

Palaeographical Analysis of the Dead Sea Scrolls in The Schøyen Collection

Michael Langlois

A. Introduction

1. Purpose

The purpose of palaeographical analysis is to understand the way in which a particular scribe writes and shapes letters. Conducting such an analysis prior to the establishment of the text is essential when discussing the identification of ambiguous traces, as is often the case when fragments have deteriorated over the centuries: fractures, lacunae, evanescence are the lot of all epigraphers and do not spare Dead Sea Scrolls editors. Even when a manuscript is in good condition, scribes make mistakes, correct a letter by changing it into another, or simply write different letters of the alphabet in a very similar way.

Furthermore, palaeographical analysis makes it possible to compare two given scripts, so as to ascertain their affinities, differences, and perhaps conclude that they belong to the same hand. This is an important factor when identifying fragments of the same manuscript, although one should keep in mind that a scribe's career is not limited to a single scroll, nor is a single scroll necessarily copied in its entirety by the same scribe.

The idiosyncratic morphological features that enable the identification of a given hand often fall within broader morphological tendencies. These tendencies can be classified and traced throughout centuries; the resulting typology can then be used to propose a relative or absolute dating for a given script. This corollary benefit of palaeographical analysis is often overestimated:

1. Many typological markers within Judaeian scripts are not well attested in explicitly (or even stratigraphically or chemically) dated inscriptions. As a result, they lack absolute dating, so that the palaeographer must settle for relative dating based on typological developments.

2. Typological evolutions are slow and not linear; a new ductus can be in existence for quite some time before suddenly gaining popularity, and can likewise remain in use after having lost popularity. Its chronological distribution could in fact be modelled by means of a Gaussian function; our present knowledge prevents us from ascertaining with precision the parameters of such a function, but additional research may prove successful.

3. In the meantime, I will propose palaeographical dates using mere ranges, *e.g.* 'second half' or 'third quarter' of a century, but the reader should bear in mind that these are not absolute dates. Such ranges indicate the most likely period in which (in my opinion) a manuscript was copied, but it is always possible that a manuscript was copied earlier or later. This is especially true for narrow ranges (*e.g.* a quarter of a century) that do not even cover the entire career of a scribe; I use such narrow ranges to indicate probability and typological developments.

2. Methodology

The palaeographical analysis presented here implements new methodological principles and takes advantage of technologies previously unavailable:

1. All manuscripts have been photographed using high resolution sensors in both visible and infrared lights. Some of the resulting digital images exceed 200 pixels per mm, thus revealing the smallest morphological features.

2. Even the most sophisticated imaging technologies should not, however, replace a direct visual examination of the manuscripts. In some cases, a second visual examination was carried out several months after the first one; difficult letters were also examined using a digital microscope under both visible and infrared lights.

3. By contrast, my examination was deliberately blind to previous examination of these manuscripts. I did not try to identify the content of these fragments, nor did I look for possible matches among known scrolls. In fact, several manuscripts were already published elsewhere (with or without the consent of the owner) or previously examined by other palaeographers. My analysis may consequently differ from theirs.

4. For each manuscript, every occurrence of every letter of the alphabet has been studied. This was achieved by manually tagging the digital photographs, so that each occurrence could easily be found and studied in its material context. All occurrences were then grouped and aligned to serve as an illustration of the palaeographical description. The order in which they appear has been preserved (from right to left), so that the reader may quickly find a particular occurrence on the manuscript. Only a few instances of heavily damaged letters or exceedingly numerous occurrences of a single letter have been left out.

5. Instead of drawing a facsimile, which is customary in epigraphy but subjective and sometimes tendentious, I have used imaging algorithms to produce black-and-white pictures of the actual letters. The result is not as pleasing to the eye as a traditional facsimile, but it is more reliable and better reflects the reality and difficulties exhibited by some letters. For the same reason, I have not 'cleaned' nor 'repaired' any letter by image editing software. Moreover, when two letters overlap, I have refrained from reconstructing the hidden extremities of the letters; on the contrary, I have deliberately retained part of the adjacent letter. This method presents another advantage: the charts readily show a scribe's tendency to affix letters or create ligatured forms.

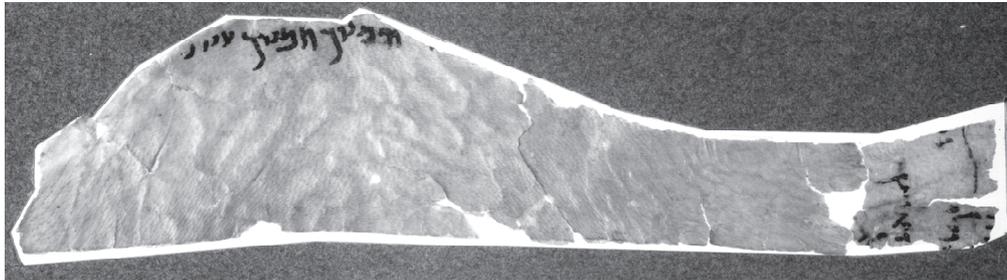
6. The traditional order of the Hebrew alphabet has been followed, but the reader may be surprised to be presented with final letter forms before their medial counterpart. As a matter of fact, medial forms are secondary in nature, resulting from semiligature; I have thus decided to present the original (final) form first, and then to indicate the changes undergone in the secondary (medial) form.

7. It is only *after* I analyzed a fragment that I considered possible matches. This is the reason why I decided to study separately fragments that were presented to me as belonging to the same manuscript (MS 4612/2). The palaeographical analysis revealed that such an ascription was not without problems, and other issues led us to postpone the publication of these fragments. When I was convinced that a fragment belongs to an existing manuscript, I appended to my analysis an addendum stating whether (and to what extent) the new identification would narrow down the initial palaeographical dating.

8. My initial study followed the order of the manuscripts' inventory numbers, starting with MS 1909 and ending with MS 5480. I have then ordered the manuscripts by date, so that the reader can observe the evolution of various Judaeen hands throughout the two centuries covered by this collection. Likewise, manuscripts belonging to the same period have been ordered according to their palaeographical affinities.

9. On this basis, palaeographical charts have been prepared and can be consulted at the end of this chapter. They present the manuscripts in the same order (from right to left) and use the same black-and-white pictures that illustrate the individual descriptions, with the same advantages. Letters are reproduced in real size, which enables the reader to compare the absolute and relative sizes of various scripts. By contrast, the illustrations that accompany individual descriptions are reproduced on a 4:1 scale, which helps the reader to observe specific morphological features.

B. MS 5439/1 (4QRP^b)¹



The parchment is smooth, the hand is confident and regular, with a standard letter height comprised between 2.5 mm and 3 mm. No ascender has been preserved, and descenders exceed 5 mm in height (cf. η). Strokes are thick throughout.

η has a narrow traverse and tall parallel legs; the protrusion is as wide as the traverse, and both are thicker than the legs.

ι is rather short, convex, with a short rounded hook at its head.

Final τ is large, with a wide slanted traverse slightly curved at its left end but without horn. It joins the vertical below its summit; the vertical is slanted and has a typical elbow at the bottom, followed by a large slanted base.

λ is narrow, with a discreet rounded hook.

Medial μ is of varying size, with a curved traverse, angular shoulder and straight or slightly concave vertical. After the elbow, the base is wide, sometimes protruding to the left of the traverse. The left arm is penned last and joins the traverse after the curl, in the same axis.

ν is narrow, with a short diagonal slightly curled at the top, joined at mid-height by a straight left arm.



¹ For the text edition, see p. 153. The attribution to specific books was made by the general editor after Langlois' analysis, to make it easier for the reader.

ה has two tall parallel slanted legs, the left slightly shorter than the right and curled at the bottom but without a developed foot. The traverse is narrow and the shoulder rounded.



Overall, the few letters preserved on this fragment are of regular height, following the process of normalization in the third and (beginning of) second centuries BC. No developed Hasmonaean feature has been observed, but this may be due to the fact that many letters of the alphabet have not been preserved. I carefully conclude that MS 5439/1 was copied sometime in the second century BC.

Addendum

Material and palaeographical features led the editors to identify the fragment as belonging to 4QRP^b (4Q364). I am pleased to confirm this identification from a palaeographical standpoint; the thick traverse of ה is due to doubling, as can be seen at the end of 4Q364 8 i 2; the same elbow is visible at the bottom of the final ט in 4Q364 8 ii 1; ה is indeed narrow, with a sometimes slightly shaded head as in 4Q364 5a 2.

Once this identification is accepted, we can in turn look for more palaeographical features from these additional fragments in order to date this manuscript. In particular, some of the letters that were not attested in this fragment (especially א, י, ק and ש) appear to be slightly more developed. I conclude that MS 5439/1 was copied in the second half of the second century BC.

C. MS 1909 (1QSb)²



The hand is regular, with a standard letter height of ca. 2.5 mm. Descending letters measure up to 4 mm (cf. ק l. 2), which might also be the case for ascending letters (cf. ה l. 1).

ט (l. 2) features a two-horned head, but it is unclear if it is drawn following the two-stroke ductus that develops in the second half of the first century BC. The head is slanting backwards and is followed by a short, slightly concave descender.

The horizontal traverse of ה (l. 3) is not thicker than the legs, and features a long protrusion. The legs are parallel and quite straight, except for a



² For the text edition, see p. 273.

slightly concave right leg, which ascends as a small horn.

י is likewise slightly concave and exhibits a small hook-shaped angular head. A case of curved י with a very small head (l. 2) betrays the influence of a cursive script.

י rarely exhibits the wide chevron shape, with a slightly longer leg that develops through the Hasmonaean period. More often, the head is small, triangular, and the leg as long as that of י. This can lead to a confusion common in latter Hasmonaean hands.

A partial ה (l. 1) ends with a long oblique stroke, but the ascender is missing, so that we can't use its height or the shape of its head as a typological marker.

ק (l. 2) features a straight, slightly slanted tail preceded by a wide belly with an angular head. The formal two-stroke shape is current in the Hasmonaean period and continues in some Herodian hands, but the short tail resists the tendency to lengthen in the Herodian period.

ר (l. 1) has a straight, slightly slanted leg that does not extend downwards. The shoulder, at the edge of the fragment, seems quite angular, but the head exhibits a nice curve unlike later Herodian scripts.

The size of the ת (l. 3) fits the standard frame: the two legs are parallel and of equal length, and the left leg ends with a horizontal foot. The right leg is preceded by a slanted traverse that joins the left leg below its head; note the two-stroke shape.

To sum up, the script exhibits features consistent with the middle of the first century BC, while resisting features that develop in later Herodian times. However, one should take into account the small number of letters preserved on this fragment; many letters are not attested at all, while others are attested once, so that other shapes may have occurred elsewhere (compare the י). This prevents a more accurate dating; I therefore conclude that MS 1909 was copied sometime around the middle of the first century BC.

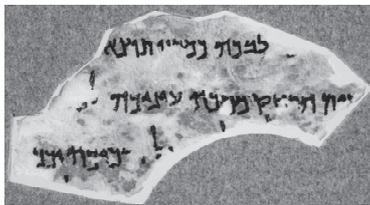
Addendum

The identification of this fragment with 1QSb allows for a more specific dating based on the palaeographical analysis of other letters that are not attested here. ס, for instance, occasionally uses the new ductus that develops in the middle of the first century, while other letters have more conservative



features. This leads me to conclude that MS 1909 (as well as 1QSb) was copied sometime around the second quarter of the first century BC.

D. MS 4612/11 (Prov 4.23–5.1)³



The parchment is rough, and the hand only partially regular, with a standard letter height comprised between 2 mm and 2.5 mm. No descending letter is attested (ק l. 2 has no descender), while ascending letters measure about 4.5 mm in height, although what seems to be the top of a ל at the beginning of l. 3 may suggest a height reaching 5.5 mm.

א (l. 1) has a convex left leg curled at the bottom. The top has disappeared, so it is uncertain whether the ductus follows the chevron shape that develops in the second half of the first century BC. The diagonal is straight, and is joined at mid-height by a raised, slightly convex right arm.

