several centuries was a result of historical events.

In the late 2nd millennium and early 1st millennium BCE, people in Canaan used the *Phoenician script*, prevailing at that time in several countries located to the shores of the Mediterranean Sea. At about the 9th century BCE, this script began to show *independent features* in the Land of Israel and its neighboring countries.

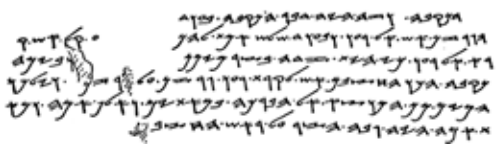
The famous Mesha stone-inscription, dating from about the mid-9th century BCE, marks the



The Moabite Mesha^{c} stele (ca. mid-9th century BCE) representing an early phase of the Ancient Hebrew script

beginning of the "Ancient Hebrew" script, its letter-signs showing *a significant deviation from the Phoenician* letter-signs. Most of the epigraphic findings in Hebrew from that time and until the early 6th century BCE seem to represent this script style with minor local differences and with a gradual, slow evolution of the letter-forms. The natural and continuous development of this script seems to have been shaken at the end of the 8th century BCE, with the expulsion of the northern tribes of Israel, and again, at the beginning of the 6th century with the destruction of the first Jewish Temple in Jerusalem and the exile of Jews from Judah to Babylon. The changes occurring in the early Hebrew script mainly reflect a mutual influence of the letter-forms created by the *rapid writing with ink or paint* and those created by the *slow carving in hard material*. These changes enable an approximate dating of these findings on palaeographical grounds.

Already in the early 6th century BCE, the ancient Hebrew letters reflecting a *fluent writing*

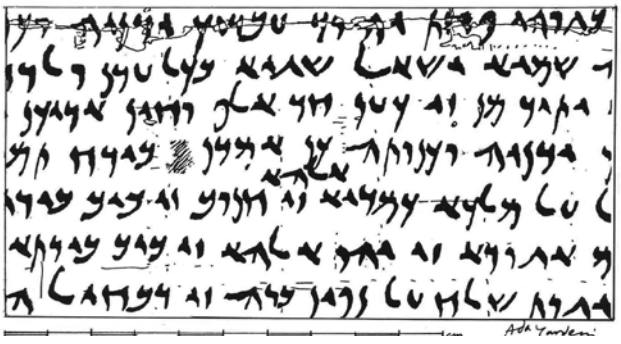


The Siloam inscription (end of 8th century BCE)

An early 6th century BCE ostracon from Lachish and the Ancient-Hebrew letters, taken from an early 6th century BCE ostracon from Arad

in ink are much shorter and wider, as well as reclining backwards, than those of the 9th and 8th centuries BCE.

While in Babylon, the Jewish scribes became familiar with the *Aramaic language and script*, which had shortly before become the lingua franca, spreading rapidly until becoming the official language and script of the large Persian Empire at the late 6th century BCE. The Jews, all over the Persian Empire, including Judah,



Detail of an Aramaic letter on papyrus, sent by Jews from Egypt to priests in Jerusalem at the late 5th century BCE (Cowley 30)

started to use Aramaic in their writings, and it gradually replaced their traditional language and script.

However, the *Ancient Hebrew script* seems to have retained a certain measure of prestige all along, mainly in priestly circles and for religious purposes. It continued to be used in the Hellenistic period by Jews, as well as Samaritans, together with the Aramaic script.

