

Universal Multiple-Octet Coded Character Set  
International Organization for Standardization  
Organisation Internationale de Normalisation  
Международная организация по стандартизации

**Doc Type:** Working Group Document  
**Title:** Proposal to add Claudian Latin letters to the UCS  
**Source:** Michael Everson  
**Status:** Individual Contribution  
**Date:** 2005-08-12

The Roman emperor Claudius introduced three letters to the alphabet to indicate sounds he felt could not be represented otherwise. Although these letters originally occurred only in capital form (because there were no lowercase letters in antiquity), the lowercase forms have been introduced to meet Unicode casing requirements as well as for theoretical symmetry.

- <C̅> > REVERSED C or *antisigma* represented the consonant groups <bs> and <ps>. This character is also used as a medieval abbreviation for *con* and *com* in *ᶑo2 convenientior* ‘more suitable, in agreement’, *ᶑpaᶑ comparavit* ‘bought’, for *-us* and *-os* in Latin in *totᶑ totus* ‘all’, *tuᶑ tuos* ‘your’, in Portuguese in *todᶑ todos* ‘all’, *doᶑ dous* ‘two’, and in Old Icelandic *ᶑa kona* ‘woman’.
- <H̅> > TURNED F or *digamma inversum* represented consonantal <v> (as opposed to *u*)
- <F̅> > HALF H represented the Greek <y>, a sound between that of *u* and *i*.

**Glyph design.** Apart from the REVERSED C, the lowercase letters here have not enjoyed a continuous evolution, and so therefore the preferred glyph shapes may be a matter of some conjecture. After consultation with a number of experts, I have settled on the simplest choice, namely to give these letters in reduced “small capital” form, so for the TURNED F in LAᶑINIO, we have lowercase Laᶑinio, italic *Laᶑinio*, and for the HALF H in OLF̅MPICUS we have lowercase Olf̅mpicus, italic *Olf̅mpicus*. (Compare Figure 8, the Corpus Inscriptionum Latinarum transcription *Ol̅cyᶑmpicus* can be seen, where the letter itself was not used.)

**Character unification.** A good unification of two of the Claudian letters can be made with characters already in the standard. U+2183 ROMAN NUMERAL REVERSED ONE HUNDRED is an acceptable capital for the proposed \*U+2184 LATIN SMALL LETTER REVERSED C. U+2132 TURNED CAPITAL F is clearly the same thing as the *digamma inversum* and should pair with the proposed \*U+214E LATIN SMALL LETTER TURNED F. Those two, and \*U+2C75 LATIN CAPITAL LETTER HALF H and \*U+2C76 LATIN SMALL LETTER HALF H are proposed for encoding. With regard to the name of \*U+214E, the name LATIN SMALL LETTER TURNED F is more appropriate than the name TURNED SMALL F because the latter could imply a small-letter-f glyph; TURNED SMALL CAPITAL F would be more accurate in this case, but I prefer the LATIN SMALL LETTER TURNED F for the Claudian letter; U+2132 *should* have been named \*LATIN CAPITAL LETTER TURNED F, though it is too late for that. There is precedent for this: compare the poor name U+0195 LATIN SMALL LETTER HV with its correctly-named case-partner U+01F6 LATIN CAPITAL LETTER HWAIR which was added subsequently.

### Linebreaking

Opportunities for hyphenation occur after any full orthographic syllable. Lepcha punctuation marks can be expected to have behaviour similar to that of Devanagari DANDA and DOUBLE DANDA.

## Unicode Character Properties

Currently the characters U+2132 and U+2183 have the following properties:

```
2132;TURNED CAPITAL F;So;0;ON;;;;;N;TURNED F;;;;  
2183;ROMAN NUMERAL REVERSED ONE HUNDRED;N1;0;L;;;;;N;;;;;
```

In accordance with the suggestions given in Ken Whistler's document L2/05-191, the following properties, including property changes to U+2132 and U+2183 are proposed. The properties proposed to be changed are underlined:

```
2132;TURNED CAPITAL F;Lu;0;L;;;;;N;TURNED F;;;;;214E  
214E;LATIN SMALL LETTER TURNED F;L1;0;L;;;;;N;;;2132;;2132  
2183;ROMAN NUMERAL REVERSED ONE HUNDRED;Lu;0;L;;;;;N;;;;;2184  
2184;LATIN SMALL LETTER REVERSED C;L1;0;L;;;;;N;;;2183;;2183  
2C75;LATIN CAPITAL LETTER HALF H;Lu;0;L;;;;;N;;;2C76;  
2C76;LATIN SMALL LETTER HALF H;L1;0;L;;;;;N;;;2C75;;2C75
```

## Bibliography.

Cagnat, René. 1914. *Cours d'épigraphie latine*. Quatrième édition. Paris: [s.n.].