ב (l. 1) is short, angular and large. The left horn slants backwards and is followed by a straight slanted traverse. The right arm is straight and seems drawn without lifting the pen by means of a raised shoulder. The base protrudes to the right, but is concave and seems penned by means of a looped elbow rather than from left to right, a ductus that develops in the first century BC.

ה is tall and narrow, with an inconsistent ductus: sometimes the left leg and traverse are drawn together by means of a looped protrusion, and sometimes they simply cross. In other instances, the protrusion is thickened without necessarily being looped. The left leg is slightly concave and curved at the bottom. The right leg is sometimes drawn together with the traverse by means of a raised shoulder, in which case it tends to be concave, while in other instances it seems to be an independent straight stroke.

י (l. 1) is tall and narrow, with a slanted straight vertical topped by a short angular hook.

³ For the text edition, see p. 240.

A partial η (l. 2) reveals a slanted or convex left leg preceded by a slanted traverse that joins it below its summit. The right leg seems penned together with the traverse by means of a looped shoulder (more than a thick raised one), following a technique that develops in the first century BC.

ι is a simple suspended triangle, sometimes prolonged by a thin and short vertical.

Medial ζ is narrow and tall, with a small concave traverse followed by a raised elbow. The vertical is long, straight or slightly concave. The elbow exhibits a varying ductus: it is sometimes rounded, sometimes angular. The base is wide and straight, slightly slanted.

λ (l. 1) features a large traverse and long oblique, which become popular in the second half of the first century BC, but is not crammed as can be seen in later Herodian hands. The ascender exhibits thickening, but not the tick that becomes popular in the first century AD.

A partial final μ (l. 2) reveals a large protruding horn followed by a straight traverse, angular elbow and straight vertical. The base is missing, but the left vertical is intact; it is straight, slightly slanted, and crosses the traverse.

Medial ν exhibits a one-stroke ductus, with a looped left horn, narrow traverse, and a raised or looped right shoulder. The right arm is straight, followed by an angular elbow and large (but non-protruding) slanted base, so that the letter remains wide open.

Medial ξ is tall, with a slightly concave vertical followed by a likewise concave base of varying width.

ψ (l. 2) is relatively small, and has not reached the full size that develops in the Herodian period. The right arm is long and convex, almost vertical at the top, and is joined at mid-height by a short diagonal straight left arm.

Medial χ (l. 1) is large, with a tall, straight, slanted vertical followed by a wide straight slanted base. The right arm exhibits further development: it is not only convex, but curled at the top, which is more at home in later Hasmonaean hands.

ϕ (l. 2) features a large straight traverse curved upwards at its left end and prolonged to the right



by a rounded hook. The left vertical crosses the head and does not seem to be prolonged by a tail.

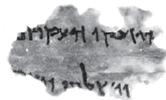
A partial η (l. 2) reveals a curved head, rounded shoulder and straight vertical.

η (l. 1) is narrow, with parallel straight legs of equal length. The left leg has a short foot and ascends above the traverse. The traverse is very narrow and followed by a rounded shoulder.



Overall, this script belongs to a late Hasmonaean semiformal book hand. I conclude that MS 4612/11 was copied around the middle of the first century BC.

E. MS 5480 (1 Sam 5.10–11)⁴



The parchment is rough, the hand hesitant, quite small, with a standard letter height comprised between 1.5 mm and 2 mm. Descending letters do not exceed 2.5 mm in height (cf. η l. 1), while ascending letters may have reached 4 mm (cf. ζ l. 2).

η (l. 1) is narrow but exhibits a wide and thick protrusion that develops in the Hasmonaean period. The traverse is straight, as are the legs. The right leg protrudes to the top; it may have been pinned together with the traverse, but the loop is flat. The left leg is barely shorter.

ι is tall, straight, with an open hook at its head.

\uparrow is even taller but slanted, with an upper tick pointing backwards, similar to later Herodian hands. The tick, however, slants upward at an angle that is closer to the curled ductus that develops in the first century BC and becomes popular at the turn of our era. It might thus be an early attempt at making the curled head angular.

\daleth has a chevron shape with outspread legs; the right leg is longer than the left, so that \daleth becomes closer to ι .

ζ has a tall ascender, slightly curved in the upper part. The traverse is straight, with an angled hook at its right end. The oblique is straight and open, unlike that of later, Herodian hands.

ψ is quite inconsistent, with a diagonal that is sometimes barely convex, and sometimes almost



⁴ For the text edition, see p. 203.

left leg is shorter and tends to be concave; it joins the diagonal at its top, a technique that appears in the second half of the first century BC.

ב is square and features a two-horned head; the left horn tends to be taller and slanted backwards, while the right horn is in fact a raised shoulder or flat loop. The vertical stroke is straight or slightly concave, and quite short. The base is likewise straight or slightly concave, and not much longer than the traverse. It does not protrude to the right, as can be seen in later Herodian hands.

ב also features a two-horned head, but contrary to ב there is no raised or looped shoulder: the vertical is usually made after lifting the pen (except, perhaps, l. 5), a technique that appears in the second half of the first century BC. The vertical is straight or slightly concave, and of standard height.

ה is narrow, with two straight parallel legs of comparable height. The right leg is slightly taller, so that the traverse joins it below its top without being slanted. Sometimes the scribe does not lift the pen as he draws the traverse and right leg. The left leg, on the contrary, is drawn in a separate stroke and sometimes crosses the traverse. This ductus is more frequent in semicursive than formal scripts, and can be found in Hasmonaean and Herodian hands.

ו is tall and straight, sometimes slightly slanted. Its head features a simple hook of varying width.

ז is drawn without lifting the pen, a ductus that appears in the second half of the first century BC. The two legs are straight and parallel; the traverse is either straight and horizontal (l. 4) or slanted upwards to the left.

ח has a chevron shape; it is short and suspended, and the left leg resists the tendency to lengthen observed in some formal hands. In fact, some occurrences of ח exhibit thickening so as to look like triangles, a shape that tends to disappear in Herodian scripts.

Medial כ is narrower than כ, with a small curved traverse and more or less rounded elbow.

𐤌 has a tall ascender thickened at the top, which becomes common in the second half of the first century BC, but it lacks the tick that appears in later Herodian hands. The traverse is of uneven width, which might suggest a transition from the Hasmonaean to the Herodian period.

Final 𐤍 is large but not square; it follows the old semicursive ductus, which has undergone slight changes throughout the Hasmonaean period. However, the angular aspect and reduced size suggest a late Hasmonaean or early Herodian semicursive script.

Medial 𐤎 features a curved traverse, larger than that of 𐤏 but more rounded than that of 𐤏. It is drawn together with the vertical, the elbow and the base, without lifting the pen. The elbow is usually rounded but can be orthogonal (l. 5), which foreshadows later Herodian formal hands. The left arm is drawn last, unlike later Herodian scripts.

Final 𐤏 has a small straight descender and an angular head; its overall shape is reminiscent of semicursive scripts, and it bears no sign of later, Herodian developments.

𐤐 is large, with a straight diagonal joined in the middle by a left arm. The simple ductus and large size are common in semicursive scripts from the late Hasmonaean and early Herodian periods.

Medial 𐤑 (l. 5) has a small hooked head followed by a straight vertical and an angular elbow. The base is straight and long.

Final 𐤒 (l. 5) features a long vertical descender preceded by a curved right arm. The same ductus is observed in the medial 𐤓 (l. 5), where the vertical stroke is however followed by a rounded elbow and a long base.

𐤔 has a tick at the left end of its traverse, while the right end is prolonged by a usually rounded elbow, although some angular elbows are sometimes observed (e.g. l. 2).

𐤕 is of standard size and angular shape. The left and right arms are straight and symmetrical. The oblique is likewise straight, but thinner and smaller; it is parallel to the right arm and joins the left arm at mid-height. It does not exhibit developments observed in later Herodian hands.

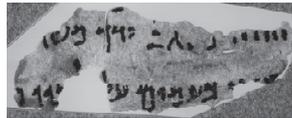


ן is narrow and tall, with equally long legs; the traverse is horizontal and the shoulder more or less rounded. The left leg rises above the traverse, and may have been drawn together, without lifting the pen, although no clear loop can be seen. The foot is sometimes rounded, sometimes angular, and of varying width.



To sum up, the script is quite irregular and, although formal in nature, exhibits influence from semi-cursive forms. Other times, it uses techniques that appear in the middle of the first century BC or hesitates between Hasmonaean and Herodian shapes. This could well be the period in which the manuscript was copied, especially since no typical later Herodian development has been detected. I conclude that MS 4612/9 was copied sometime in the second half (preferably third quarter) of the first century BC.

G. MS 5233/2 (Ps 9.10, 12–13)⁶



The parchment is rough and the hand hesitant, with some inconsistencies. The standard letter height is medium at about 2.5 mm. Descending letters exceed 3.5 mm (cf. ך l. 2), while ascending letters seem to exceed 4.5 mm (cf. ם l. 3).

כ has a concave traverse that produces two small horns of equal height; the shoulder is raised and the vertical slightly concave. The base is drawn without lifting the pen, from right to left.

ג (l. 2) is tall, with a left leg that reaches above mid-height, unlike later Hasmonaean hands.

ד (l. 2) is angular, with a tall backward-slanted horn and a slanted traverse. The shoulder is looped, which is indicative of a developed ductus.

ה (l. 3) is tall and features a wide, open, angular hooked head.

ו, by contrast, has a triangular head and tends to be shorter, although the right leg can be taller when ligatured.

Final ז (l. 2) has a wide slanted traverse followed by a looped shoulder and a long slightly convex descender. The traverse exhibits a small curl at its left end so as to produce a short pointed horn, while the looped shoulder protrudes to the right.



⁶ For the text edition, see p. 235.

The beginning of a medial \beth (l. 3) reveals a narrower, concave traverse followed by an angular shoulder and vertical arm. The elbow seems thicker, but the base is lost.

\beth exhibits limited development; its ascender is thickened at the top so as to produce a triangular head pointing forward, but this is apparently not the flag that becomes popular in late and post-Herodian hands.

Final \beth (l. 3) is large, with a tall straight left horn and a slanted traverse followed—after lifting the pen, it seems—by a straight vertical and slanted base. The left vertical is slightly convex and crosses the traverse.

Medial \beth has a concave traverse producing a short curved left horn. The right shoulder is either raised or angular. The vertical is straight, the base narrow and slightly slanted. The left arm is short and curved so as to broaden the opening of the letter.

\beth has a more or less long diagonal with a round elbow and a short right arm slanted to the right or to the left, which might suggest a transition period. The left arm is straight, slanted, and of varying thickness.

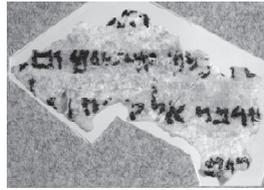
A partial \beth (l. 2) reveals an angular base with a slanted left arm and a long, convex right arm. The right arm is further curved at its top, or even angled after the new Herodian fashion. The middle stroke joins the left arm at mid-height.

The end of a \beth (l. 3) reveals a protruding (perhaps looped) left shoulder and a wide foot.

To sum up, the hand attested by this manuscript is irregular, with a few and sometimes contradictory morphological features. Since the number of letters preserved on this fragment is limited, it is difficult to suggest an accurate date. The presence of a few techniques that develop in the Herodian period leads me to conclude that MS 5233/2 was copied in the second half (preferably third quarter) of the first century BC.



H. MS 4612/5 (Num 16.2-5)⁷



The parchment is rough and the hand hesitant and inconsistent, with a standard letter height comprised between 2 mm and 2.5 mm. No descending letter is attested (ק has no visible tail), while ascending letters seem to exceed 4.5 mm (cf. ל l. 3).

כ (l. 3) is tall, with a long convex left leg further curved inward at the bottom. The diagonal is straight and supports a short right arm without ornamentation.

ב exhibits a somewhat inconsistent ductus; it is sometimes small, sometimes large, and its strokes can be concave or convex. The traverse is usually curled at its left end, but this is not always the case. The base may or may not protrude to the left, and seems to have been penned from left to right.

ג is angular, with a thin backward slanted horn at the left end of a straight thick traverse. The right vertical is penned in a second stroke, a tendency that develops in the second half of the first century BC.

