Characters for Classical Latin

David J. Perry

version 13, 2 July 2020

Introduction

The purpose of this document is to identify all characters of interest to those who work with Classical Latin, no matter how rare. Epigraphers will want many of these, but I want to collect any character that is needed in any context. Those that are already available in Unicode will be so identified; those that may be available can be debated; and those that are clearly absent and should be proposed can be proposed; and those that are so rare as to be unencodable will be known.

If you have any suggestions for additional characters or reactions to the suggestions made here, please email me at hospes02@scholarsfonts.net. No matter how rare, let's get all possible characters on this list. Version 6 of this document has been updated to reflect the many characters of interest to Latinists encoded as of Unicode version 13.0.

Characters are indicated by their Unicode value, a hexadecimal number, and their name printed IN SMALL CAPITALS. Unicode values may be preceded by U+ to set them off from surrounding text. Combining diacritics are printed over a dotted circle of to show that they are intended to be used over a base character. For more basic information about Unicode, see the website of The Unicode Consortium, http://www.unicode.org/ or my book cited below.

Please note that abbreviations constructed with lines above or through existing letters are not considered separate characters except in unusual circumstances, nor are the space-saving ligatures found in Latin inscriptions unless they have a unique grammatical or phonemic function (which they normally don't). Characters that require more discussion are highlighted in green. Missing or incorrectly shaped glyphs are highlighted in purple; these will be fixed in future versions of this document.

Some references are made to "smart font technology." This refers to OpenType fonts (Windows and Linux, and now also on Mac OS) or AAT (Mac only) fonts that can do things like position diacritics correctly over a variety of base letters or replace one sequence of characters with a ligature glyph. Such technology is now available, although not supported by every application; there is every reason to think it will be even more widely supported in the future. What users need to know, however, is that they must tell font developers what they need so that fonts can be created.

In many cases one has the choice of using precomposed combinations of base letter plus diacritic(s) or combining diacritics. For a long time combining diacritics were not well supported by software, so I recommended the precomposed versions when available. They are still the most reliable choice, but support for combining diacritics has been steadily improving; users should feel free to experiment with them. For the sake of completeness the combining versions are mentioned also. It is a mark of the progress that has been made that some large databases are using them in preference to the precombined forms.

For more about Unicode, the issue of combining diacritics, smart font technology, and other things, see my book on document preparation for scholars available at http://scholarsfonts.net.

The Medieval Unicode Font Initiative is a group of medievalists working hard to get characters needed by medievalists into Unicode and to create a standardized solution for those that cannot be encoded. Some of their work overlaps with this document, and when appropriate cross-references are given. See the MUFI website at https://skaldic.abdn.ac.uk/m.php?p=mufi.

The current version of my Cardo font, contains all the characters mention in this document and provides access to glyph variants through OpenType features. Any font that complies with version 3.0 of the MUFI character recommendation contains almost all of these characters.

Thanks to Deborah Anderson of the Script Encoding Initiative, John Bodel of Brown University, and Richard Peevers of TLG for helpful suggestions. Any errors that remain are mine.

This file updated July 2020 with a few characters added in Unicode 13 (IG extensions for Gaulish and the ascia symbol) and a more recent URL for MUFI.

List of Classical Latin Characters

I. Letters, including letters with diacritics

A. Long I and other tall letters

A7FE LATIN EPIGRAPHIC LETTER I LONGA

Unicode does not normally encode letters that are variant forms of items already in the Standard. However, the fact that the long I is intended to represent the phoneme /i:/, distinct from /i/, justified its encoding. Other letters are occasionally found written in an extra-tall form, but unless they can be shown to have specific phonemic or grammatical values (not the case, as far as I know), they should be treated as glyph variants.

B. Claudian letters

The ancient Romans of course did not use these letters in lowercase, but lowercase forms are included in Unicode so that they can be used when an inscription is transcribed in lowercase in modern publications.

- J 2132 LATIN CAPITAL LETTER TURNED F 214E LATIN TURNED SMALL LETTER F
- O 2183 ROMAN NUMERAL REVERSED ONE HUNDRED
- 2184 LATIN SMALL LETTER REVERSED C

The fact that U+2183 is named ROMAN NUMERAL REVERSED ONE HUNDRED might seem to make it unsuitable as a regular letter, but Michael Everson, author of the proposal for the Claudian letters and expert on Unicode, recommends this use.