Corpus Inscriptionum Latinarum. 1996. Vol. VI *Inscriptiones urbis Romae Latinae*. Pars VIII fasc. II Titulos imperatorum domusque eorum thesauro schedarum imaginumque ampliato edidit Géza Alföldy. Berolini; Novi Eboraci: Gualterus de Gruyter ISBN 3-11-015194-4.

Diringer, David. 1968. *The alphabet: a key to the history of mankind*. Third edition. 2 vols. New York: Funk & Wagnalls.

Février, James. 1995. *Histoire de l'écriture*. Paris: Éditions Payot & Rivages. ISBN 2-228-88976-8

Jensen, Hans. 1969. *Die Schrift in Vergangenheit und Gegenwart*. 3., neubearbeitete und erweiterte Auflage. Berlin: VEB Deutscher Verlag der Wissenschaften.

## Figures.

Although there were even in Roman times a few tentative additions of letters, such as a variant of **M** introduced by Verrius Flaccus of Augustus' time, and especially the introduction by the Emperor Claudius (10 B.C.–A.D. 54) of the *digamma inversum*, **Ϝ**, for the sound *w-v* in order to distinguish it from *u*, of the reverse **Ϟ** (ϟ), the *antisigma*, for the combination *ps*, and of the half **Ϟ** (ϟ) for an intermediate sound between *u* and *i*, on the whole it can be said that the aforementioned alphabet of twenty-three letters was constantly used, with the same order of the letters, not only in the monumental writing of the Roman period, but also as capital letters of the Latin alphabet during the Middle Ages and in printing until the present day.

**Figure 1.** Sample from Diringer 1968 showing U+2132 TURNED CAPITAL F, U+2183 ROMAN NUMERAL REVERSED ONE HUNDRED, and LATIN CAPITAL LETTER HALF H.



22.7b. Marble slab from Arch of Claudius, Capitoline Museum, Rome (C.I.L. VI, 921).

**Figure 2.** Sample from Diringer 1968 with U+2132 TURNED CAPITAL F in the text *sacerdoti disi*.

Auch in späterer Zeit wurden noch ein paarmal Versuche gemacht, neue Schriftzeichen zu schaffen, sie hatten freilich keinen bleibenden Erfolg. So wurde seit Sulla bis in die Kaiserzeit, wo die übrigen langen Vokale durch den Apex ' bezeichnet wurden, für langes *i* oder auch *ij* ein besonders langes | (*i longa*) geschrieben; der unter dem Kaiser Augustus lebende Grammatiker Verrius Flaccus erwog die Schreibung des verklingenden auslautenden *m* vor folgendem vokalischem Anlaut durch **Ϟ**; der für grammatische Dinge sehr interessierte Kaiser Claudius (41–54 u. Z.) versuchte sogar, gleich drei neue Buchstaben einzuführen, nämlich **Ϝ** für das konsonantische *v* im Gegensatz zum vokalischen *v* (*u*), des weiteren **Ϟ** für *y* in griechischen Wörtern sowie für den Mittellaut zwischen *u* und *i* in Wörtern wie *lacruma* (neben *lacrima*), *libet* (neben *libet*) u. a., endlich **Ϟ** (das sog. „Antisigma“) für die Konsonantengruppe *ps* oder *bs*. Die beiden ersten claudianischen Neuerungen finden sich in der Tat in Inschriften seiner Zeit, z. B. **Ϟ**LAIVIO = *Lavinio* (aus Pompeji); dauernden Erfolg haben sie so wenig wie die anderen Versuche gehabt.

**Figure 3.** Sample from Jensen 1969 showing U+2132 TURNED CAPITAL F, U+2183 ROMAN NUMERAL REVERSED ONE HUNDRED, and LATIN CAPITAL LETTER HALF H.

