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Date: 6th September 2021

**Title:** Proposal to encode the Northern Palaeohispanic script

#### 1. Summary

Palaeohispanic scripts are attested in the Iberian Peninsula by *ca.* 2,700 inscriptions dating from the 7th century BC to the 1st century AD. They were used to write at least four different local languages: Celtiberian, Iberian, the south-western or Tartessian language and probably as well Turdetanian. Although the longest inscription contains *ca.* 500 words, most long texts rarely reach over 50 words; others, on the other hand, are very short and contain just a personal name or abbreviations.

The Palaeohispanic script family consists of several scripts that can be divided into 2 types: the northern (with ca. 2,500 inscriptions) and the southern group (with ca. 170 inscriptions). That's why we codify them according to two different standards:

- 1. Northern Palaeohispanic, which includes the northeastern Iberian and the Celtiberian script.
- 2. Southern Palaeohispanic, which includes the south-eastern Iberian script, the south-western or Tartessian script, the Turdetan script and the Espanca abecedary.

All Palaeohispanic writing systems are characterized by a similar corpus of signs and by the coexistence of alphabetic and syllabic characters. Moreover, all of them share a common ancestor, which might ultimately arise from the Phoenician alphabet (see fig. 1). However, the differences between the two groups are too deep to be appropriately processed into a unique Unicode character set. The main obstacle is the different degree of decipherment between the two groups, which is almost complete for the northeastern Iberian group and still incomplete for at least a third of the signs attested in the southern scripts. The second obstacle is that many signs shared by these two groups actually have different values: it is the case for most of the vocalic signs, as well as for other frequent signs for which there is clear consensus on their value.

The decipherment of the northern Palaeohispanic scripts was accomplished at the beginning of the  $20^{th}$  century by Manuel Gómez-Moreno (1922, 1949). Nevertheless, some aspects were not entirely deciphered until very recent dates. Such is the case of a variant of this script called *the dual system*, which consists of the use of signs with two variants, each of them with its own distinctive value, differing from each other in presenting an additional stroke (e. g. X = da and X = ta). In fact, some concrete features of this system are even still undergoing research. Unlike the northern scripts, the southern scripts have not been fully deciphered, since there are many signs for which there is no agreed value among specialists. The non-deciphered characters will be named in this proposal after an arbitrary code, as it is currently in use in the specialized bibliography.

The Palaeohispanic inscriptions are being edited and digitalized in the Hesperia open access database (http://hesperia.ucm.es/), in the framework of a research project carried out by a team of scholars from different Spanish universities.

#### 2. Background

This proposal, together with the one devoted to "Southern Palaeohispanic", is an updated version of three earlier proposals: "L2/15-120-Preliminary proposal to encode the northeastern Iberian script";

"L2/15-119 Preliminary proposal to encode the southern Palaeohispanic scripts"; and L2/18-283 "Proposal to encode the Palaeohispanic script".

The last of them was an attempt to codify all the Palaeohispanic scripts together, under a single encoding. However, after submitting this possibility for analysis with several Unicode specialists, we have come to the conclusion that a separate codification for the southern and northern scripts makes it possible to better reproduce the graphematic system in the different scripts. The revised charts in the current proposal now reflect repertoires that reflect the graphemes in the writing systems. Therefore, two documents are produced, this one for the northern Palaeohispanic script, and another one for the southern Palaeohispanic script.

With the proposed repertoires, all characters in Northeastern Iberian and Celtiberian scripts can be represented. As with Old Italic, fonts will be used to represent the different alphabets of Iberia.

The earlier proposals, L2/15-120 and L2/15-119, contain detailed discussion on the characters, figures, and references. See also the article J. Ferrer, N. Moncunill, J. Velaza, "Toward a systematisation of Palaeohispanic scripts in Unicode: synthesising multiple transcription hypotheses into two consensus encodings", *Palaeohispanica* 15, 2015, pp. 13-55.