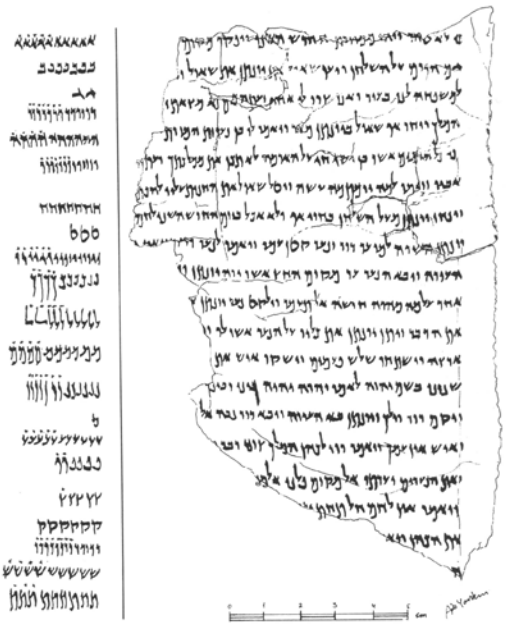
About a dozen biblical scrolls found at Qumran and dating from approximately the 2nd and 1st century BCE, are written in this script. In addition, the *tetragrammaton* and the name *El* occasionally appear in the *Palaeo-Hebrew script in scrolls otherwise written in the "Jewish" script*. The Ancient Hebrew letters appear also on coins and seals produced during the Hasmonaean period and during the Bar Kokhba revolt. No Hebrew

Ancient-Hebrew letters taken from a Leviticus scroll from Qumran (ca. 3rd century BCE)

findings in this script seem to have been found from after the end of the Bar Kokhba revolt in 135 CE. However, it continued to be used by the Samaritans, and a modern version of this script is still in use by them.

Detail and alphabet of an Aramaic deed on papyrus from Wadi ed-Daliyeh (SP1; 335 BCE)

Most of the epigraphic findings from Judah are in the *local script*, which evolved from the *cursive Aramaic of the 4th century BCE*. The *link between the late Aramaic script and its early "Jewish" version*, which appears in manuscripts from Qumran, is clearly represented by a group of 4th century



Pre-"Jewish" script in a fragment of the 4QSam.b scroll (Ca. late 3rd century BCE)

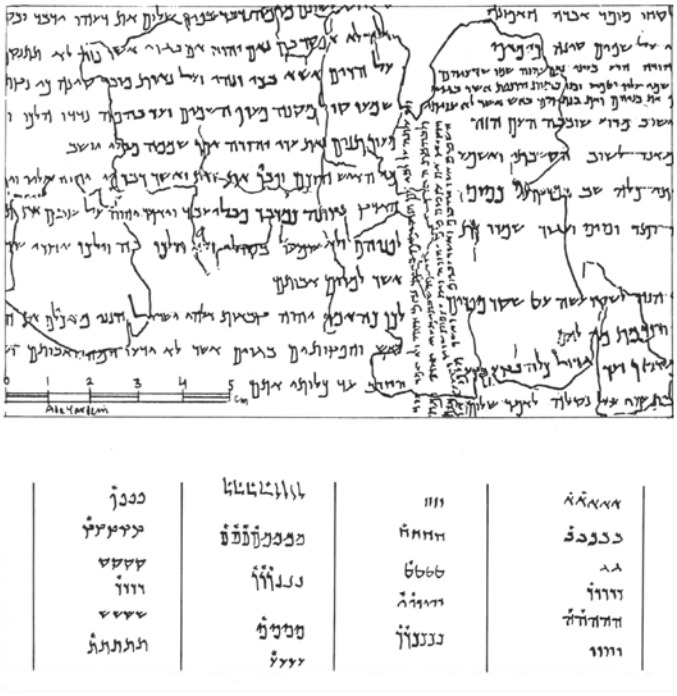
BCE dated Aramaic documents (the earliest dated 335 BCE) discovered in a cave in Wadi ed-Daliyeh near Jericho, by hundreds of 4th century BCE dated Aramaic ostraca from Idumea, as

Detail of 4Q201 Enoch scroll from Qumran (ca. late 3rd century BCE)

Late Aramaic script on an ostracon from Maresha bearing a draft of an Idumean marriage contract (176 BCE)

well as inscriptions discovered on Mt. Gerizim, mostly dating form the 3rd and 2nd century BCE. All these assist in the approximate dating of the early Qumran manuscripts.