Le zèle des réformateurs ne s'arrêta point là. Aux environs de notre ère le grammairien Valerius Flaccus, constatant que dans les désinences *-am*, *-um*, le *m* était à peine perçu, voulait le noter à l'aide de la moitié antérieure du *M*. Idée ingénieuse, mais qui ne trouva pas d'écho. L'empereur Claude (+41 à +54), qui se piquait d'érudition, introduisit trois nouveaux signes dans l'alphabet latin: l'un, l'antisigma, *Ϟ*, destiné à noter le *ps*, n'est pas une consonne véritable, mais un groupe de deux consonnes. Plus intéressantes étaient les deux autres innovations, qui consistaient à rendre la voyelle *u* (*ou* français) au moyen du digamma renversé *ϙ*, le faire à réserver le *V* comme consonne, et à employer le signe *ϙ* pour noter un son intermédiaire entre *u* (*ou* français) et *i*, soit probablement quelque chose d'analogue à l'*u* français et à l'*ü* allemand. En fait ces deux derniers signes se rencontrent parfois sur les inscriptions monumentales de l'époque de Claude, mais l'usage en a vite disparu.

Figure 4. Sample from Février 1995, showing U+2132 TURNED CAPITAL F, U+2183 ROMAN NUMERAL REVERSED ONE HUNDRED, and LATIN CAPITAL LETTER HALF H.



Fig. α

Fig. β

Fig. γ

[Ti(berio) Claudio Caisari Augu]sto German(ico), pontif(ici) maxim(o),  
 [Larib(us) domnic(is) decur(iae) et c]ollegio Augustiano maiori cast(rensi),  
 [mag(istri) coll(egii) huius anni] d(e) s(ua) p(ecunia) d(ono) d(ederunt) aediculam marm(oratam) ita ut est:  
 [- - - Aug(usti) (scil. servus) Iulianus pediseq(uus), T]i(berius) Claudiu(s) Aug(usti) l(ibertus) Soterichus,  
 5 [M(arcus) Livius Augustae liberti lib(ertus) Tanais, T]i(berius) Iulius Olc(ym)picus, q(uaestor) primus fact(us) ex decurion(ibus?),  
 [- - - Attalus (?), T]i(berius) Iulius Daphnus d(ecurio); dedic(atum) K(alendis) Aug(ustis) Hosid(io) Geta, Flavio Sabin(o) co(n)s(ulibus).  
 [- - - Iul]ia Olc(ym)pic(i) fil(ia) Saturnina aedicul(am)  
 [vi terrae matus dil]psam reficiu]nd(am) de s(ua) p(ecunia) curaverunt isdem dedicarunt  
 [Kal(endis) Aug(ustis) Sulla Felice Ma]rcio Barea Soran(o) co(n)s(ulibus)].

Fig. α: Im. phot. frg. a-b ex neg. *Ist. Ep.* n. 14.282 (adde neg. G. A. n. 25,16. 17; im. phot. transluc. G. A.).

Fig. β: Im. phot. frg. e a PANCIERA publici iuris facta.

Fig. γ: Im. phot. frg. c-d ex neg. *Ist. Ep.* n. 10.665.

Fig. c-d publici iuris fecit C. PIETRANGELI, *BCAR* 68, 1940 (1941), 177 n. 6 (cf. A. DEGRASSI, *Doxa* 2, 1949, 53. 71 = *Scritti vari* I 321 s. 341). - Fig. a-d coniuncta: GIGLIOLI, *l. l.* cum im. phot. ectypi fig. 2 (cf. *AE* 1953, 24); GORDON, *Album I* 91 s. n. 91 cum tab. 39 b (im. phot. frg. c-d) et 40 a (im. phot. ectypi frg. coniunctorum a-d). - Ad frg. e se referre videtur (quod monuit PANCIERA 1980, 208 adn. 55) DEGRASSI, *Fasti consolari* 14 ad a. 52, ubi mentionem fecit tituli cuiusdam fracti, quo Marcium Barea Soranum consulens d. 10 Aug. commemoratum dixit, i. e. coniunxit mentionem diei v. 6 (pro K. Aug. errore d. 10 Aug.) cum mentione consulis v. 9 (a DEGRASSI pendent SMALLWOOD, *l. l.* p. 4; GALLIVAN, *Class. Quart.*, *l. l.* 409; VOGEL-WEIDEMANN, *l. l.* 429). - Fig. a-e: PANCIERA, *QuadAeI* 4, 1980, 207-209 cum im. phot. tab. L 1 (ex GORDON, *l. l.* tab. 40 a) et 2 (im. phot. frg. e) (inde *AE* 1980, 57 B). - De fragmentis coniunctis cf. AUCTORES supra ad titulum n. 40414 laudatos.