- H 2C75 LATIN CAPITAL LETTER HALF H
 2C76 LATIN SMALL LETTER HALF H
 - C. Turned letters for abbreviations
- O 2183 ROMAN NUMERAL REVERSED ONE HUNDRED

The reversed C sometimes found for Gaia should be represented by this character; see above under Claudian letters for justification of using this "numeral" as a regular letter.

- A A A FB LATIN EPIGRAPHIC LETTER REVERSED F, abbreviation for filia.
- 9 A7FC LATIN EPIGRAPHIC LETTER REVERSED P, abbreviation for *puella*.
- M A7FD LATIN EPIGRAPHIC LETTER INVERTED M, abbreviation for mulier.

There is a sideways glyph variant \leq .

AW A7FF LATIN EPIGRAPHIC LETTER ARCHAIC M, the five-legged archaic variant of M used to abbreviate the *praenomen* Manius.

D. Ligatures

ZWJ 200D Unicode does not encode ligatures, except when they can be shown to have special phonemic values (not true for ancient Roman usage, where ligatures are

cial phonemic values (not true for ancient Roman usage, where ligatures are mainly space-saving devices). Encode them by entering the first letter, then a ZERO WIDTH JOINER, then the second letter. Smart fonts can replace such sequences with the appropriate glyph.

E. Apex and other markers of vowel length

Á	00C1	LATIN CAPITAL LETTER A WITH ACUTE
É	00C9	LATIN CAPITAL LETTER E WITH ACUTE
Í	00CD	LATIN CAPITAL LETTER I WITH ACUTE
Ó	00D3	LATIN CAPITAL LETTER O WITH ACUTE
Ý	00DD	LATIN CAPITAL LETTER Y WITH ACUTE

For the apex, use the acute accent. \acute{A} , \acute{E} , \acute{I} , \acute{O} and \acute{Y} exist in precomposed form; V-apex should be encoded with the combining acute (U+0301). If a PUA codepoint for the latter is needed until combining marks are handled better, use E33A, as found in the Titus font and the MUFI spec. Fonts may contain glyph variants if it is desired to use a different shape for the apex, such as the curved hook form. Using other diacritics such as U+0309 COMBINING HOOK ABOVE or U+0313 COMBINING COMMA ABOVE for alternate apex shapes is not recommended.

Ā	0100	LATIN CAPITAL LETTER A WITH MACRON
ā	0101	LATIN SMALL LETTER A WITH MACRON
Ē	0112	LATIN CAPITAL LETTER E WITH MACRON
ē	0113	LATIN SMALL LETTER E WITH MACRON
Ī	012A	LATIN CAPITAL LETTER I WITH MACRON
1	012B	LATIN SMALL LETTER I WITH MACRON
Ō	014C	LATIN CAPITAL LETTER O WITH MACRON
ō	014D	LATIN SMALL LETTER O WITH MACRON
Ū	016A	LATIN CAPITAL LETTER U WITH MACRON
ū	016B	LATIN SMALL LETTER U WITH MACRON
$ar{ ext{Y}}$	0232	LATIN CAPITAL LETTER Y WITH MACRON
y	0233	LATIN SMALL LETTER Y WITH MACRON

If it is desired to use the modern convention of a macron to indicate length, all six vowels with macron are present in precomposed form in Unicode (given at left for easy reference). The 19 century convention of using a circumflex for long vowels can be represented, if needed, with the precomposed circumflex vowels found in the Latin-1 Supplement range of Unicode (\hat{Y}/\hat{y} are at 0176/0177).

Ă ă	0102 0103	LATIN CAPITAL LETTER A WITH BREVE
a Ě	0103 011A	LATIN SMALL LETTER A WITH BREVE LATIN CAPITAL LETTER E WITH BREVE
ě	011B	LATIN SMALL LETTER E WITH BREVE
Ĭ	012C	LATIN CAPITAL LETTER I WITH BREVE
ĭ Ŏ	012D	LATIN SMALL LETTER I WITH BREVE
ŏ	014E 014F	LATIN CAPITAL LETTER O WITH BREVE LATIN SMALL LETTER O WITH BREVE
Ŭ	016C	LATIN CAPITAL LETTER U WITH BREVE
ŭ	016D	LATIN SMALL LETTER U WITH BREVE

To mark a vowel specifically as short, the precomposed vowel + breve combinations are recommended . \check{Y}/\check{y} are not encoded, however, so Y/y followed by U+0306 COMBINING BREVE would be used. If a PUA codepoint for

the latter is needed until combining marks are handled better, use E376/E776, as found in the Titus font.