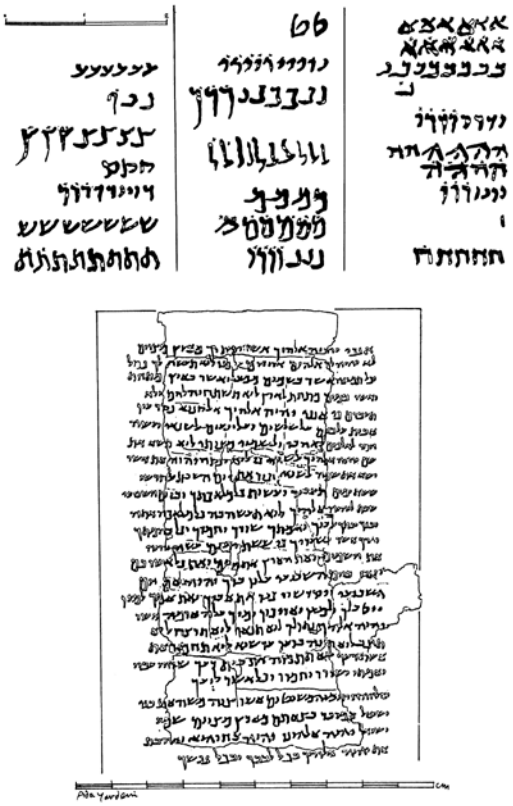
The script of a few of these, such as fragments of an *early Samuel scroll* (labelled 4QSam.b), bears *great resemblance* to that of the Wadi ed-Daliyeh papyri, and were dated on palaeographical grounds to the late 3rd and early 2nd centuries BCE. Fragments of an early manuscript of the book of Enoch (4Q201) bear resemblance to a dated Idumean ostracon from Marsha, dated to 136 of the Seleucid era, corresponding to 176 BCE. The Edomites, who penetrated the southern parts of Judah already in the late 7th and early 6th century BCE seem to have become in the 4th century BCE



Detail and Alphabet of 4QJer.a written in the Pre-"Jewish" script (ca. late 3rd or early 2nd century BCE)

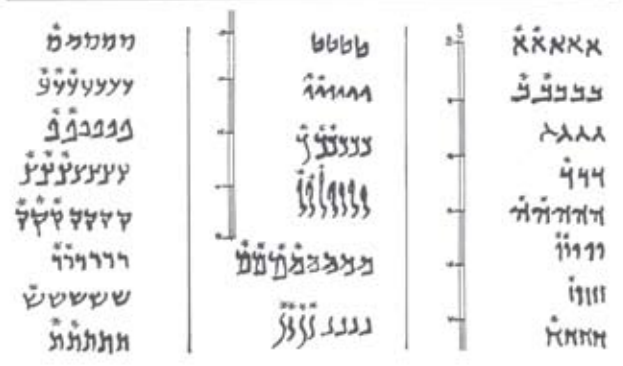
the majority in this region (called Idumea). They used the *local Aramaic script* and language.

Only a small number out of the many Qumran texts allude to Historical events by which their composition may be dated (some of these texts may have been copied later). The prominent surveys dealing with the palaeographical aspects of the Qumran documents are those of Frank Moore Cross Jr. (1955, 1961) and by Nahman Avigad (1961). Only a few scholars tried to follow in their steps, mostly dealing with a particular manuscript or with a group of manuscripts. *Until now, no complete palaeographic research has been made of the Dead Sea Scrolls*.