Litt. G solito modo insculpta differt a litt. G tituli n. 40414, quae supra dextrorsum prolongata est et infra (praeter v. 1) habet lineam curvatam pro recta. - 2 ex. *cast.* litt. minoribus fortasse postea additum (PANCIERA). - 3 *marm(oratam)*: litt. postrema in litura, ubi fuit scriptum OR, e. MAROR pro MARMOR. - 5 et 7 nomen *Olympicus* litt. Claudiana F scriptum pro litt. Y. - 6 ex. litt. O minuscula.

Supplevit PANCIERA. - 1 in. [Ti. Claudio Drusi f. Caisari Augu]sto GIGLIOLI, [- - - Augu]sto GORDON. - 2 in. [- - - coll]egio GIGLIOLI. - 2 ex. *cast(rensi)* GIGLIOLI, GORDON. - 3 in. [- - -] d. s. p. GIGLIOLI, GORDON. - 4 in. [- - - T]i. GIGLIOLI, GORDON. - 5 [- - - T]i. Iulius Oly[mpicus] q(ui) primus fact(us) ex decurion(ibus) GIGLIOLI, [- - - T]i. Iulius Oly[mpicus] q(ui) primus fact(us) ex decurion(ibus) vel decurion(um) GORDON, resolvere potuimus item ex decurion(e). - 5-6 [alle]ctus ex decurion(um) | [decreto - - -] PIETRANGELI. - 6 in. [- - - Ti. Iulius Daph]nus; dedicatum K. Aug. Hosidio GIGLIOLI, [- - - Ti. Iulius Daph]nus dedicatum K. Aug. GORDON. - 6 ex. Sabino PANCIERA, errore typographico. - 7 [reficiu]ndam *AE* 1980, errore typographico. - 9 [- - -] iisd[em] GIGLIOLI, [- - -] iisd[em] GORDON.

Figure 5. CIL VI 40415 from Corpus Inscriptionum Latinarum 1996, showing LATIN CAPITAL LETTER HALF H along with a transcription of the text.

Il faudrait ajouter à ce tableau, outre le Y et le Z, trois caractères qui ne furent employés que très peu de temps dans l'alphabet latin, après y avoir été introduits par l'empereur Claude<sup>2</sup>. Ce sont :

- a) le *digamma inversum*,  $\text{Ɔ}$ , destiné à remplacer le V consonne, par exemple dans le mot :  $\text{ƆVLGVS}$ <sup>3</sup> ;
- b) l'*antisigma*,  $\text{Ⓞ}$ , destiné à exprimer le son *ps*<sup>4</sup> ;
- c) le signe  $\text{Ⓛ}$  (demi-aspiration), qui devait être employé à traduire le son intermédiaire entre V et I, « *pingius quam I, exilius quam V* »<sup>5</sup>, comme était le son de la voyelle médiane dans *optumus* = *optimus*, celui de la voyelle initiale dans *luido* = *libido*.

Cette fantaisie orthographique d'un empereur grammairien,

1. L'alphabet du temps de Constantin n'est qu'une imitation un peu lourde des alphabets de la belle époque. L'exemple le plus soigné qu'on en possède est celui que fournit l'arc de Constantin à Rome (Cf. notre planche XX).

2. Cf. Bücheler, *De Ti. Claudio Caesare grammatico*, Elberfeld, 1856, in-8°. Voir aussi *Rhein. Museum*, 1858, p. 155, et Corssen, *Aussprache*, I (2<sup>e</sup> édit.), p. 26 et suiv.