#### 3. Structure

All Palaeohispanic scripts are semisyllabic: vowels, nasals, laterals, sibilants, and trills are alphabetical, whereas characters for plosives are syllabic.

There is another feature shared by most Palaeohispanic scripts: the possibility they offer to differentiate some similar signs with close phonetic value by an additional stroke; rather than a mere diacritic (although originally it might have been so), this stroke tends to be an integrating component of the sign itself. This subset of scripts with a larger number of variants has been labelled as "dual". The recent discovery of dual abecedaries confirms that these dualities were integrated in the standard scripts, where the pair of signs appears always in the same order: the complex variant, with its additional stroke, in the first place and, thereafter, the simple one.

These dualities can affect different sets of sounds: plosives, continuous consonants and even vowels. However, and despite their autonomous apparition in the abecedaries, only for the first ones the phonetic opposition (in this case, voiced – voiceless) between the simple and the complex has been confirmed. Therefore, according to the extension of the use of dualities, it is possible to identify different subsets within every script:

- The northeastern Iberian script can be divided into: i. extended dual, when dualities affect plosives, continuous consonants and vowels; ii. standard dual, when it only affects plosives, and iii. non-dual, when the script lacks dualities.
- The Celtiberian script, either in its eastern or western variant, can be divided into: i. standard dual, or ii. non-dual.

The standard script for Unicode has been built taking into account an inventory of signs as large as possible, including all dual variants confirmed in the extant abecedaries; in general terms, the glyphs for the proposed characters to be encoded match the glyphs of the northeastern Iberian dual extended script.

In addition, the Unicode repertoire also considers as meaningful a three-element variability for the signs  $\mathbf{ke}$  and  $\mathbf{ka}$  in the standard or extended dual script:  $\mathbb{Q}/\mathbb{Q}/\mathbb{Q}$  and  $\mathbb{A}/\mathbb{A}/\mathbb{A}$ . Indeed, some long standard dual inscriptions show the simultaneous use of three variants of the  $\mathbf{ke}$  sign. That's the case of the lead sheet from Castelló (F.6.1) where two-stroke  $\mathbf{ke}$  ( $\mathbb{C}$ ) coexist with one-stroke ( $\mathbb{C}$ ) and no-marked variants

( $\C$ ). In a similar way, on the lead sheet from Ensérune (B.1.373\*; Hesperia HER.02.773) a two-dot variant of the **ke** sign ( $\C$ ), coexists with a one-dot ( $\C$ ) and a no-marked variant ( $\C$ ). Furthermore, it needs to be pointed out that the most common word in the lead sheet from Castelló with the two-stroke **ke**, **balke**, was written in this same way in painted inscriptions of the extended dual type from Llíria. This behavior can also be observed in the lead sheet from Los Villares (F.17.2) where three simultaneous variants of the **ka** sign are used ( $\A/\A/\A$ ). This suggests that the three-element variation for these two characters is also a characteristic of the extended dual script, although it is not explicitly documented in any of the known abecedaries.

That's not the case of the ti ( $\Box$ / $\Box$ / $\Box$ ) and to ( $\Box$ / $\Box$ / $\Box$ ) characters, which apparently present a three-element variation; however, the extant abecedaries, which represent the real set of signs, confirm that there are only two meaningful variants, that is only a two-element distinction<sup>1</sup>. The most common dual opposition found in Palaeohispanic inscriptions, used almost in all the Iberian territory, is expressed as  $\Box$ / $\Box$  and  $\Box$ / $\Box$ / $\Box$ , as confirmed in the Tos Pelat abecedary (Fig. 5). There is, however, a residual use where the opposition is expressed as  $\Box$ / $\Box$ / $\Box$ , as shown in the Castellet de Bernabé's abecedary (Fig. 4). This exceptional use is mainly found in a small area around Llíria.