The Ten Commandments and part of Shema^{c} Yisra$^{\supset}$el written in the late Aramaic script on a papyrus fragment from Egypt (The Nash Papyrus; ca. mid-2nd century BCE)

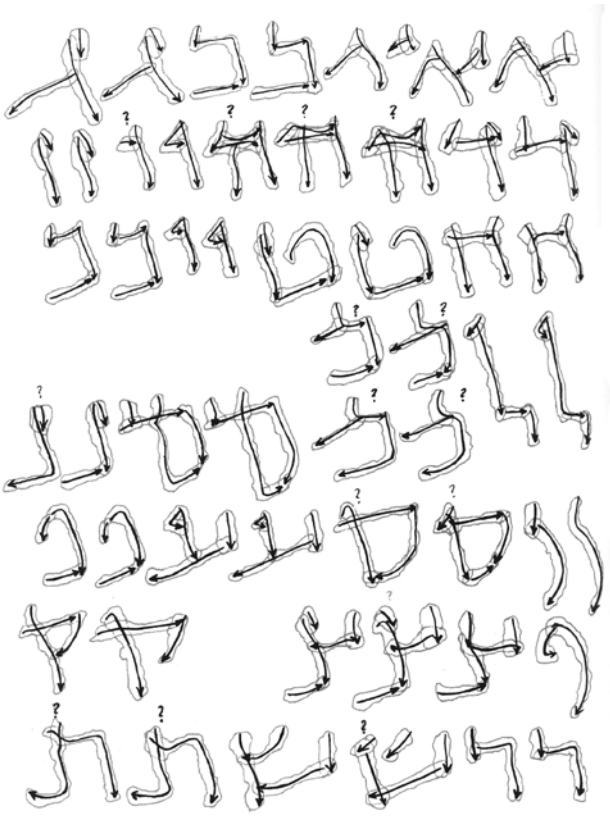
Cross distinguished *three main phases* in the evolution of the *"Jewish" script*. Most of the



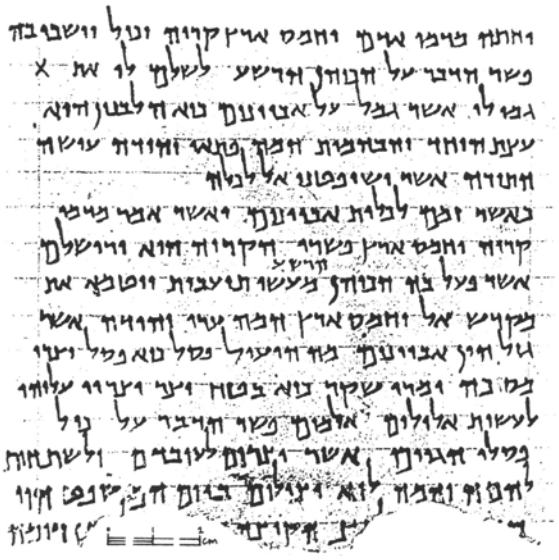
"Jewish" alphabet taken from 1QIsa.a scroll (late 2nd or early 1st century BCE)

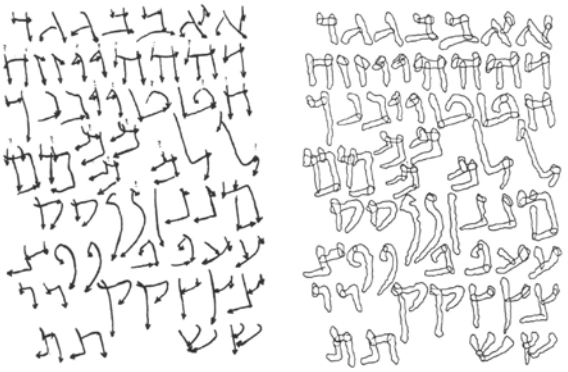
documents from Qumran represent the *first two phases* while some fragments belong to an earlier phase termed *"pre-Jewish"*.