ד (l. 2) is tall and narrow, with an open but small hooked head.

ה (l. 3) has a thin and narrow traverse joining thicker legs.

ו is somewhat inconsistent, sometimes large and triangular, sometimes tall and narrow, sometimes hooked with a thinner and longer right leg.

A partially erased medial ז (l. 2) reveals a long descender followed by a wide slanted base curled upwards at the end. The traverse seems comparatively narrow, possibly curved or angular at its left end.

ח has a wide traverse and acute hook with a straight diagonal. The neck is sometimes acute, while the ascender can be straight or slanted.

Final ט features an impressive thick horn contrasted by a thinner traverse. The right shoulder is



⁷ For the text edition, see p. 169.

raised; the vertical is sometimes concave, sometimes convex. The base is sometimes slanted, sometimes horizontal and concave. The left vertical may have been drawn without lifting the pen, and crosses the traverse.

ק has a straight traverse, round hook, and straight diagonal. The left vertical crosses the traverse and closes the letter; it seems short, without descender.

ך has a curled left horn and more or less rounded shoulder followed by a straight vertical.

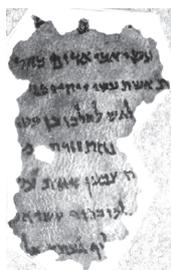
A partial ם (l. 2) reveals a wide base with a convex right arm and inner tick. The left arm is short, straight and slanted. The middle stroke joins the left arm at its base.

A partial ן (l. 2) seems quite narrow, with a concave right leg and a slanted foot at the bottom of the left leg.



To sum up, the hand attested by this manuscript is hesitant and inconsistent, which makes it difficult to date, especially given the limited size and degraded state of the fragment. Based on the presence of a few techniques that develop in the Herodian period, I conclude that MS 4612/5 was copied in the second half of the first century BC.

I. MS 4612/4 (Gen 36.7–16)⁸



The parchment is rough and the hand very small, with an average letter height ranging between 1 mm and 1.5 mm only. Descending letters reach 2.5 mm, with a maximum of 2.7 mm (cf. ך l. 6), while ascending letters can reach 3 mm in height (cf. ך l. 4). This unusually small script size accounts for the lack of drawing precision and complicates palaeographical analysis.

כ is drawn in three strokes, lacking the later Herodian developments. The oblique axis is straight, while the left leg is convex and tends to produce an inner foot. The right arm joins the oblique axis at mid-height, sometimes slightly below.



⁸ For the text edition, see p. 141.

כ has a concave traverse preceded by a vertical horn. The shoulder is raised, and reaches almost the same height as the left horn. The right arm is short and the elbow orthogonal. The base is drawn without lifting the pen, from right to left, unlike the new ductus that develops in the second half of the first century BC. The base is short, barely protruding to the left.

ג has a slanted linear right leg joined at mid-height by a short left leg that seems to be drawn after lifting the pen.

ד (l. 2) exhibits a two-horned head, with both horns slanting backwards. It is not clear whether the right horn is a raised shoulder or if the vertical is drawn after lifting the pen—the latter ductus appearing in the second half of the first century BC. In the latter case, the vertical is slightly concave, but exactly at the level of the traverse. It may be preferable to opt for the first ductus, in which case the vertical is simply straight.

ה is narrow, with slightly curved legs of comparable lengths. The right leg does ascend above the traverse and seems to be drawn without lifting the pen. The left leg is drawn afterwards, but the traverse is short and barely protrudes.

ו has a straight (sometimes slightly concave) vertical topped by a hooked head. The hook is angular and of varying width, which may be due to the small size of the script.

By contrast, ז has no hook but the concave ductus produces a backward bending head.

ח (l. 5) is narrow, with a linear traverse that joins the two legs below their summit, thus producing two small horns. No looped or raised elbow is observed, unlike later Hasmonaean and Herodian developments.

ט is short and suspended. It has a triangular shape, with two equally long legs, with a sometimes thinner right leg.

Medial כ (l. 7) is tall with a wide, raised, oblique traverse followed by a raised shoulder, a vertical arm, an angular elbow, and a large base.

ל has a short ascender and narrow traverse. The long oblique is uncommon in formal hands before the Herodian period, but is found earlier in semi-cursive hands. The occasional thickening at the top might be due to the small size of the script, and not



to the analogous tendency that develops in the second half of the first century BC. The last ζ (l. 8), however, seems to feature a long hook at its summit; such hooks are more at home in later Herodian formal book hands. Once again, the very small script size obscures typological markers.

Final \square (l. 2) is angular and closed. The right vertical is concave and the base is large. The traverse is curved upwards at its left end, to the point of creating a curl. This is not a loop, however, as the left vertical crosses it and may have been penned last.

By contrast, medial \mathfrak{d} (l. 5) is narrow, open and rounded. The left arm is long and protruding, increasing the overall width of the letter.

Final \mathfrak{r} exhibits a straight, slanted vertical that descends below the base line.

Medial \mathfrak{r} has the same straight, slanted vertical, but it is here followed at an angle by a short base.

\mathfrak{v} is quite developed, with a curved right stroke that tends to become a right arm followed by a round elbow and a slanted base, as can be seen in later Hasmonaean hands. But this new ductus is not used throughout, which may suggest a transition period or a mix of semiformal and semicursive shapes.

Final \mathfrak{r} (l. 8) has a vertical descender topped by a thick triangular head, or more specifically by a looped head whose angular appearance is probably due to the small size of the script.

Medial \mathfrak{d} (l. 7) has a small angular head and a slanted base; the angle is unusual, and if one takes into account the angle of the head (compare the head of final \mathfrak{r}), it appears that this specific occurrence of \mathfrak{d} exhibits rotation, so that we would expect other occurrences to have a slightly slanted base and likewise slightly slanted vertical, as can be seen throughout Hasmonaean and Herodian hands.

Medial \mathfrak{v} (l. 6) has a straight raised right arm that joins the vertical at mid-height. The vertical is slightly slanted, followed by an elbow and a protruding horizontal base.

\mathfrak{r} features a curved traverse producing a tall horn and rounded raised shoulder, unlike later forms found in the second half of the first century BC.



ש has a V shape, with a slanted left arm and convex right arm. The middle stroke is slightly slanted and joins both arms at their base.

ת has a convex traverse followed by a rounded shoulder and straight right leg. The left leg is as tall as the right leg and followed by a foot of varying length. The traverse joins the left leg below its top, and sometimes almost crosses it; the two are not drawn together as in later, Herodian hands.



To sum up, the very small size of this script blurs typological boundaries. On the one hand, it seems to be a vulgar semicursive Hasmonaean hand. But the presence of seemingly later forms may point to a semiformal Herodian hand. The limited number of letters does not help, of course, and warrants caution. I hesitantly conclude that MS 4612/4 may have been copied sometime in the second half of the first century BC.

J. MS 5233/1 (2 Sam 20.22–24)⁹



The parchment is rough and the hand quite small, with a standard letter height comprised between 1.5 mm and 2 mm. Descending letters measure less than 3 mm in height (cf. ך l. 2), while ascending letters reach 4 mm.

כ has a long diagonal that tends to be curved at the bottom and protruding to the right. The left leg and right arm are slanted and reach the diagonal at mid-height.

ב has a short concave traverse contrasted by a long protruding base. The right shoulder is angular or raised, and the vertical is straight or convex.

ה has short outspread legs upon which rest a narrow traverse and a thickened protrusion.

ו is barely slanted and features a narrow hooked head.

ז, by contrast, tends to have a wider head and thinner leg, but the difference is minimal.

A damaged final ך (l. 2) reveals a slightly slanted traverse and a straight descender followed at an angle by a wide slanted base.



⁹ For the text edition, see p. 208.

Medial \beth (l. 2) has a narrower traverse and a much shorter vertical. The base is horizontal and slightly narrower.

\beth has a broad horizontal traverse followed by an angular hook and a long straight diagonal, in accordance with developments through the first century BC. The letter is sometimes narrower, however, which may be indicative of a transition period. The ascender is usually not thickened, although traces may sometimes indicate otherwise.

A damaged medial \beth (l. 3) reveals a square shape with a concave vertical.

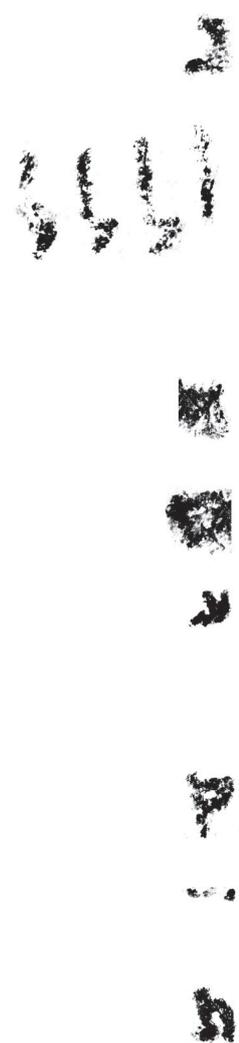
\beth (l. 3) has a straight slanted left vertical and a large slanted traverse. The shoulder is rounded, and the diagonal closes the letter, a phenomenon that appears in the middle of the first century BC.

\beth (l. 1) has two vertical outspread arms resting on a wide base, following the new ductus that appears in the late first century BC. The elbow is rounded, and the arms exhibit no further development.

\beth (l. 1) has a straight vertical with a short tail. The traverse is horizontal and wide, followed at an angle by a rounded diagonal that closes the letter.

The head of a \beth (l. 3) reveals slanted arms and a short middle stroke connected to the left arm above mid-height.

\beth (l. 1) has a convex right leg topped by a round shoulder and short traverse. The left leg protrudes to the top and is bent inward at the bottom, followed by a large horizontal foot.



Overall, the few letters preserved on this damaged fragment belong to a late Hasmonaean or preferably early Herodian semiformal hand, which leads me to conclude that MS 5233/1 was copied sometime in the second half (and preferably the last third) of the first century BC.

K. MS 5095/7 (CommGen A)¹⁰

The parchment is smooth, the hand is trained and regular, with a standard letter height comprised between 2.5 mm and 3 mm. No descender has been preserved, whereas ascending letters may have reached or exceeded 4.5 mm in height (cf. 𐤊).

𐤇 has a thick straight traverse slightly protruding to the left, sometimes also to the right. The legs are thinner, parallel, and of comparable height.

𐤇 (l. 1) is tall, slanted, with a large hooked head.

By contrast, 𐤆 has a triangular-shaped head and is noticeably shorter. It is not impossible, however, that additional occurrences of these two letters would have revealed more resembling shapes, as is common in formal hands from the second half of the first century BC.

𐤊 (l. 2) is tall and narrow; the hook is rounded and open, but its length is unknown. Likewise, the head of the ascender is split over two fragments, so that its shape is uncertain; however, it does not seem to be ornamented.

Final 𐤌 is tall, broad and angular. The traverse is straight and slanted; it is preceded by a tall, backwards slanted horn and followed by an angular shoulder. The right vertical is slanted, sometimes slightly concave or convex, which impacts the shape of the elbow—rounded or angular. The base is straight, slanted and broad, but it does not reach as far as the left horn, so that the left vertical must be slanted in order to join the traverse after the horn. In one occurrence, it seems that the left vertical was drawn first, upwards, and looped into the traverse in a triangular fashion so that to produce a horn. In this way, the entire letter can be drawn without lifting the pen. The limited number of occurrences prevents us from ascertaining to what extent this new ductus is used by this scribe.

Medial 𐤎 (l. 1) is comparatively small, with a slanted narrow traverse preceded by a tall horn and followed by a raised shoulder. The right vertical is



¹⁰ For the text edition, see p. 291.

slightly slanted, followed by an angular elbow. The base is barely concave; it is broad and protrudes to the left, but the protrusion is compensated by the addition of a long left arm beneath the horn.

ⲓ (l. 2) features a large, straight, horizontal traverse preceded by a backwards slanted horn. The elbow is small, angular, and followed by a straight slanted leg.