Although the Palaeohispanic epigraphists of this proposal consider that the best way to handle this situation is to encode only two values corresponding to the main glyphs used in the most common tradition ( $\Box$ / $\Box$ ), as was defended two years ago at a conference in Rome<sup>2</sup>, the Unicode technical team states that the proposal will not be accepted until it contains the encoding of all three values. This is the reason why this proposal suggests the encoding of the three characters for each base sign for the proposal to be accepted:  $\mathbf{ti}(\Box$ / $\Box$ / $\Box$ ) and  $\mathbf{to}(\Box$ / $\Box$ / $\Box$ ).

Regarding the case of the vowel  $\mathbf{o}$ , with four different shapes  $\mathbb{N}/\mathbb{N}/\mathbb{N}$ , and considering that the more complex ones are scarcely documented, we consider that it's an aberration to introduce unnecessary complexity to the codification. For all these reasons, our codification only considers two different values which will be represented by the two more common glyphs  $\mathbb{N}/\mathbb{N}$ . The simple variant,  $\mathbb{N}$ , will be used in all inscriptions representing the simplest variant or the only variant present, while the complex variant,  $\mathbb{N}$ , will be used only in inscriptions with an explicit two-element opposition, representing the marked variant, as shown in fig. 3, independently of the number of strokes.

#### 4. Direction of script

The proposed default direction of the script is left to right, which is the predominant direction in inscriptions of the northern group. In order to render texts right to left, users should use RLO and PDF overrides, or other mechanisms as described in UAX #9 (<a href="http://www.unicode.org/reports/tr9/proposed.html">http://www.unicode.org/reports/tr9/proposed.html</a>). If the default direction of the script is overridden, the glyphs in the font should be mirrored from those presented here.

#### 5. Character names

The character names are based by default on the northeastern script, which is the script with more inscriptions and the one whose decipherment is completed. However, since the values are not usually

<sup>1</sup> Ferrer i Jané 2019.

<sup>2</sup> Ferrer i Jané 2020, 1009.

the same in each Palaeohispanic script, notes are used to specify the value of the character in every script. For instance:

The lack of notes implies that the sign has the same value in all scripts. For instance:



When a sign is exclusive of one single script it is specified that way:



• Northern Palaeohispanic

The marked signs in the "dual" scripts are named with the terminology "with additional stroke" or " with two additional strokes". For instance:

10202 NORTHERN PALAEOHISPANIC LETTER E WITH ADDITIONAL STROKE

• Northeastern Iberian (Dual Extended)

1020F A NORTHERN PALAEOHISPANIC LETTER KA WITH TWO ADDITIONAL STROKES

Northeastern Iberian (Dual)

When the phonetic value of a sign is unknown, we use the conventional code used in the specialized bibliography. For instance:

# 10234 **¥** NORTHERN PALAEOHISPANIC LETTER S87

Please note that the names of the letters don't always reflect the transcription system used in the discursive parts of the proposal. These are the correspondences:

S1 = s S2 = ś S1 WITH ADDITIONAL STROKE = ŝ N1 = n N1 WITH ADDITIONAL STROKE = ń N2 = m N3 = ṁ N4 = ṁ R1 = r R2 WITH ADDITIONAL STROKE = ř R2 = ŕ A = a A WITH ADDITIONAL STROKE = á A2 = â E = e E WITH ADDITIONAL STROKE = é I = iI WITH ADDITIONAL STROKE = 1 O WITH ADDITIONAL STROKE = 6 H = HU WITH ADDITIONAL STROKE  $= \dot{\mathbf{u}}$ KA = gaKA WITH ADDITIONAL STROKE = ka KA WITH TWO ADDITIONAL STROKES = ka KE = geKE WITH ADDITIONAL STROKE = ke KE WITH TWO ADDITIONAL STROKES = **ke** KI = giKI WITH ADDITIONAL STROKE = ki KO = goKO WITH ADDITIONAL STROKE = ko KU = guKU WITH ADDITIONAL STROKE = ku

#### 6. Numbers

Iberian metrological expressions are basically formed by groups of vertical bars (equivalent to the sign **ba**) to generate the numerical component of the expression: I = 1, II = 2, III = 3, IIII = 4, IIIII = 5. The accumulation of bars can reach up to 20 elements (F.17.1). Occasionally these bars can appear together with a sign similar to Greek  $\Pi$ , which appears to be acting as an auxiliary base, perhaps with the value of 5 or 6.