Detail of the Psalms scroll from Qumran (11Q5) written in the Herodian "Jewish" script

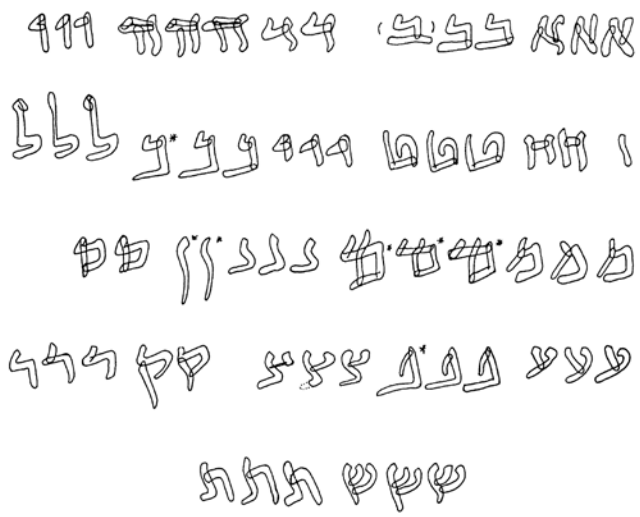


Analysis of enlarged letter-forms taken from the Psalms scroll from Qumran (11Q5).
The arrows designate the directions of the strokes.



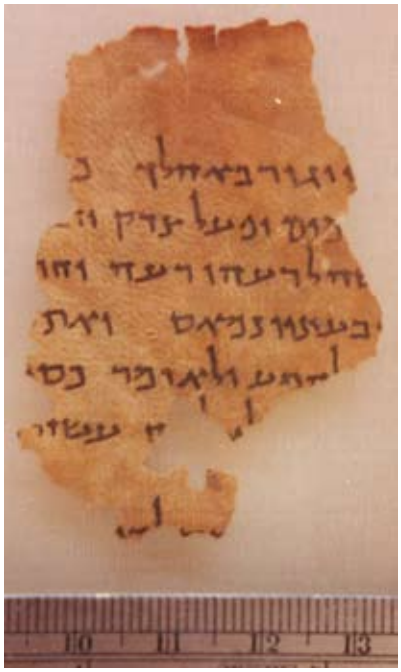


Detaiil and alphabet of the Habakkuk Commentary from Qumran (the Herodian Period)

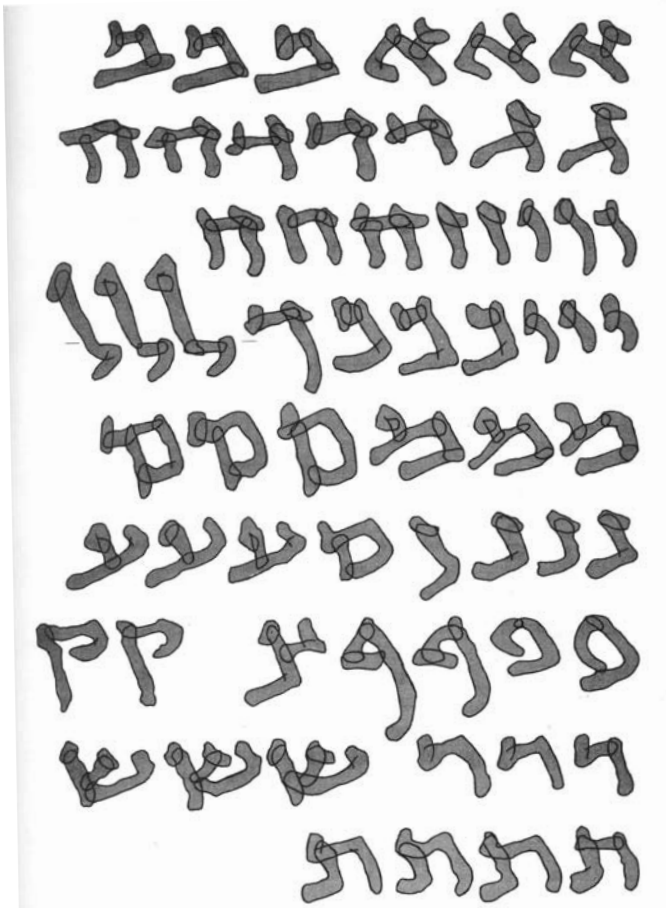


Early Herodian letters in the "Jewish" book-hand, taken from the MMT scroll from Qumran (4Q397)