F. Sicilicus

This relatively rare diacritic (representing a doubled consonant, esp. over V in words such as SERVS = seruus) can be encoded using 0357 COMBINING HALF RING ABOVE. This seems a better choice to me than U+0309 COMBINING HOOK ABOVE since the latter is intended as a tone mark in Vietnamese and since the shape of U+0357 is closer to that used by the Romans.

G. Latin extensions for Gaulish

	AICI	EATIN CALITAL LETTER D WITH SHORT STROKE OVERLAT
	A7C8	LATIN SMALL LETTER D WITH SHORT STROKE OVERLAY
	A7C9	LATIN CAPITAL LETTER S WITH SHORT STROKE OVERLAY
	A7CA	LATIN SMALL LETTER S WITH SHORT STROKE OVERLAY
	A7F5	LATIN CAPITAL LETTER REVERSED HALF H
	A7F6	LATIN SMALL LETTER REVERSED HALF H
Ι	A7F7	LATIN EPIGRAPHIC LETTER SIDEWAYS I
		These characters were devised to enable Gaulish to be written in the Latin al-
		phabet, rather than in Greek letters as had been done earlier. They are found in
		inscriptions from Gaul and are included here for completeness, although not

I ATIN CADITAL LETTED D WITH SHOPT STROVE OVEDLAV

H. Lines for general abbreviations

□ 0305 COMBINING OVERLINE

 $\Delta 7C7$

This character is specifically designed to connect visually and form a continuous line, which is usually what we find in Latin inscriptions. If adjacent letters with non-connecting overline are desired, use a macron, either the precomposed forms when they exist, or the COMBINING MACRON U+0304 after a base letter. Smart font technology is needed to postion the combining marks correctly, both horizontally and vertically.

⊕ 0336 COMBINING LONG STROKE OVERLAY

used for texts in Latin.

Use this to construct abbreviations where the stroke goes through the letter. Smart font technology is needed to position the overlay at the right height and to supply a glyph with an overlay of the proper length. There is also a COMBINING SHORT STROKE OVERLAY at U+0335. I suggest standardizing on one overlay (the long one) for abbreviations and using smart font technology to get the desired appearance.

II. Numerals

Roman numerals should normally be represented by the standard Roman letters I, V, X, L, D, C, and M. Epigraphers may use the alternate characters when they wish to show specific forms such as the early fifty or the late form of six. The Roman numeral forms in Unicode that duplicate the standard Latin letters (U+2160–217F) were put there for use in East Asian text (often printed vertically) and should not be used in Latin script.

○ 0305 COMBINING OVERLINE

Roman numerals are barred above to indicate multiplication by 1,000, when used as a prefix on words (IIviri = duumviri), when used as ordinal adverbs, and sometimes for other reasons. In all these cases, use the COMBINING OVERLINE; see I.G above.

007C VERTICAL BAR

A bar above and a vertical line on either side of a numeral indicate multiplication by 100,000. Use U+007C for the latter. Smart font technology may be needed to get the corners of the overline and the vertical bar lined up right.

- C 2185 ROMAN NUMERAL SIX LATE FORM, found most often in Christian inscriptions.
- F 03DC GREEK CAPITAL LETTER DIGAMMA
- Q 03DA GREEK CAPITAL LETTER STIGMA

Some Roman coins minted in the East, with legends in Latin, use the Greek digamma or stigma with the numeric value of six. Use the appropriate Greek characters in such cases, with glyph variants as needed (e.g., sometimes the Digamma looks more like a Gamma).