Some metrological expressions use a specific L-shaped sign, which does not match any other character of the Iberian script; the numerical value for that sign is still uncertain. This sign also appears in metrological expressions on painted amphora inscriptions from Vieille-Toulouse (for instance L III) and in lead-sheet inscriptions from Iàtova (for instance L IIIIII [F.20.2]).

Finally, some coin inscriptions present value marks, which, in some cases, have an equivalent symbol formed by the initial of the unit followed by the numerical component. In the case of **undikesken** coins, quarters show the – sign and halves the = sign, which is actually a reduplication of the former ( $\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$ ).

#### 7. Punctuation

The most common word separator consists of two vertical dots. Nevertheless, the oldest epigraphic tradition tends to use rather 3 or more vertical dots; in the most recent inscriptions on stone, on the other hand, the use of an isolated dot is frequent, imitating the Roman style. Finally, the vertical bar can also be used and, in some rare cases, just a blank.

We consider that it is better to codify the word separator concept with a unique code, the alreadyencoded character 205A for the two-dots punctuation, to facilitate the use of the word separator concept.

#### 8. Order

For the code chart: vowels will appear in the alphabetical order a, e, i, o, u; plosives in the usual alphabetical order b, k/g, t/d; and continuous consonants in the alphabetical order l, m, n, r, s. The marked-sign pairs will be grouped together, the marked character preceding the unmarked, as appears in the northeastern Iberian abecedaries. The conflictive T-shaped sign is grouped together with nasals, as it actually appears in the attested abecedaries. The conflictive sign in the shape of an Iberian l (â) with an additional stroke is placed together with this sign, as it appears in the Castellet de Bernabé's abecedary. Numerals are grouped at the end after letters.

The proposed order for sorting is as follows: a, á, â, ba, be, bi, bo, bu, da, ta, de, te, di, ti, do, to, du, tu, e, é, ga, ka, ka, ge, ke, ke, gi, ki, go, ko, gu, ku, i, í, l, m, n, o, ó, r, ŕ, ř, ś, s, ŝ, u, ú, m, m, S87. Specific exceptions to the alphabetical order are as follows:

- Consecutive order for simple sibilant (s) and sibilant with an additional stroke (ŝ);
- Consecutive order for voiceless and voiced plosives in order to keep together the dual and non-dual transcriptions of the same elements (for instance, the word **ekiar** / **egiar**).
- Consecutive order for m and n, since they are signs that can alternate (for instance iunstir / iumstir).
- Consecutive order for the supposed nasal m and m, after the two signs for u, since the characteristic vocalic component of m can be usually identified as u (for instance mbar / VMAR).