Fragments of an Exodus scroll from Wadi Murrabaʿat (Mur. 824; ca. early 2nd century CE)



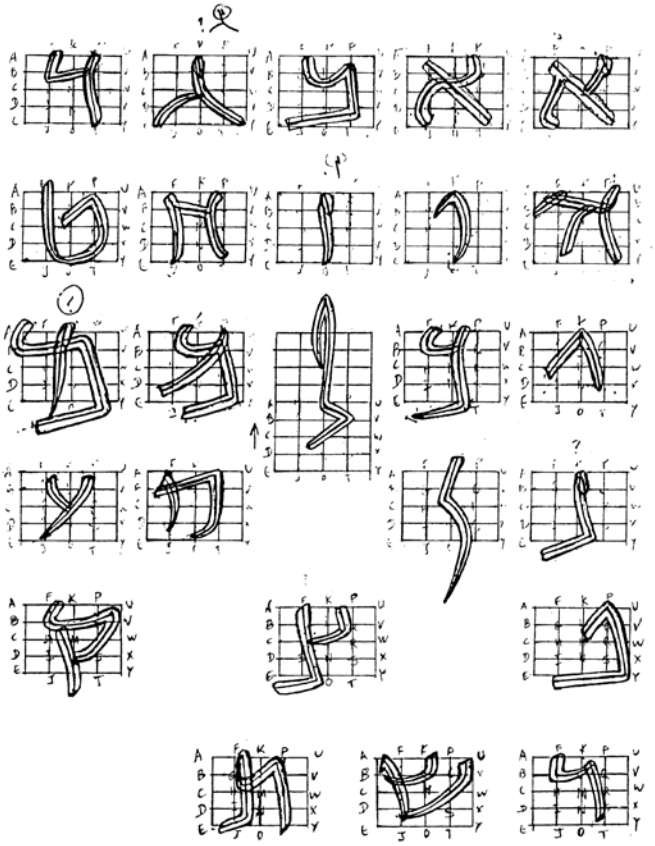
Fragment of a Psalms scroll from Naḥal Ḥever (NḤ 41; ca. 1st century CE)



A Post-Herodian book-hand, taken from the Genesis scroll fragments from Wadi Murabbaʿat

An early Herodian book-hand, taken from the Qumran War scroll

A Hebrew deed in an elegant "Jewish" book-hand on papyrus from Naḥal Ḥever (P. Yadin 45; 134 CE)



Synthetic, average forms of the letters taken from 1QIsa.a, col. XLII, enlarged and placed on rectangles for a palaeographic description

The phases are as follows:

a. *The pre-Jewish phase* (begins in the late 3rd century BCE and continues to the Hasmonaean revolt in 167 BCE. Best known are the Enoch fragments 4Q201, the 4QSam.b. fragments, the 4QJer.a. fragentns, and the 4QEx.f. fragments.

To this period belongs the famous Nash Papyrus found in Egypt, which may be dated to around the mid-2nd century BCE on the basis of its resemblance with the Maresha ostracon.

b. *The Hasmonaean phase* (167 to 37 BCE). The famous Isaiah scroll (1QIsa.a.) belongs palaeographically to the about middle of this period.

c. *The Herodian phase* (37 BCE to the destruction of the second Temple in 70 CE). The Psalms scroll (11Q5) belongs palaeographically to this phase.

d. *The post-Herodian phase* (70 CE to the end of the Bar Kokhba revolt in 135 CE). Qumran was already destroyed in this period. While rich in documentary texts, written in the cursive hands, the book-hand of this phase is poorly attested.