To sum up, the few letters preserved on this fragment have been penned by a trained scribe using techniques common at the end of the Hasmonaean period and the beginning of the Herodian period. Developments observed in the ductus of some letters point to the latter part, but many letters of the alphabet are not attested, which prevents a more accurate dating. I conclude that MS 5095/7 was copied in the second half (preferably the last quarter) of the first century BC.

L. MS 4612/3 (Eschat. Frg. Ar)¹¹



This small fragment is copied by a smooth and beautiful book hand of medium size. Standard letters measure about 2 mm in height, while descending letters can reach 4.5 mm (cf. ⲓ l. 1). The trace of a ⲗ (l. 3) suggests that ascending letters may have reached 4 mm in height.

ⲓ (l. 2) is small and square, with a thick traverse and slightly thinner vertical. The left end of the traverse is thickened so as to produce a triangular horn. At the right end, the traverse joins the vertical below its summit and does not seem to be penned together with it.

ⲓ is tall, with a narrow solid hook as its head. The vertical is straight, sometimes slightly concave or convex at the bottom.

The beginning of a ⲛ (l. 3) reveals a large angular hook drawn after lifting the pen so as to lengthen the right arm. The right arm is raised; it has not become a horizontal base as can be seen in later Herodian hands.

ⲓ has a triangular shape with a concave base and a longer right leg. It tends to become narrower and/or taller, to the point of approaching the general shape of ⲓ, but the solid triangular head of ⲓ remains different from the hollow hooked head of ⲓ.



¹¹ For the text edition, see p. 295.

Final γ (l. 1) is tall, with a long, thin, curved descender contrasted by a thick straight traverse. At its left end, it features a triangular horn similar to that of δ .

Medial κ (l. 2) does not only move the tail at an angle into a horizontal base, it also loses its triangular left horn; the traverse has become thin and very narrow, curved so as to produce a small horn.

Medial μ adopts the new two-stroke Herodian ductus, with a diagonal, a vertical and base drawn without lifting the pen. The left tick is added later on top of the diagonal. The base is long and slanted, almost parallel to the short diagonal so that the letter is wide open.

Final η is curved and wide, with a thickened head that contrasts with a thin descender. Thickening is achieved by a two-way oblique stroke and not by the shading common in the Hasmonaean period.

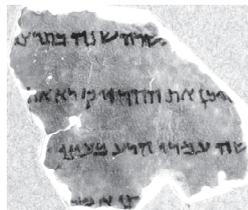
γ (l. 1) features the triangular horn already observed in other letters; it also has a thick traverse and thinner vertical connected by a smooth shoulder.

A partial ψ (l. 3) reveals an angular, V shape ductus with a slanted left arm and diagonal right arm. The middle stroke is long, parallel to the right arm, and joins the left arm at mid-height.



To sum up, this manuscript was penned by a highly skilled scribe in a formal but smooth hand that integrates some of the new Herodian techniques, at least in the few letters that are preserved. This leads me to conclude that MS 4612/3 was copied towards the end of the first century BC.

M. MS 5440 (1 Kgs 16.23–26)¹²



The parchment is rough and the hand quite small, with a standard letter height comprised between 1.5 mm and 2 mm. Descending letters do not even reach 3 mm in height (cf. η l. 2), and no ascending letter is attested.

¹² For the text edition, see p. 211.

ⲛ adopts the new Herodian ductus; the left leg is convex, but not curled at the bottom. The diagonal is straight, sometimes almost convex. The right arm is likewise convex or straight, and without tick, except perhaps in one instance, although it may just be spread ink.

Ⲛ is somewhat inconsistent, with a concave traverse that usually—but not always—rises to produce a straight or curled left horn. The right shoulder is raised and followed by a straight or convex vertical. The elbow is sometimes rounded, sometimes looped, sometimes angular. The base is concave, although in one instance it seems to have been doubled by a left-to-right stroke.

ⲛ is also somewhat inconsistent; the legs are parallel and usually straight, although the right leg tends to be concave, and can be slightly longer or shorter than the left leg. Sometimes, one leg is twice as thick as the other leg. The traverse is straight and connected to the right leg through a raised shoulder; on the left end, it protrudes and loops into the left leg, following the ductus that develops in the Hasmonaean period.

ⲛ is rather short, with an angular hooked head, as are some occurrences of ⲛ, although ⲛ is usually shorter and less acute. Other instances of ⲛ have a triangular head but keep a longer right leg. These fluctuations may suggest a transition period, especially in the second half of the first century BC where some scripts barely distinguish ⲛ and ⲛ.

Medial ⲛ (l. 3) adopts the new Herodian ductus, with a long diagonal drawn together with the right vertical and the base. The shoulder is angular and the elbow rounded; the base is quite narrow, so that the diagonal protrudes and opens the letter. The left horn is penned last.

Final ⲛ (l. 2) is doubly curved, concave in the upper part and convex in the lower part. Its tail is thin and its head thickened leftward.

Medial ⲛ is less concave and angled so as to create a narrow horizontal base.

ⲛ has a long slanted right arm followed by a round elbow and long slanted oblique. The left arm is perpendicular to the oblique and joins it at the elbow.

Medial ⲛ (l. 1) features a doubly curved diagonal, concave at the top and convex at the bottom. It is

earlier hands. The right arm is long, straight, without tick, and parallel to the left leg.

𐤁 (l. 2) has a broad concave traverse further curved at its left end but does not feature a tall horn. A raised right shoulder leads to a straight arm, followed by an angular elbow and wide concave base drawn from right to left, unlike the new Herodian ductus.

𐤂 is quite inconsistent, with legs that are sometimes short, sometimes tall, the left leg being sometimes shorter and sometimes longer than the right leg. The traverse is thick and protrudes to the left, but the protrusion is sometimes rounded, sometimes triangular, almost hooked, as can be seen in the early Herodian period.

𐤃 is tall and usually narrow, but in one instance thick and somewhat shorter. The vertical tends to be concave in the upper part and convex at the bottom. It is headed by an angular hook, sometimes short, sometimes long.

𐤄 (l. 1) is very unusual, with a thin curved left leg and a thick parallel right leg. The traverse is very thin and slightly concave; it almost protrudes to the left.

𐤅 (l. 1) has a straight vertical headed by a hooked head. It is slightly shorter and wider than 𐤃, but such a similar outlook is frequent at the turn of our era.

The ascender of an otherwise lost 𐤆 (l. 3) is thick, perhaps slightly thickened backward at the top as is common in Hasmonaean and early Herodian hands, but does not feature the flag that becomes popular among later Herodian scribes.

Final 𐤇 (l. 1) is tall, wide and angular. It follows a one-stroke ductus adapted from a semicursive script, starting with a tall slanted left horn, a wide straight slanted traverse, an angular shoulder, a tall arm rounded at the bottom followed by a wide concave base ending in a loop so as to draw the left vertical upward. The left vertical crosses the traverse and reaches as high as the left horn.

Medial 𐤈 (l. 1) adopts the new Herodian ductus, with a diagonal followed at an angle by the right vertical and a large base. The diagonal is concave and receives an orthogonal tick.

𐤉 (l. 2) has two parallel vertical arms; both are developed, concave, and rest on a slightly slanted base.

Medial \aleph (l. 1) has a barely slanted but concave diagonal followed at an acute angle by a short base. The right arm does not touch the diagonal; it is vertical, short, with a rounded elbow, which is indicative of a developed form.

\aleph (l. 1) has an S-shaped hook and a vertical headed by an angular tick, which explains the unusual double-horned summit. The hook is otherwise angular and crammed, while the vertical is short, thick and without descender.

\aleph (l. 2) is angular, with a slanted traverse and straight vertical. The traverse is curved at its left end to produce a sharp, angular horn.

\aleph has a long left arm, convex at the top and concave at the bottom, protruding at the bottom—a ductus that remains popular in Herodian cursive (and semicursive) scripts. The right arm is broad and convex, sometimes slightly rounded at the top but without tick. The middle stroke is long, curved, and parallel to the right arm.

\aleph (l. 2) has a simple two-stroke ductus; the left leg is tall, slanted, and followed by a horizontal foot. The right leg is parallel, slanted, and topped by an angular hook producing a short slanted traverse.

To sum up, the few letters preserved on this small fragment exhibit hesitations and inconsistencies that prevent an accurate dating. They seem to belong to a Herodian semiformal hand with a few developments, which leads me to conclude that MS 5214/1 was probably copied sometime at the beginning of the first century AD.

O. MS 5439/2 (Unidentified Fragment)¹⁴



The hand is skilled and precise, with a standard letter height comprised between 2 mm and 2.5 mm. Descending letters might exceed 4.5 mm (cf. \aleph l. 3), while ascending letters reach 5 mm in height (cf. \aleph l. 2).

\aleph (l. 3) has a thin left leg drawn in one stroke with the diagonal, according to the new Herodian ductus. The diagonal is delicately thickened by this skilled hand. The right arm is thin at its base but



¹⁴ For the text edition, see p. 299.

thickened at the top so as to create a tick, indicative of later Herodian calligraphy.

A partial ה (l. 3) reveals a short, straight, thick left leg and a very slightly protruding traverse.

י is tall and narrow, slightly slanted and sometimes concave, with a small hooked head.

י (l. 2), by contrast, tends to be convex, with a triangular head, but remains tall as opposed to the usually shorter forms in the post-Herodian period.

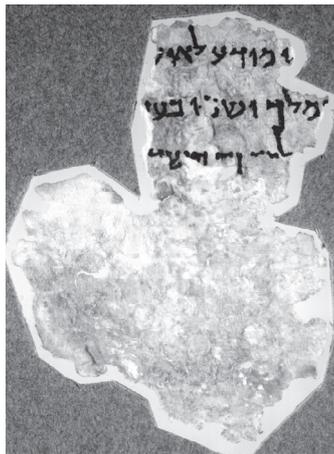
ל is large, with a wide traverse and an angular hook. The diagonal seems straight and oblique. The ascender is rather short and features a forward thickening at home in the Herodian period, although not as angular as the flag that becomes popular in late Herodian and post-Herodian times.

Final פ (l. 3) has a slightly concave descender thickened at the top. The right arm is straight, oblique, and features a leftward tick at the top consistent with the calligraphy observed elsewhere.



To sum up, the few letters preserved on this fragment belong to a skilled formal hand from the late Herodian period. A number of letters of the Hebrew alphabet are not attested and could reveal post-Herodian features, but on the basis of the extant text I cautiously conclude that MS 5439/2 was copied around the middle of the first century AD.

P. MS 5441 (Ruth 2.1-2)¹⁵



The parchment is rough and the hand hesitant, of medium size, with a standard letter height of about 2.5 mm. Descending letters measure up to 4.5 mm in height (cf. י l. 2), while descending letters exceed 4 mm and may have reached 5 mm (cf. the partially erase ל l. 3).

¹⁵ For the text edition, see p. 245.

⸎ (l. 1) is angular and ornamented, with a straight thin left leg followed without lifting the pen by a straight thick diagonal. The right arm is short, joins the diagonal at mid-height and features an elbow followed by a vertical, slightly slanted tick. The left leg also has a tick pointing inward and slightly slanted. This ductus is indicative of a late or post-Herodian hand.

⸏ (l. 2) is rather small, square, with a concave traverse and slightly concave vertical. The traverse is thickened at its left end but produces no horn. The shoulder is raised so that both ends of the traverse reach the same height. The base protrudes to the left and may have been penned from left to right, but it does not protrude to the right.

⸐ (l. 1) is angular and drawn in one stroke. The traverse is straight and rather narrow; it features a backward slanting horn at its left end, and a looped shoulder at its right end so that the vertical is drawn without lifting the pen. The vertical is short, thin and straight so that the shoulder protrudes to the right in a fashion that becomes popular in late Herodian scripts.

An almost complete ⸑ (l. 3) reveals a wide and thick protrusion left of the traverse, contrasted by thin (incomplete) legs. The left leg and the traverse may well have been penned together; as for the right leg, the absence of looped shoulder may indicate that it was penned separately, unlike later Herodian trends.

⸒ is tall, rather thick, with a short angular hook as its head. The vertical is not always straight, but can sometimes be slightly concave or convex.