- D glyph var. The Romans wrote the numeral for 500 with a horizontal bar. I suggest treating this as a glyph variant of the letter D, since standard Latin letters are normally used for Roman numerals. This also makes it easy to search for (users don't have to enter a special codepoint). It could, however, be encoded as D followed by U+0336, COMBINING LONG STROKE OVERLAY. The characters Đ U+00D0 LATIN CAPITAL LETTER ETH or Đ U+0110 LATIN CAPITAL LETTER D WITH STROKE or Đ U+0189 LATIN CAPITAL LETTER AFRICAN D should not be used.
- \Box 2186 ROMAN NUMERAL FIFTY EARLY FORM; glyph variants \downarrow and \bot
- © 2180 ROMAN NUMERAL ONE THOUSAND CD

This is the original form. The Romans did not write 1000 with the letter M except in a few abbreviations (mille passus, e.g.,). There is a common later form of this character that looks somewhat like a mathematical infinity sign. It is best to treat this as a glyph variant of U+2180 because using characters with mathematical properties such as U+221E outside of mathematical contexts occasionally causes problems. This character and the following ones have many glyph variants which can be accommodated with smart font technology.

- D 2181 ROMAN NUMERAL FIVE THOUSAND
- © 2182 ROMAN NUMERAL TEN THOUSAND
- O 2183 ROMAN NUMERAL REVERSED ONE HUNDRED Unicode states that the letter C can be used with O U+2183 and the letter I to represent larger values. It is better is to use the following two characters which were added in Unicode 5.1.
- 2187 ROMAN NUMERAL FIFTY THOUSAND
- **■** 2188 ROMAN NUMERAL ONE HUNDRED THOUSAND

III. Units of Weight

Tables of weights are found in di Stefano Manzella p. 309 and OCD³ p ???. They agree except with regard to the sextula; see below.

- I 0049 The libra (pound) is represented by the Roman numeral I, for which use the ordinary capital letter I.
- = 10190 ROMAN SEXTANS SIGN
- 10191¹ ROMAN UNCIA SIGN

These shapes are similar to the Aegean numbers one and two, U+10110 and 10111, except that the lines are longer. The uncia has glyph variants including a dot (common on Republican coins), \sim , \sim , and $\stackrel{\leftarrow}{\tau}$. The sextans has a glyph variant \square (probably the two lines formed without lifting the pen) or Z. See Capelli p. 411. Because of the glyph variants, it was not considered appropriate to unify the uncia and sextans with the two Aegean numbers. Should numismatists encode the dot (aka "pellet") with U+10191 or something like U+2022 BULLET $\stackrel{\bullet}{\tau}$?

S 0053 The semis (1/2 as or 6 unciae) is represented by the letter S, which is also used in other situations as an abbreviation for one half.

Note that all the fractions from the deunx down to the quadrans can be built by combining the letter S, the uncia, and/or the sextans. Use these characters to make the other fractions.

□ 10192 ROMAN SEMUNCIA SIGN

The semuncia sign was almost certainly a Greek Sigma in origin, whose central point was lowered and squished as time went on. It is denoted with the glyphs Σ , ξ , ε , ε , and ε recheck the last. The latter two glyphs are not found in Greek, and the character represents a specifically Roman monetary unit, so the semunica was accepted as a separate character in Unicode.

) 10140 GREEK ACROPHONIC ATTIC ONE QUARTER (= Roman sicilicus)

While the symbol for the Roman sicilicus (1/48 of an as or ½ of an uncia, and not the same as the diacritic for doubled consonants) was probably not borrowed from the Greek acrophonic sign, the fact that the latter has the correct value and the correct shape made it unnecessary to propose a separate character.

□ 10193 ROMAN SEXTULA SIGN

The sextula is 1/72 of an as or 1/6 of an uncia; it has a glyph variant \Im . Binae sextulae or duella is shown by two of the reversed S glyphs or by the variant L.

- 10194 ROMAN DIMIDIA SEXTULA SIGN; has a glyph variant ???.
- Э 2108 SCRUPLE

This apparently was added to represent a medical symbol. Since it has the correct shape, it may be used for the ancient Roman scripulum (1/288 of an as or 1/24 of an uncia). The Roman scripulum has a glyph variant ??.

10195 ROMAN SILIQUA SIGN; the siliqua is 1/1728 of an as or 1/144 of an uncia.

1

¹ All characters with five-digit Unicode values belong to one of the supplementary planes. Most software nowadays displays supplementary characters without difficulty, but a few programs still cannot handle them; this is probably the reason if you enter them but can't see them.