A few fragments of biblical scrolls found in caves of the Judean desert, mainly Wadi Murrabaʿat and Naḥal Ḥever, belong to this phase. These include fragments of Genesis and of Exodus as well as a fragment of a Psalms scroll, and some of the Bar Kokhba letters and deeds.

The *arbitrary distinction* between the phases was meant to facilitate the palaeographic description but refers to *historical rather than palaeographical* periods. In fact, the *change in the letter-forms is a continuous process with a living script*. The changes are *gradual*, each letter having its own pace of evolution. The dating is therefore based on the comparison of the letter-forms in different handwritings, thus offering only a *relative chronology*.

An untrained eye should look for the *most prominent features* in each phase. Thus, the tendency to *ballance the height* of the letters and the increase in the number of *independent ornamental elements* mark the beginning of the *Herodian* period. The additions may be of various kinds, such as additional small strokes, or a thickening at the tops of certain letters. This means that manuscripts written in the book-hand which *lack these ornamental additions* are suspected to be earlier. However, in rapid writing these additions may be omitted, while *with time some additions became integral parts* of the letter-signs, changing their forms.

In the *Post-Herodian* period, the *size* of the letters became more *ballanced* and the *ornamental additions* became an *integral part* of the letters.

3. Palaeography as a tool for the reading of damaged texts

Apart from the dating of undated written material, the acquaintance with the individual letter-signs often assists in *determining the readings* of damaged letters, or in the *deciphering of idiosyncratic handwritings*, a number of which is evidenced in the Qumran manuscripts. As an example we'll take *a closer look* at a fragmentary text and try to confirm the reading of a few letters:

A fragment bearing the remains of a Halakic text labelled *4QMMT* (*Miqtsat Maᶜase ha-Torah*), published by Elisha Qimron and John Strugnell in *DJD* 10, was written as a letter. This text is represented in several manuscripts, one of which (*4Q397*) bears a formal script-style with personal features. We notice the irregularity of the script, reflecting a somewhat careless writing of a professional scribe. The letters differ in their sizes but most of them may be easily identified.

A formal, early Herodian script-style with personal features of a professional scribe, in a fragment of 4QMMT (4Q397)

The word *shaᶜatnez* (Shin, Ayin, Tet, Nun, Zayin) in line 7 of the second column is very clear and so is the following *weshelo* (Waw, Shin, Lamed, Waw, Alef). The following word is somewhat damaged. The letter after Lamed cannot be Yod or Waw because these usually have a large *"hook"* at their top slanting to the left. The only letter

Enlarged detail of 4Q397

possible is Zayin, the top of which somewhat curves backwards (although not as much as that in the word *shaᶜatnez*). Of the last letter in this word only remains of its upper stroke have survived. The *small space* available for this letter, its *thickened top* and the *sharp slant* of the stroke to the left, as well as a *dot of ink* surviving of the left part of the damaged letter, leave no doubt as for its identification as Ayin, yielding the reading *lizroa* (Lamed, Zayin, Waw, Ayin).

Another example from the same column: The end of the second word in line 11 is damaged and only tops of the letters survive. The letter after the first He is a mere down-stroke. Given the fact that Waw and Yod have a "hook", we identify it as Zayin. This is followed by Waw or Yod. Then follow remains from the top of a letter that bends backwards. This could again be a Zayin but also a Nun, *both having their tops bending backwards* (already indicating the early phases of the development of the group of seven letter-signs [Shin, Ayin, Tet, Nun, Zayin, Gimel and Tsadi] bearing similar ornamental additions in later Torah scrolls). There still remains the following letter with the "hook" (Waw or Yod) and the final letter, made of two elements, resembling the top of Taw. The same word appearing in line 4 (second word), we may read with certainty *hazonoth* (He, Zayin, Waw, Nun, Waw, Taw).