The top of a ⸒ (l. 2) reveals a small head thickened backwards, perhaps in an attempted triangular shape that would be at home in later Herodian times.

⸓ is tall but has a solid head that distinguishes it from the hook-headed ⸒.

Final ⸔ (l. 2) is large, tall and unusually thick. The traverse is straight and ends in a triangular horn that becomes popular among late Herodian hands. The vertical is straight, long and thick; it is slightly curved at the bottom.



ל features a wide linear traverse and an acute hook that develops in the first half of the first century AD. The head is thickened but without the characteristic tick of later Herodian ornamented scripts.

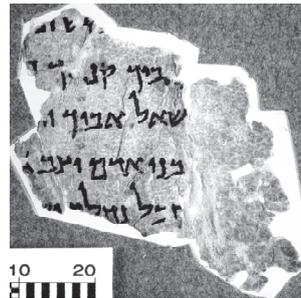
Medial ם is small, with a thin left arm that is drawn after the thick traverse, the vertical and the base. The ductus is not very consistent; the traverse is curved upwards at its left end, but the right shoulder is sometimes rounded, sometimes almost raised. The vertical is sometimes almost convex, sometimes almost concave. The elbow is either angular or rounded. The base is narrow, barely as large as the traverse, and slightly slanted so that the letter is wide open.

ע is rounded, with a convex right arm prolonged by a curved oblique. The left arm is likewise convex, almost vertical. It has no tick, while the right arm is barely thickened; none of the later Herodian developments can be observed.

ש is wide and quite angular, with an overall V shape. The left arm is straight, slanted, and thickened at the top, sometimes with a right-pointing tick. The right arm is more slanted, longer, and angled at the top so as to produce a left-pointing tick. The middle stroke is shorter and thinner, slightly curved, and also features a tick that becomes popular in later Herodian formal scripts. Its position is somewhat inconsistent, sometimes joining both arms at their base, sometimes attached to the left arm below mid-height.



To sum up, this semiformal but hesitant script exhibits some but not all of the late Herodian features. I conclude that MS 5441 was copied around the middle of the first century AD.

Q. MS 5214/2 (Deut 32.5-9)¹⁶

The parchment is rough but the hand rather consistent, of medium size, with a standard letter height of about 2.5 mm. The height of descending letters is about 4 mm, while ascending letters reach 5 mm (cf. § 1.5).

Ⲛ is angular, with a straight slanted left leg drawn together with the diagonal in the new Herodian fashion. The right arm is short, straight, and joins the diagonal at mid-height. Both left leg and right arm have a backward tick, which is indicative of later and post-Herodian hands.

ⲛ is likewise angular, with a short slanted traverse followed by a straight vertical arm. The base is large, straight, parallel to the traverse and protrudes in both directions.

ⲏ (l. 4) is square, with a traverse as large as (or even larger than) the vertical. The two strokes are joined by a triangular shoulder popular in late and post Herodian scripts.

Ⲑ (l. 3) is straight and vertical, with an angular hooked head (albeit partially erased).

ⲑ (l. 5) is penned in one stroke, with two looped protruding shoulders at home in late Herodian or post-Herodian times. The right leg is concave, the left leg is partially erased.

Ⲓ is usually narrow and tall, though slightly suspended, and thus shorter than Ⲑ. It has a narrow and angular hooked head.

Final ⲓ is angular, with a slanted horn, a straight and slightly slanted traverse, a looped shoulder and a straight vertical. The vertical is prolonged by a convex descender.

¹⁶ For the text edition, see p. 177.

↳ has a large traverse and an angular hook; the diagonal is long, straight or slightly convex. The ascender is tall and topped by a leftward tick that develops into a flag, which suggests a late or post-Herodian date.

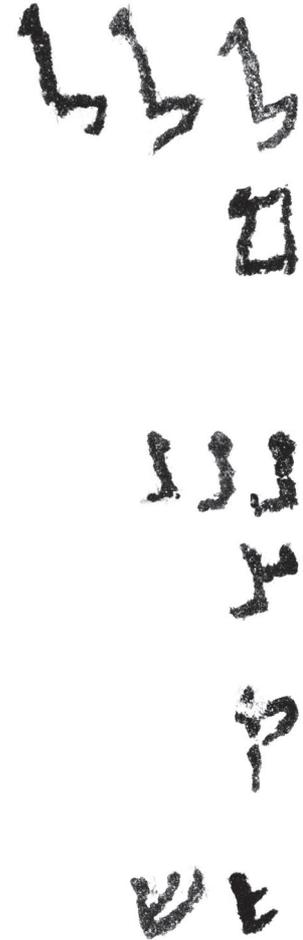
Final □ (l. 4) is square, large and closed. The left horn is thick, slanted, but barely protrudes. The traverse is straight and slanted; the right vertical is straight, with angular shoulder and elbow. The base is horizontal and straight. The left vertical is slightly slanted so as to join the traverse before the horn.

Medial ı is tall and narrow, with a straight vertical thickened at the top or even ticked backwards. The base is straight and very narrow.

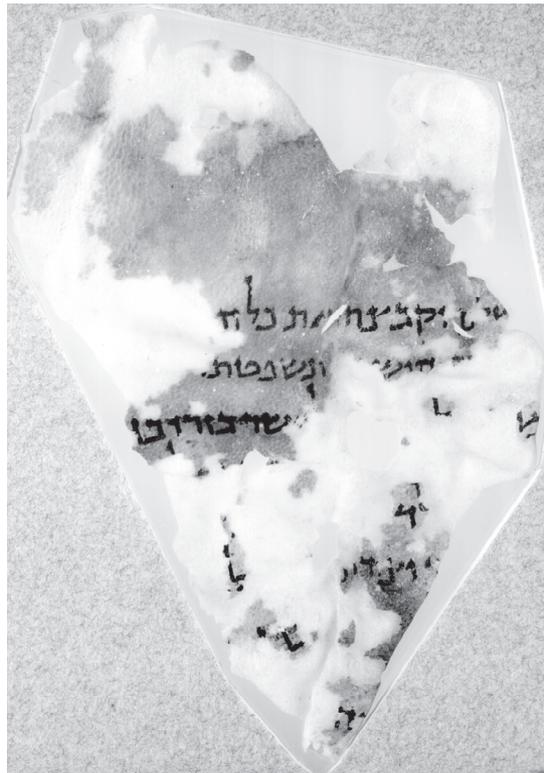
Medial ʎ (l. 4) has a straight, barely slanted vertical followed by a straight base. The right arm is almost horizontal, with an upward tick at its end, a tendency that develops in the late Herodian period.

⤿ (l. 2) has a short and thin descender connected to the traverse through a triangular loop. The traverse is straight, slanted, and leads to a partially rounded hook. The oblique is straight, thinner at the end and does not close the letter.

ʁ has a simple V shape, with a straight left arm and slightly convex right arm. The middle stroke is parallel to the right arm and joins the left arm at (or slightly below) mid-height. The right and left arms do not seem to feature the ticks that become popular in late and post-Herodian formal hands.



To sum up, this manuscript was penned by a skilled late Herodian or early post-Herodian formal book hand, which leads me to conclude that MS 5214/2 was copied sometime in the second half of the first century AD, perhaps in the third quarter.

R. MS 4612/1 (Joel 4.1-5)¹⁷

This skilled book hand is precise and regular, with standard large letters of ca. 3 mm in height. The only descending letter (ק l. 1) barely exceeds 4 mm, while ascending letters easily reach 6 mm (cf. ל l. 1 and 6).

ס (l. 1) exhibits a thick left leg drawn upwards and progressively getting thinner as it reaches the top, which is quite unusual—perhaps even for this scribe, as it is the only occurrence of ס on this fragment. The leg joins the diagonal at its top, which is indicative of a Herodian ductus. The diagonal is thin and partially erased; the right arm seems quite vertical and must have joined the diagonal below mid-height. The arm is thin and thickened at the top; in fact, a direct examination reveals a backward tick, which becomes popular among late and post-Herodian formal hands.

ב is wide and angular, with a triangular left horn and a straight horizontal traverse. The shoulder is angular; the vertical is straight, slanted, and followed by a thickened elbow, which indicates that the base is actually drawn from left to right, after lifting the pen, although in does not protrude to the



¹⁷ For the text edition, see p. 223.

right. The base is large, slanted, and protrudes to the left.

𐤔 has a tall left horn slanted backwards, at least in one of the two occurrences (l. 5). The straight and wide traverse is followed by a crossed or triangular right shoulder, which becomes popular in the late Herodian period. The vertical is straight and barely longer than the traverse.

𐤕 (l. 1) features a wide traverse protruding to the left in a triangular fashion. It covers two otherwise simple straight parallel legs of almost identical height.

𐤖 is straight and slanted, with a triangular head of varying size.

𐤗 (l. 3), by contrast, has a tick that protrudes to the right of the vertical stroke; the triangular shape of the head is consistent with the scribe's ductus and at home in late and post-Herodian times.

𐤘 (l. 2) features a wide base, barely slanted, upon which rest two arms. The left arm is straight, almost vertical, and headed by a leftward tick, which appears in the latest Herodian hands and becomes popular in post-Herodian times. The right arm is in fact a curved hook, shorter than the left arm but broad enough to fill this large letter which seems to have been penned in one stroke, from left to right.

Medial 𐤙 (l. 1) has a very narrow traverse contrasted by a broad base. The left end of the traverse has a triangular shape consistent with the ductus observed earlier, and is followed at an angle by a straight and tall vertical arm. The elbow is slightly rounded, followed without lifting the pen by the traverse.

𐤚 is tall, with a straight traverse of varying width followed by an angular hook. The diagonal is straight and open. The ascender is headed by a triangular flag consistent with the scribe's ductus and at home in late and post-Herodian book hands.

A partially preserved final 𐤛 (l. 1) is tall, wide and angular. The base is slightly slanted and followed by a straight vertical. The traverse protrudes to the left by means of a horn that seems triangular.

A partial medial 𐤜 (l. 3) reveals a long protruding left arm headed by a thick slanted horn. The base seems thinner and slightly slanted.



Medial ן (l. 2) is tall and relatively wide; the base is straight, horizontal, and thickened at the end. It follows a rounded elbow and straight vertical arm. At the top, a thickened head is consistent with the late morphological developments observed elsewhere.

Medial ן (l. 2) features a simple hooked head, without the additional tick that appears at the middle of the first century. The right vertical prolongs the symmetrical hook and is thus slanted. It is followed at an angle by a straight base drawn without lifting the pen.

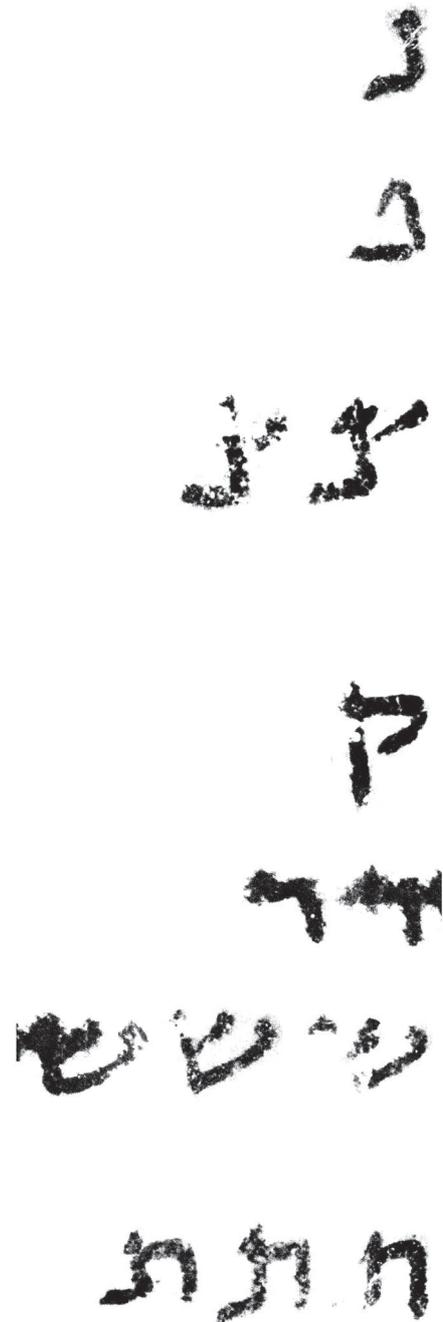
Medial ן features a thick, barely slanted vertical followed at an angle—without lifting the pen—by an equally thick horizontal base. The right arm orthogonally joins the vertical above mid-height. In the first occurrence, it is thin at its base and thicker at its top; in the second, it is thick throughout, with a small tick at its top. The left vertical has a flag at home in the latest and post-Herodian book hands.