IV. Monetary Signs

NB: currency property

10196	ROMAN DENARIUS SIGN
10197	ROMAN QUINARIUS SIGN, with glyph variant S (for semis, since a quinarius is one half of a denarius)
10198	ROMAN SESTERTIUS SIGN, with glyph variants H \mathfrak{E} and [IS SS S all with bars]
10199	ROMAN DUPONDIUS SIGN; glyph variant 4
1019A	ROMAN AS SIGN; glyph variants and [stroke with spur at lower right]

This sign, referred to as *as libralis*, is mentioned in Hans Biedermann and Inge Schwarz-Winklhofer, *Das Buch der Zeichen und Symbole*, Graz 1980. I have not seen it elsewhere and have not actually consulted this book; more info needed. It is in the MUFI spec in the PUA at F2E0.

Note that some Republican coins use the same weight symbols discussed above (I for one as, S for semis, and dots rather than lines for the uncia and its multiples).

V. Other characters

7 1019B ROMAN CENTURIAL SIGN

This is specifically the military symbol, distinct from the reversed C character. There are many other versions of this sign, including the reversed C, that should be treated as glyph variants: >>7 \cdot \cdot

1019C ASCIA SYMBOL (Unicode 13) add to Cardo

This symbol (a workman's tool, variously identified as an adze, axe, or hoe) is found on many gravestones in the area around Lugdunum (Lyon). The reference glyph faces to the left, but right-facing examples are also found.

- Θ/θ 0398/B8 GREEK CAPITAL/SMALL LETTER THETA is sometimes used to indicate a deceased person. There is some uncertainty about this; Hübner recommended that the "deceased" abbreviation not be conflated with theta, and medievalists consider it an abbreviation for *obiit*. This is probably best left up to the judgment of individual editors. If the editor believes it really is a theta, use the standard Unicode Greek letters. Otherwise use U+A74A LATIN CAPITAL LETTER O WITH LONG STROKE overlay Θ or U+A74B LATIN SMALL LETTER O WITH LONG STROKE OVERLAY Θ. These are preferable to U+019F LATIN CAPITAL LETTER O WITH MIDDLE TILDE Θ, whose lowercase is U+0275 LATIN SMALL LETTER BARRED O Θ, because the strokes of the former continue beyond the edges of the O and therefore are not apt to be confused with Theta.
- v 0076 LATIN SMALL LETTER V, = vivit, normally smaller and raised to the left of a person's name in lists. should this be capital?? U+1D20 LATIN LETTER SMALL CAPITAL V is also a possibility
- M The abbreviation for modius should be encoded as the letter M followed by U+0366, COMBINING LATIN LETTER SMALL O. Smart font technology may be needed to get an appropriate display.

VI. Punctuation

00B7

The interpunct is a very common character in inscriptions and is difficult in Unicode. U+00B7 MIDDLE DOT is the character that I have suggested in the past for the interpunct and it remains the first choice (for now). Another option is U+2022 BULLET, which has a larger diameter than MIDDLE DOT. Both of these have the punctuation property, are found in many fonts, and have approximately the right shape. Another issue is line breaking; applications should break lines, if needed, after an interpunct even if no space character is entered, which does not happen with these two characters. In inscriptions, aside from the dot, one finds horizontal wedge shapes, triangles, and (in Republican texts) a square; all made with one stroke of a punch. There are also hederae and star-shaped forms (latter made with two overlapping strokes of a triangular punch). U+2023 TRI-ANGULAR BULLET has an appropriate shape, but exhibits the same line breaking behavior as the two round characters.

Despite the line-breaking problems, at the moment there is no better alternative to U+00B7. I suggest that this be used for most interpuncts and that smart fonts provide various alternate glyphs. Unicode does provide appropriate characters for encoding the hedera and the ramulus, sometimes used as interpuncts, and editors may use them to show the presence of these specific forms

A new character is making its way through the Unicode approval process, tentatively assigned as U+2E31 WORD SEPARATOR MIDDLE DOT. I am searching for more information about this character. If it turns out to have line breaking properties, then it will be preferable as the Latin interpunct.