3. Priscien., *Inst. grammat.*, I, 4, 20 : *V uero loco consonantis posita eandem prorsus in omnibus uim habuit apud Latinos quam... digamma... Pro quo Caesar hanc Ɔ figuram scribi uoluit*. Cf. Quintil., *Inst. orat.*, I, 7, 27, et Aul. Gell. *Noct. attic.*, XIV, 5, 2.

4. Priscien., *Inst. grammat.*, I, 7, 42 : *Huic (litterae S) praeponitur P et loco Ψ graecae pingitur, pro quo Claudius Caesar antisigma Ⓞ hac figura scribi uoluit*.

5. Marius Victorinus, p. 2465. (Edit. Putsch.)

**Figure 6.** From Cagnat 1914, showing U+2132 TURNED CAPITAL F, U+2183 ROMAN NUMERAL REVERSED ONE HUNDRED, and LATIN CAPITAL LETTER HALF H.

## A. Administrative

### 1. Title

Proposal to add Claudian Latin letters to the UCS.

### 2. Requester's name

Michael Everson

### 3. Requester type (Member body/Liaison/Individual contribution)

Individual contribution.

### 4. Submission date

2005-08-12

### 5. Requester's reference (if applicable)

### 6. Choose one of the following:

#### 6a. This is a complete proposal

Yes.

#### 6b. More information will be provided later

No.

## B. Technical – General

### 1. Choose one of the following:

#### 1a. This proposal is for a new script (set of characters)

No.

#### Proposed name of script

#### 1b. The proposal is for addition of character(s) to an existing block

Yes.

#### 1b. Name of the existing block

Latin Extended-C.

### 2. Number of characters in proposal

4

### 3. Proposed category (see section II, Character Categories)

Category A.

#### 4a. Proposed Level of Implementation (1, 2 or 3) (see clause 14, ISO/IEC 10646-1: 2000)

Level 1.

#### 4b. Is a rationale provided for the choice?

Yes.

#### 4c. If YES, reference

Spacing letters.

#### 5a. Is a repertoire including character names provided?

Yes.

#### 5b. If YES, are the names in accordance with the naming guidelines in Annex L of ISO/IEC 10646-1: 2000?

Yes.

#### 5c. Are the character shapes attached in a legible form suitable for review?

Yes.

#### 6a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?

Michael Everson. TrueType.

#### 6b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

Michael Everson. Fontographer.

#### 7a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

Yes.

#### 7b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

Yes.

#### 8. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

Casing is addressed.

#### 9. Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script.

Functions and properties are like all Latin capital and small letters.

## C. Technical – Justification

### 1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

Yes. The Claudian letters are part of a preliminary proposal in N2957, which does not contain the proposal summary form. Here, however, they are proposed on their own.

### 2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?

Yes.

**2b. If YES, with whom?**

Marcus Dohnicht of the Corpus Inscriptionum Latinarum.

**2c. If YES, available relevant documents**

**3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?**

No.

**4a. The context of use for the proposed characters (type of use; common or rare)**

These are rarely-used characters used in Latin epigraphy.

**4b. Reference**

**5a. Are the proposed characters in current use by the user community?**

There are font implementations used by specialists.

**5b. If YES, where?**

See the figures above.

**6a. After giving due considerations to the principles in Principles and Procedures document (a WG 2 standing document) must the proposed characters be entirely in the BMP?**

Yes.

**6b. If YES, is a rationale provided?**

Yes.

**6c. If YES, reference**

Keep with other Latin letters.

**7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?**

If possible.

**8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?**

No.

**8b. If YES, is a rationale for its inclusion provided?**

**8c. If YES, reference**

**9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?**

No.

**9b. If YES, is a rationale for its inclusion provided?**

**9c. If YES, reference**

**10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?**

No.

**10b. If YES, is a rationale for its inclusion provided?**

**10c. If YES, reference**

**11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?**

No.

**11b. If YES, is a rationale for such use provided?**

**11c. If YES, reference**

**12a. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?**

No.

**12b. If YES, reference**

**13a. Does the proposal contain characters with any special properties such as control function or similar semantics?**

No.

**13b. If YES, describe in detail (include attachment if necessary)**

**14a. Does the proposal contain any Ideographic compatibility character(s)?**

No.

**14b. If YES, is the equivalent corresponding unified ideographic character(s) identified?**

**14c. If YES, reference**