ק (l. 1) is broad, with a straight horizontal traverse followed by a rounded hook with a short diagonal that does not reach the descender. The latter is headed by a triangular horn consistent with the scribe's ductus.

ך is broad and short, with straight traverse and leg. The shape of the shoulder is blurred, but the left end clearly features a triangular horn, as expected in such a late or post-Herodian formal book hand.

ש is wide, due to a long, barely convex right arm. At its top, a leftward tick is consistent with the ductus observed above. The middle arm is parallel, shorter, and in one occurrence thickened at the top. The left arm is straight, slanted, and sometimes thickened at the top, almost flagged.

ת features a large traverse followed by an angular shoulder and straight right leg, although one occurrence (l. 2) has a more rounded shoulder and slightly convex right leg. The left leg is straight, vertical, and followed at an angle by a slanted foot; in one instance (l. 2), however, the left leg is slightly convex and the foot horizontal. At the top, a triangular horn is purely ornamental and indicative of a late, developed ductus.

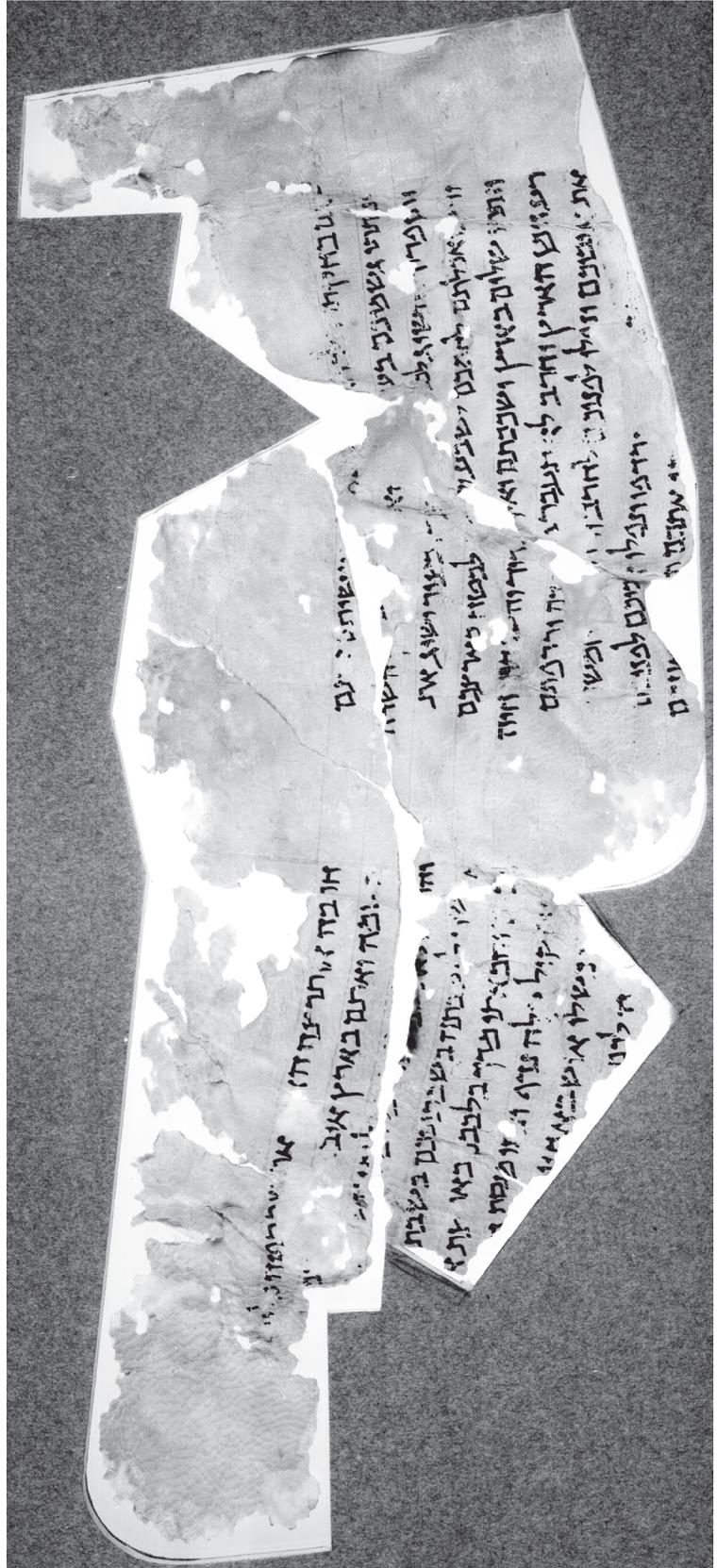


To sum up, this manuscript was copied by a skilled formal book hand exhibiting developments that appear in the latest Herodian scripts. I conclude that MS 4612/1 was copied in the second half of the first century AD, perhaps in the third quarter.

S. MS 4611 (Lev 26.3–9, 33–39)¹⁸

The hand is consistent, of medium size, with a standard letter height of ca. 2.5 mm. This medium size is contrasted by the length of descending letters, which can reach 5.5 mm (cf. γ col. i l. 5), while ascending letters reach 5 mm in height (cf. \beth col. i l. 8).

Since the manuscript has been distorted (as can be seen here on the infrared photograph), I have digitally straightened the two columns using an image processing algorithm (cf. pictures below) so that the letters presented below (as well as in the palaeographical chart at the end of this chapter) better reflect the scribe's original ductus.



¹⁸ For the text edition, see p. 159.

⸎ has a thick diagonal that connects to a usually thinner left leg below its top. The right arm is thicker at its top, sometimes to the point of creating a tick pointing to the right, which suggests a mid- to late Herodian book hand.



⸏ is wide and open, with an angular and almost square shape. The traverse features a tick at its left end and an orthogonal shoulder at its right end. The base starts to the left of the traverse and protrudes to the right of the vertical stroke. It is sometimes slightly concave, especially at its right end.



⸑ has a concave head, often compensated by convex bottom. The head is also thickened, sometimes producing a tick, which is consistent with a late Herodian ductus. The left leg is straight and joins the right stroke above its base, sometimes almost at mid-height.



⸒ is large and square, with a triangular tick at the left end of its traverse. The shoulder usually loops into the vertical stroke, but this is not always the case. The angular ductus shapes the loop into a triangle, which fits well a mid- to late Herodian period.



⸓ is of standard size, with a limited protrusion of the traverse beyond the left leg. The left leg is sometimes thinner than the right leg, especially at its top, so that its contact with the traverse is limited. The right leg tends to be curved, slightly concave at the top and slightly convex at the bottom. The shoulder is looped; the loop is sometimes flat, barely visible, but more often angular, producing a triangular tick at the top of the right leg. These variations may indicate a transition into the late Herodian period.



⸔ is tall and straight, with a small, narrow triangular head.



⸌ (col. i l. 4) is, like ⸔, tall and straight; but the head is shaped by means of a tick that protrudes to the right of the vertical stroke, which is consistent with a mid- to late Herodian period.

⸍ is wide and square, with straight or very slightly curved legs. The traverse is straight and connects to the left leg below its top; at the other end it loops into the right leg, which accounts for the occasional protrusion.



Final ך is short and curved, concave at the top and convex at the bottom. The head may be thickened, but not to the extent of medial ך as is often the case in post-Herodian scripts.

Medial ך features straight or slightly concave vertical and horizontal strokes of comparable length. The top is thickened and curved, sometimes—but not always—producing a right-pointing tick. These variations suggest a transition to late and post-Herodian scripts.

Ⓛ (col. ii l. 6) has a large traverse followed by an angular shoulder, a short arm and a slightly curved elbow. The left arm crosses both the traverse and the base.

Ⓜ is wide, with two parallel arms. The right arm is smaller than the left arm, and both tend to be concave at the top, which fits best the late Herodian period. The elbow is sharp, and the base is longer and slightly more inclined than that of other letters.

Final ן (col. ii l. 6) features a hooked head whose left arm tends to be thinner, with a tick at the bottom. The right arm is straight and extends into a short tail oriented backwards.

Medial ן has the same outlook, except for the right arm which is followed by an elbow and a large base that protrudes to the left. These characteristics are all consistent with a late Herodian script.

Medial ף features ticks on top of both arms, which favor a late Herodian or post-Herodian period. The elbow and base are consistent with shapes observed earlier, and are naturally absent from final ף, whose tail is long and tends to become thinner and curved at the bottom.

ק, by contrast, has a shorter tail; its traverse is large and features a triangular tick at its left end looping into the tail, as can often be observed in late Herodian and post-Herodian formal scripts.

ך is square and has a tick at the left end of its traverse. The shoulder is usually curved, which makes it easy to distinguish it from ך, but a few occurrences exhibit a sharper (though never looped) shoulder.



ש is wide, with a straight left arm and slightly curved right arm. Both arms join at their base, where the middle stroke sometimes joins them, although it usually reaches the left arm above. The right arm is angled to the left at its top, while the middle stroke has a smaller tick. The left arm also features a left-pointing tick of varying size, which favours a late Herodian or post-Herodian date.

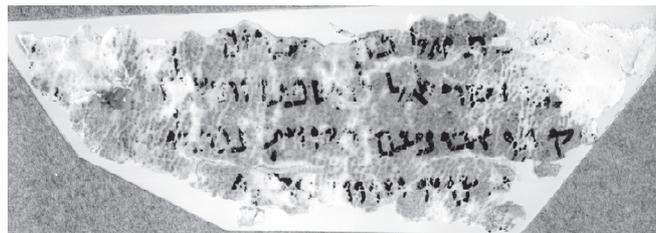


ת is large, with a traverse that reaches the left leg below its top, or with an occasional triangular ornamentation. The right end of the traverse is followed by a curved (or rarely sharp) shoulder and a straight right leg. The right leg tends to become thinner at the bottom, and sometimes extends below the left leg. The left leg, by contrast, has a large foot that remains straight, unlike a growing tendency in post-Herodian scripts.



Overall, the palaeographical analysis points to a late Herodian formal script; several letters exhibit variations that seem to reflect an evolution or transition from Herodian to post-Herodian scripts, which leads me to conclude that MS 4611 was copied sometime during (or slightly after) the second half of the first century AD.

T. MS 2861 (Judg 4.5–6)¹⁹



This book hand is skilled and assured, drawing large letters with a standard height comprised between 3 mm and 3.5 mm. Descending letters exceed 4 mm (cf. ך col. i l. 3), ascending letters seem to reach about 5.5 mm (cf. ה col. i l. 2).

ס is large, with a long and thick straight diagonal. The left leg is thin and thickened at the bottom. The right arm rests at mid-height on the diagonal and is topped by a rightward tick. The ductus suggests a late or, better, post-Herodian period.



¹⁹ For the text edition, see p. 193.

𐤁 has a tall backward-slanted left horn on top of a straight slanted traverse. The shoulder is angular and the vertical straight and slanted. The base is wide, thick, and protrudes on both sides; it seems penned from left to right, following a ductus that develops through the Herodian period.

𐤂 (l. 3) has a triangular left horn popular in the latest Herodian and post-Herodian hands. The traverse and vertical are straight, and there does not seem to be a triangular right shoulder.

𐤃 has thin parallel legs covered by a thick traverse. The left leg seems slightly curved leftward at the bottom. The traverse protrudes to the left in a triangular fashion consistent with the scribe's ductus.

𐤄 is tall and straight, slightly slanted, with a solid triangular head. The bottom is sometimes slightly curved forward.