P 204B

The PARAGRAPHUS has the shape Γ in Roman texts and is used to mark the beginning of a section of text. Rather than proposing a new character, I suggest treating this as a variant (actually, several variants) of U+204B REVERSED PILCROW SIGN \P . U+00B6 PILCROW SIGN \P is the usual division marker, but the former has a shape more similar to that found in MSS. U+2E0F PARAGRAPHOS is not suitable since it has the wrong shape and is specifically identified as an ancient Greek textual mark. This mark continued in use throughout the Middle Ages, often with a gallows-shape such as Γ (MUFI at F1E1). I would like information about this character in classical Latin; Capelli lists a P with right foot shape and nothing else.

The SIMPLEX DUCTUS is used to mark a pause, which usually correlates with a break in the sense. It appears in a few manuscripts and a few inscriptions. See MUFI at F1E3. There are a few other punctuation marks mentioned by Roman grammarians; are these used enough that they need to be encoded? MUFI has some of them in the PUA.

₹ 2766 FLORAL HEART BULLET

This character is specified in Unicode as a hedera. U+2767 № ROTATED FLORAL HEART BULLET and U+2619 № REVERSED ROTATED FLORAL HEART BULLET are also available. They are traditional shapes for printers' ornaments in western typography. U+2766 is the choice for the hedera in Latin inscriptions; fonts need to make appropriate shapes available, since Roman hederae do not look quite like the modern printers' ornaments; a more typical Roman shape would be $^{\circ}$.

Occasionally found to mark divisions of text and as a decoration on coins.

VII. Modern Editorial Signs

*	002A	ASTERISK
[]	005B/005D	LEFT SQUARE BRACKET / RIGHT SQUARE BRACKET
{}	007B/007D	LEFT CURLY BRACKET / RIGHT CURLY BRACKET
[/]	2045/2046	LEFT SQUARE BRACKET WITH QUILL / RIGHT SQUARE BRACKET WITH QUILL
 /-	2E20/2E21	LEFT VERTICAL BAR WITH QUILL / RIGHT VERTICAL BAR WITH QUILL
Г1	2E22/2E23	TOP LEFT HALF BRACKET / TOP RIGHT HALF BRACKET In general use U+2E22 in preference to the similar-looking U+2E00, which is part of a set of New Testament punctuation.
LJ	2E24/2E25	BOTTOM LEFT HALF BRACKET / BOTTOM RIGHT HALF BRACKET
<>	003C/003E	LESS-THAN SIGN / GREATER-THAN SIGN. These were used in the past as a substitute for true angle brackets, which are now available in Unicode (see below).
†	2020	DAGGER
‡	2021	DOUBLE DAGGER
•	0323	COMBINING UNDERDOT Unicode contains a large number of precomposed letters with underdot in the Latin Extended Additional range, including all the Latin alphabet. To locate these, see the code chart at http://www.unicode.org/charts/PDF/U1E00.pdf . Any additional characters with underdot that may be required should use U+0323 COMBINING UNDERDOT, in which case smart font technology will be needed for good appearance.
()	2329/232A	LEFT-POINTING ANGLE BRACKET / RIGHT-POINTING ANGLE BRACKET. Do not use the similar-looking U+3008/09, which are specific to East Asian text and are normally double-width, or U+27E8/E9, which are for mathematics.
$\llbracket \ \rrbracket$	27E6/27E7	MATHEMATICAL LEFT WHITE SQUARE BRACKET /MATHEMATICAL RIGHT WHITE SQUARE BRACKET
ô	0361	COMBINING DOUBLE INVERTED BREVE This character may be used over two letters to indicate a ligature. If it is preferred to use a circumflex over the first letter of a ligature, the many precomposed circumflex forms may be used, or a base letter followed by U+0302 COMBINING CIRCUMFLEX.
\subset	2E26/27	LEFT SIDEWAYS U BRACKET / RIGHT SIDEWAYS U BRACKET These sideways brackets are used in <i>CIL</i> to denote Claudian letters, inverted letters, or images. The SUBSET OF and SUPERSET OF characters (U+2282 and 2283) are mathematical operators and so should not be used; in addition the legs of the glyphs are too short.
()	2E28/29	LEFT DOUBLE PARENTHESES / RIGHT DOUBLE PARENTHESES Some editors use double parentheses for similar purposes similar to the sideways U brackets.