We have just seen how a *close acquaintance with the elements* constructing the letter-signs may help with the *restoration* of a damaged text.

We may now ask ourselves to which of the phases this fragment belongs. We'll notice the *long final Mem*, the relative *long Kaf, Pe and Tsadi*,

the *curving backwards of the tops of Nun and zayin*, and the occasional bending at the right "arms" of Ayin and Shin, while the right "arm" of Tsadi reflects a to-and-fro movement. In view of these observations, the dating of this fragment seems to favor a late Hasmonaean or early Herodian date, i.e. about the *late first century BCE*. Most of the typical ornamental additions, especially in Nun and Zayin, still *have not become independent strokes*, while the *double "roof" of He* is rather a Herodian than Hasmonaean phenomenon.

A thorough palaeographical analysis is mostly used for the determination of *stylistic features, common to several handwritings*, whereas *personal characteristics* of a professional scribe are often obvious enough to reveal *handwritings of a particular scribe* without requiring profound palaeographical research. So far, no classification of the different scribes in the Qumran corpus has been made. This may be a challenging project, which could add important information to the *scribal activity* in Second-Temple Judea, while also examining the *kind of compositions copied by each of the scribes* (See my article 'A Note on a Qumran Scribe', in which I identified the handwriting of a single scribe attested in at least 50 manuscripts)[1].

[1] See in the selected bibliography: Yardeni, 'A Note on a Qumran Scribe'.

Selected Bibliography:

Avigad, N., 'The Palaeography of the Dead Sea Scrolls and Rlated Documents', *Scripta Hierosolymitana,* Publications of the Hebrew University, IV (Jerusalem 1958), 56-87.

Cross, F.M. Jr., 'The Development of the Jewish Scripts', *The Bible and the Ancient Near East,* Essays in honor of W.F.Albright (ed. G.E. Wright; Garden City 1961), 133-202.

Cross, F.M. Jr., *The Ancient Library of Qumran*2 (Garden City 1961).

Doudna, G.L., 'The Sect of the Qumran Texts and its Leading Role in the temple in Jerusalem During Much of the First Century BCE: Toward a New Framework for Understanding' (forthcoming).

Jull, A.J., Donahue, D.J., Broshi, M., Tov, E., 'Radiocarbon Dating of Scrolls and Linen Fragments from the Judean Desert', *Radiocarbon* 37 (1995), 11-19.

Porten, B. and Yardeni, A. *Textbook of Aramaic Documents from Ancient Egypt,* I–IV. Jerusalem, 1986–1999

Qimron, E. and Strugnell, J., Qumran Cave 4: V. Miqsat Maʿase ha-Torah, *DJD* 10 (Oxford 1994), Pls. IV, V–VI.

Tov, E. (ed), *The Dead Sea Scrolls on Microfiche: A Comprehensive Facsimile Edition of the Texts from the Judaean Desert*. Printed Catalog by S. Reed. Israel Antiquity Authority (Leiden 1993).

Yardeni, A., 'The Palaeography of 4QJer.a: a Comparative Study', *Textus* 15 (1991), 233-268.

Yardeni, A., The Book of Hebrew Script (Jerusalem 1991, 1997).

Yardeni, A., 'Palaeography', in: J. Baumgarten, The Damascus Document (4Q266-273), *DJD* 18 (Oxford 1996), 124.

Yardeni, A., 'Script', in E. Qimron and J. Strugnell, *DJD* 10 (Oxford 1994), 21-25.

Yardeni, A., *Textbook of Aramaic, Hebrew and Nabataean Documentary Texts from the Judaean Desert and Related Material.* Vols. A and B (Jerusalem 2000)

Yardeni, A., 'A Note on a Qumran Scribe', in: M. Lubetski (ed.), *New Seals and Inscriptions, Hebrew, Idumean, and Cuneiform* (Sheffield Phoenix Press 2007), 287-298.