A partially erased 𐤅 (l. 2) reveals a doubly curved left leg, convex at the top and concave at the bottom. The traverse is straight, slanted, and connected to the legs below their summit.

𐤆 (l. 2) has a wide slanted base upon which rest two arms. The right arm is oblique, headed by a large hook, and drawn together with it so as to join the base at its right end. The left arm has a leftward tick that appears in the latest Herodian hands and becomes popular in post-Herodian times.

𐤇 is of varying width; its head is either triangular or hooked, and its left leg is barely shorter than that of standard letters.

𐤈 has a wide traverse, usually horizontal but sometimes slightly slanted. The hook is angular, with a thin diagonal, quite long but open and ending before the neck. The ascender seems to feature a forward flag, as is common among late Herodian and post-Herodian formal hands.

Final 𐤉 is wide and square, with a long protrusion supporting a tall vertical triangular horn. The traverse is otherwise straight, followed at an angle by a straight slanted vertical. The base is broad but stops before the horn, so that the left vertical is barely slanted.

Two occurrences of medial 𐤊 are almost erased, so that its morphology is uncertain.



Final γ (l. 3) has a thick head and a convex descender whose reduced length follows a growing tendency in the second half of the first century.

Medial γ has a concave vertical, sometimes bent backward at the top. The base is wide and barely slanted.

γ is wide, with a long diagonal curved at the top but without an elbow or long tick. The left arm is straight and thickened at the top, again without tick.

Medial δ features a hooked head with an additional tick that appears at the middle of the first century. The right vertical is slanted and followed at an angle by a base of varying incline and length.

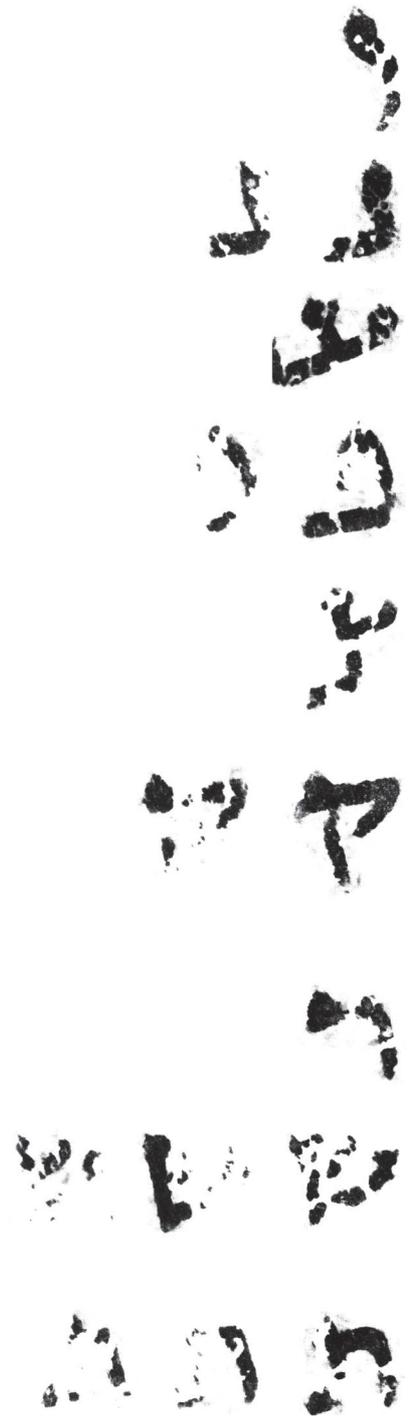
Medial ν (l. 4) is tall, with a long slightly slanted vertical and a narrow base. The right arm is short, oblique, and curved upward at its end. The vertical is thickened at the head so as to produce a small flag that appears in the latest Herodian hands.

η has a broad traverse followed by an acute hook and shorter diagonal, so that the letter remains open. The descender is thin, of unknown length. It stands beneath (and in one instance to the right of) a triangular horn indicative of a late or post-Herodian ductus.

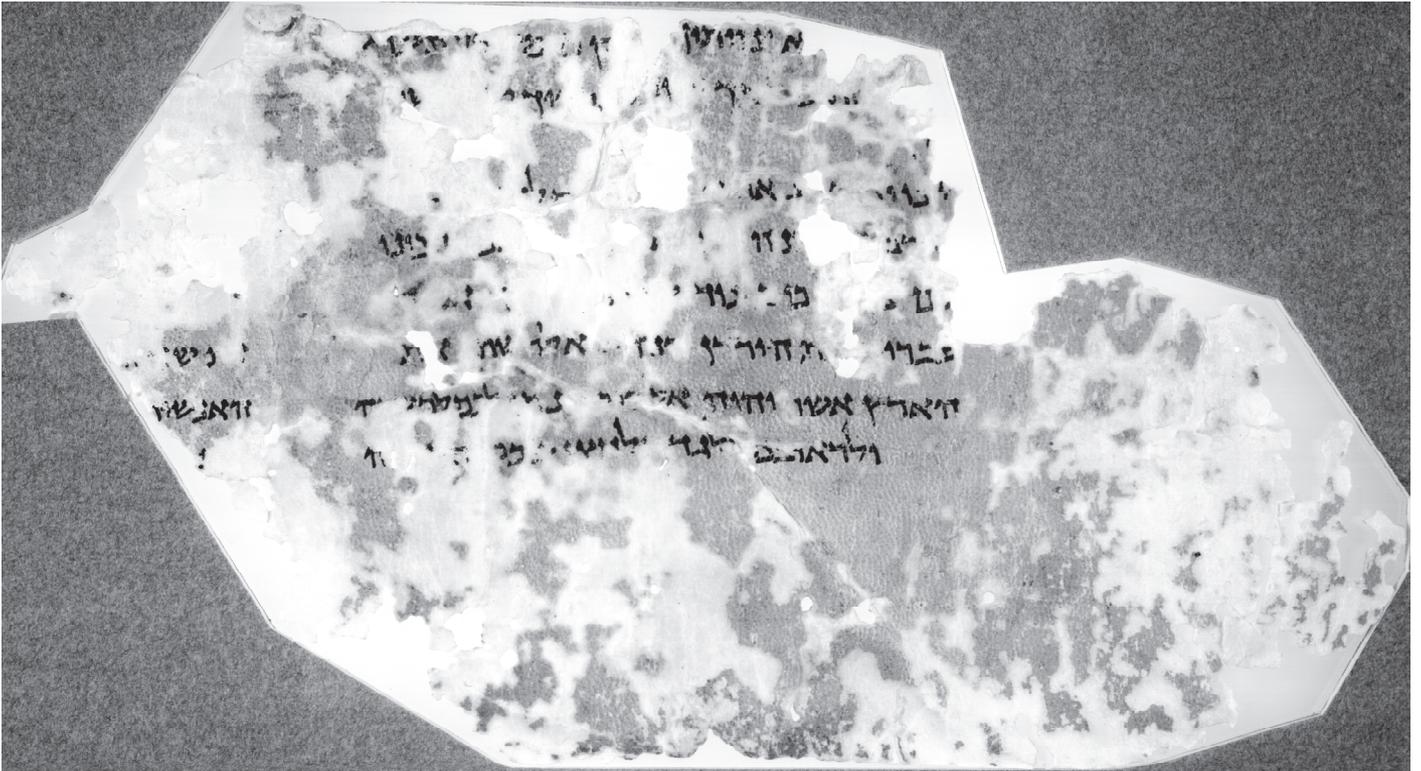
ζ (l. 2) also has a triangular horn, which ends a large and thinner traverse. The shoulder is rounded, and the vertical slightly slanted.

ψ has a straight, barely slanted left arm, while the right arm is longer and convex. It bears at its top a tick that develops in the middle of the first century AD. The middle stroke seems shorter and parallel, without tick. The left arm is thickened at its top, but without tick.

τ is broad, with a wide traverse followed by a rounded shoulder and straight right leg. The left leg is likewise straight and connected to the traverse through a triangular shoulder, which develops in the second half of the first century AD. The foot is large and slightly slanted.



To sum up, this elegant and consistent formal book hand exhibits numerous features that appear in the latest Herodian scripts and become popular in post-Herodian hands. I conclude that MS 2861 was copied during or slightly after the second half of the first century AD.

U. MS 2713 (Josh 1.9–12; 2.3–5)²⁰

The hand is large and regular, with a standard letter height of ca. 3 mm. Descending letters measure up to 4 mm (cf. ך col. i l. 7) while ascending letters can exceed 5.5 mm in height (cf. ה col. i l. 9).

כ exhibits a tick at the top of the right arm as well as the bottom of the left leg, which fits best the late Herodian period. The oblique traverse and the left leg are drawn in a single stroke, while the right arm joins the traverse above its bottom.

A partial ן (col. i l. 9) also exhibits a tick at the left end of its traverse. Its shoulder and elbow seem very angular, while its base is longer than its traverse.

ג (col. i l. 9) is traced in a single stroke; the right leg is straight, almost vertical, with a tick at its head. The left leg is horizontal, concave, and joins the right leg at its base, which is consistent with a late Herodian hand.

It is followed by a ט (col. i l. 9) that features a tick at both ends of its traverse. The right tick also serves as the head of the leg, which allows for a single-stroke tracing of the letter. The leg is straight and almost vertical.



²⁰ For the text edition, see p. 185.

ה features the same ductus, with a tick at the right end of the traverse connecting it to the right leg. The traverse protrudes to the left by means of a downward tick, which suggests a late or post-Herodian period. The left leg is parallel to the right leg; both are straight and of the same length.

י is tall and straight, with a slight curve towards the left at the bottom, which becomes common in post-Herodian hands. Its head is narrow, shaped like a triangle with a small horizontal base.

What could be a partially erased י (col. i l. 7) exhibits a tick that protrudes to the right at the top of the vertical stroke. The bottom end seems bevelled, perhaps even curved to the left, though this is unclear since the ink has faded.

י, like י, is shaped with a triangular head on top of a vertical stroke, but the head is usually slightly larger and the vertical stroke quite smaller, which makes it easier to distinguish between the two letters.

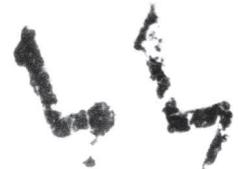
Final ך (col. i l. 2) exhibits a wide traverse with a tick at its left end and a loop at its right end. Such a ductus appears in the late Herodian period and develops in post-Herodian hands as is the case here with a loop protruding both to the right and the top.

Medial ך (col. i l. 6) shares the same tick as the ך at the left end of its traverse, but the traverse itself is slightly narrower while the vertical stroke is, on the contrary, taller. The base is broader than the traverse and protrudes to the left.

ל is both tall and wide, with a sharp, angular shape. The oblique stroke is long and reaches down to a virtual baseline. The ascender slants forward and features a triangular head consistent with this scribal hand and indicative of a late or post-Herodian period.

Final ך is large, square, and angular, with a tick (rather than a loop) connecting the left arm and the traverse.

Medial ך (col. i l. 1) is drawn in three stages: the oblique stroke is not drawn together with the left vertical stroke, nor with the upper tick. The tick, common in the late Herodian period, exhibits further development and has now become an angular hook, which appears in the latest Herodian hands and develops in the post-Herodian period.



Medial \daleth features a wide base and a straight vertical stroke, except for a small tick at the top.

The tick is more visible on the final \daleth (col. i l. 7), whose tail is short and curved. Both the reduced length and the ticked head of the final \daleth are at home in post-Herodian times.

A final \daleth and a partial medial \daleth share the overall formal and angular ductus observed elsewhere; they feature ticks on top of both arms, which is consistent with this developed hand and fits the latest or post-Herodian trends.

A partial \daleth (col. i l. 1) features a large traverse and a short tail; the two are connected by a triangular tick that protrudes both to the top and to the left.

\daleth is square, sometimes even broader than tall (e.g. col. i l. 8). Its shoulder is angular, and the left end of its traverse features a tall and narrow tick.

\daleth is wide, with an almost vertical or slightly slanted left arm connected to the right arm at their base. The middle stroke is parallel to the right arm and reaches the left arm almost at mid-height. Both right arm and middle stroke are curved to the left at their top; the curve sometimes becomes angular, especially at the top of the right arm, so as to look like a tick. The left arm also features a left-pointing tick, which is indicative of further development than what is usually observed in Herodian scripts.

\daleth also exhibits a fully developed shape, with a tick or hook at the top of its left leg; the traverse is not drawn at the same time, so that the tick is not an angular loop but pure ornamentation. The left leg is prolonged at its bottom by a foot that also features a tick, which formalizes a tendency, seen in some post-Herodian scripts, to curve the foot upward.



In conclusion, this manuscript features one of the most developed and ornamented formal scripts among the Dead Sea Scrolls. Even the latest Herodian hands (such as Mas 1k) barely match the level of sophistication observed here. Although a date in the third quarter of the first century AD cannot be excluded, this hand better fits the post-Herodian period. In fact, ornamented formal hands of the early second century AD do not exhibit clear typological developments, which prevents a more accurate dating; indeed, the script of this manuscript is more developed than that of many Murabba'at scrolls. I conclude that MS 2713 was probably copied between the end of the first century AD and the beginning of the second century.

V. Conclusion

The 20 manuscripts examined here were penned by scribal hands from different periods, of different types, sizes, and skills. The oldest scroll (MS 5439/1, 4QRP^b) was copied in the second half of the second century BC, while the youngest manuscript (MS 2713, Josh) dates to the end of the first century AD or the beginning of the second century. Both hands are skilled and confident, as is the case for several other Dead Sea Scrolls in The Schøyen Collection; see also MS 1909 (1QSb); MS 5095/7 (CommGen A); MS 4612/3 (Eschat. Frg.); MS 5439/2 (Unid. Text); MS 5214/2 (Deut 32); MS 4611 (Lev); MS 2861 (Judg).

The standard letter height is usually comprised between 2 mm and 2.5 mm, although it reaches 3.5 mm with the largest hand, that of MS 2861 (Judg). As opposed to this large script, a very small hand can be observed on MS 4612/4 (GenMiniature), with a standard letter height ranging between 1 mm and 1.5 mm.

In two cases, the hand of a manuscript (as well as its textual and material features) has been identified with that of another: MS 5439/1 belongs to 4Q364, and MS 1909 belongs to 1QSb. Other cases of identifications can be examined:

1. MS 4612/11 (Prov) and MS 5480 (1 Sam 5) exhibit very similar scripts, with a small difference in letter height that might be due to skin contraction. There are noticeable differences in ך (triangle vs. chevron shape), but the scribe is not always consistent, which may account for these variations. Unfortunately, many letters of the alphabet are not attested in both manuscripts; they might have confirmed or infirmed the ascription of these two fragments to the same hand.

2. MS 4612/4 (GenMiniature) and MS 5233/1 (2 Sam 20) have both been penned by a small semiformal hand and share numerous palaeographical features. Differences can be observed in ך, ם and ן, especially, but some of them could perhaps be explained by the extremely small letter height of MS 4612/4—presuming it is not the scribe's usual letter size. This argument is too weak, however, to conclude that the same hand penned both manuscripts, and it must once again be emphasized many letters of the alphabet are not attested on both fragments.

As mentioned above, a number of hands exhibit inconsistencies that may raise concerns as to the authenticity of some manuscripts. In some cases, the degraded state of the fragments seems posterior to the copying of the actual scroll (*e.g.* MS 4612/9 [Jer]; MS 5214/1 [Deut 6]; MS 5440 [1 Kgs]), which would support their authenticity, although sophisticated forgeries cannot be ruled out.

The quality of the script is often correlated to that of the skin. While the skilled hands of MS 4612/3 (Eschat. Frg.) or MS 4611 (Lev), for instance, benefit from a smooth surface, the naive hands attested on many manuscripts are worsened by the use of parchment with a rough surface. This correlation might indicate that the latter manuscripts were not produced in the same environment. In fact, the lack of affinities with Qumran scrolls leads me to suggest that those fragments, if authentic, may well come from a previously unknown location. Additional research and the publication of new manuscripts will no doubt increase our knowledge on this matter.

Table 3.1. Synoptic palaeographical charts of the Dead Sea Scrolls in The Schøyen Collection
(MS 5439/1, MS 1909, MS 4612/11, MS 5480 and MS 4612/9)

MS 4612/9 3 rd quart. of 1 st c. BC	MS 5480 Mid-1 st c. BC	MS 4612/11 Mid-1 st c. BC	MS 1909 2 nd quart. of 1 st c. BC	MS 5439/1 2 nd half of 2 nd c. BC
XXXXXX		א		
בבבב		ב		
גגגג			ג	
דדדד	ד	דדדד	ד	ד
הההה	ההה	ה	הה	הה
ווווו	ו	ו		
זזזז		ז		
חחחח	חח	חחחח	חח	חח
טטטט	טט	טטטט	טט	טט
ייייי		י		
ככככ	ככ	ככככ	ככ	ככ
לללל	ל	לל	ל	לל
מממ		מ		
ננננ		ננ		ננ
ססס		ס		
עעעע	עע	ע		ע
פפ				
ץץ		ץ		
קקק	קק	ק	ק	
ררר	ר	ר	ר	
ששש	ש			
תתת		ת	תת	ת

Table 3.2. Synoptic palaeographical charts of the Dead Sea Scrolls in The Schøyen Collection
(MS 5233/2, MS 4612/5, MS 4612/4, MS 5233/1 and MS 5095/7)

MS 5095/7 Last quart. of 1 st c. BC	MS 5233/1 Last 3 rd of 1 st c. BC	MS 4612/4 2 nd half of 1 st c. BC	MS 4612/5 2 nd half of 1 st c. BC	MS 5233/2 3 rd quart. of 1 st c. BC
	כחכח	כחכחכחכחכחכח	כ	
	כח	כחכחכחכח	כחכח	כח
		כח		כח
		כ	כח	כח
כח	כח	כחכח		
כ	כחכחכחכח	כחכחכחכח	כ	כ
		כח	כח	
כח	כח	כח	כחכח	כח
	כ	כ	כ	כ
כ	כחכח	כחכחכח	כח	כח
כח		כ	כחכח	כח
כ	כ	כ		כח
		כח		
	כ	כחכחכחכח		כח
		כ		
		כ		
	כ		כחכח	
כ		כחכח	כחכח	
	כ	כחכחכחכח	כח	כ
	כ	כחכחכחכח	כח	כ

Table 3.3. Synoptic palaeographical charts of the Dead Sea Scrolls in The Schøyen Collection
(MS 4612/3, MS 5440, MS 5214/1, MS 5439/2, and MS 5441)

MS 5441 Mid-1 st c. AD	MS 5439/2 Mid-1 st c. AD	MS 5214/1 Early 1 st c. AD	MS 5440 End of 1 st c. BC	MS 4612/3 End of 1 st c. BC
א	א	א	אאאא	
ב		ב	בבב	
ג				ג
ד	ד	דדד	דדדדדדדד	
הה	הה	הההה	הה	הה
ו		ו		
זז		ז	זזזז	זזזז
ח				ח
טט				ט
י				
יא	יא	יא	יאיאיא	יאיאיא
יב				יב
יג				
יד				
טו				
טז				
יז				
יח				
יט				
כ				
כא				
כב				
כג				
כד				
כה				
כו				
כז				
כח				
כט				
ל				
לא				
לב				
לג				
לד				
לה				
לו				
לז				
לח				
לט				
מ				
מא				
מב				
מג				
מד				
מה				
מו				
מז				
מח				
מט				
נ				
נא				
נב				
נג				
נד				
נה				
נו				
נז				
נח				
נט				
ס				
סא				
סב				
סג				
סד				
סה				
סו				
סז				
סח				
סט				
ע				
עא				
עב				
עג				
עד				
עה				
עו				
עז				
עח				
עט				
פ				
פא				
פב				
פג				
פד				
פה				
פו				
פז				
פח				
פט				
צ				
צא				
צב				
צג				
צד				
צה				
צו				
צז				
צח				
צט				
ק				
קא				
קב				
קג				
קד				
קה				
קו				
קז				
קח				
קט				
קכ				
קכא				
קכב				
קכג				
קכד				
קכה				
קכו				
קכז				
קכח				
קכט				
קל				
קלא				
קלב				
קלג				
קלד				
קלה				
קלו				
קלז				
קלח				
קלט				
קמ				
קמא				
קמב				
קמג				
קמד				
קמה				
קמו				
קמז				
קמח				
קמט				
קנ				
קנא				
קנב				
קנג				
קנד				
קנה				
קנו				
קנז				
קנח				
קנט				
קס				
קסא				
קסב				
קסג				
קסד				
קסה				
קסו				
קסז				
קסח				
קסט				
קע				
קעא				
קעב				
קעג				
קעד				
קעה				
קעו				
קעז				
קעח				
קעט				
קפ				
קפא				
קפב				
קפג				
קפד				
קפה				
קפו				
קפז				
קפח				
קפט				
קץ				
קצא				
קצב				
קצג				
קצד				
קצה				
קצו				
קצז				
קצח				
קצט				
ר				
רא				
רב				
רג				
רד				
רה				
רו				
רז				
רח				
רט				
רנ				
רנא				
רנב				
רנג				
רנד				
רנה				
רנו				
רנז				
רנח				
רנט				
רו				
רוא				
רוב				
רוג				
רוד				
רוה				
רוו				
רוז				
רוח				
רוט				
רז				
רזא				
רזב				
רזג				
רזד				
רזה				
רזו				
רזז				
רזח				
רזט				
רח				
רחא				
רחב				
רחג				
רחד				
רה				
רהא				
רהב				
רהג				
רהד				
רו				
רוא				
רוב				
רוג				
רוד				
רוה				
רוו				
רוז				
רוח				
רוט				
רז				
רזא				
רזב				
רזג				
רזד				
רזה				
רזו				
רזז				
רזח				
רזט				
רס				
רסא				
רסב				
רסג				
רסד				
רסה				
רסו				
רסז				
רסח				
רסט				
רע				
רעא				
רעב				
רעג				
רעד				
רעה				
רעו				
רעז				
רעח				
רעט				
רפ				
רפא				
רפב				
רפג				
רפד				
רפה				
רפו				
רפז				
רפח				
רפט				
רץ				
רצא				
רצב				
רצג				
רצד				
רצה				
רצו				
רצז				
רצח				
רצט				
ש				
שא				
שב				
שג				
שד				
שה				
שו				
שז				
שח				
שט				
שנ				
שנא				
שנב				
שנג				
שנד				
שנה				
שנו				
שנז				
שנח				
שנט				
שו				
שוא				
שוב				
שוג				
שוד				
שוה				
שוו				
שוז				
שוח				
שוט				
שז				
שזא				
שזב				
שזג				
שזד				
שזה				
שזו				
שזז				
שזח				
שזט				

Table 3.4. Synoptic palaeographical charts of the Dead Sea Scrolls in The Schøyen Collection
(MS 5214/2, MS 4612/1, MS 4611, MS 2861 and MS 2713)

MS 2713 End of 1 st or 2 nd c. AD	MS 2861 2 nd half of 1 st or 2 nd c. AD	MS 4611 2 nd half of 1 st or 2 nd c. AD	MS 4612/1 3 rd quart. of 1 st c. AD	MS 5214/2 3 rd quart. of 1 st c. AD
אאא	אאא	אאאאאאאא	א	אאא
ב	בבב	בבבבבבבב	בבב	בבבב
ג		גגג		
ד	ד	דדדדד	דד	ד
ההה	ההה	הההההההה	ה	
ווו	ווו	וווווווווווו	ווו	ו
ז		ז	ז	
	ח	חחחחחחחח		ח
	ט	ט	ט	
י י י י	י י י י	י י י י י י י י י י		י י י
כ		כ		כככ
לל	לללללל	לללללללללל	לל	ללל
מ	ממ	ממממממממ	מ	מ
נ	ננ	ננננננ	נ	
ס		ס		
פ	פפ	פפפפ		
ק	ק	קקקקקקקק	ק	ק
ר	ר	ר		
ששש	ששש	שששששששש	ששש	שש
ת	תתת	תתתתתתתת	תתת	