#### 9. Unicode Character Properties

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10200; NORTHERN PALAEOHISPANIC LETTER A WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10201;NORTHERN PALAEOHISPANIC LETTER A;Lo;0;L;;;;;N;;;;
10202; NORTHERN PALAEOHISPANIC LETTER E WITH ADDITIONAL STROKE; Lo; 0; L; ;;;; N;;;;
10203; NORTHERN PALAEOHISPANIC LETTER E; Lo; 0; L;;;; N;;;;
10204; NORTHERN PALAEOHISPANIC LETTER I WITH ADDITIONAL STROKE; Lo; 0; L; ;;; N; ;;;
10205; NORTHERN PALAEOHISPANIC LETTER I; Lo; 0; L;;;; N;;;;
10206; NORTHERN PALAEOHISPANIC LETTER O WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10207; NORTHERN PALAEOHISPANIC LETTER O; Lo; 0; L;;;;; N;;;;
10208; NORTHERN PALAEOHISPANIC LETTER U WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10209;NORTHERN PALAEOHISPANIC LETTER U;Lo;0;L;;;;N;;;;
1020A; NORTHERN PALAEOHISPANIC LETTER BA; Lo; 0; L;;;;; N;;;;
1020B;NORTHERN PALAEOHISPANIC LETTER BE;Lo;0;L;;;;N;;;;
1020C;NORTHERN PALAEOHISPANIC LETTER BI;Lo;0;L;;;;N;;;;
1020D; NORTHERN PALAEOHISPANIC LETTER BO; Lo; 0; L;;;;; N;;;;
1020E; NORTHERN PALAEOHISPANIC LETTER BU; Lo; 0; L;;;; N;;;;
1020F;NORTHERN PALAEOHISPANIC LETTER KA WITH TWO ADDITIONAL STROKES;Lo;0;L;;;;N;;;;
10210;NORTHERN PALAEOHISPANIC LETTER KA WITH ADDITIONAL STROKE;Lo;0;L;;;;N;;;;;
10211; NORTHERN PALAEOHISPANIC LETTER KA; Lo; 0; L;;;;; N;;;;
10212; NORTHERN PALAEOHISPANIC LETTER KE WITH TWO ADDITIONAL STROKES; Lo; 0; L;;;; N;;;;
10213;NORTHERN PALAEOHISPANIC LETTER KE WITH ADDITIONAL STROKE;Lo;0;L;;;;N;;;;;
10214; NORTHERN PALAEOHISPANIC LETTER KE; Lo; 0; L;;;; N;;;;
10215;NORTHERN PALAEOHISPANIC LETTER KI WITH ADDITIONAL STROKE;Lo;0;L;;;;N;;;;;
10216; NORTHERN PALAEOHISPANIC LETTER KI; Lo; 0; L;;;; N;;;;
10217; NORTHERN PALAEOHISPANIC LETTER KO WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10218; NORTHERN PALAEOHISPANIC LETTER KO; Lo; 0; L;;;;; N;;;;
```

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10219; NORTHERN PALAEOHISPANIC LETTER KU WITH DOT; Lo; 0; L; ;; ;; N; ;; ;;
1021A; NORTHERN PALAEOHISPANIC LETTER KU; Lo; 0; L;;;;; N;;;;
1021B;NORTHERN PALAEOHISPANIC LETTER TA WITH ADDITIONAL STROKE;Lo;0;L;;;;N;;;;
1021C;NORTHERN PALAEOHISPANIC LETTER TA;Lo;0;L;;;;N;;;;
1021D; NORTHERN PALAEOHISPANIC LETTER TE WITH ADDITIONAL STROKE; Lo; 0; L; ::: N; ::: ;
1021E; NORTHERN PALAEOHISPANIC LETTER TE; Lo; 0; L;;;;; N;;;;
1021F;NORTHERN PALAEOHISPANIC LETTER TI WITH TWO ADDITIONAL STROKES;Lo;0;L;;;;;N;;;;
10220; NORTHERN PALAEOHISPANIC LETTER TI WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10221;NORTHERN PALAEOHISPANIC LETTER TI;Lo;0;L;;;;;N;;;;
10222;NORTHERN PALAEOHISPANIC LETTER TO WITH TWO ADDITIONAL STROKES;Lo;0;L;;;;N;;;;
10223; NORTHERN PALAEOHISPANIC LETTER TO WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10224; NORTHERN PALAEOHISPANIC LETTER TO; Lo; 0; L;;;;; N;;;;
10225; NORTHERN PALAEOHISPANIC LETTER TU WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10226; NORTHERN PALAEOHISPANIC LETTER TU; Lo; 0; L;;;;; N;;;;
10227; NORTHERN PALAEOHISPANIC LETTER L;Lo;0;L;;;;N;;;;;
10228; NORTHERN PALAEOHISPANIC LETTER A2; Lo; 0; L; ; ; ; ; ; ; ; ;
10229; NORTHERN PALAEOHISPANIC LETTER N2; Lo; 0; L;;;;; N;;;;
1022A; NORTHERN PALAEOHISPANIC LETTER N1 WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
1022B; NORTHERN PALAEOHISPANIC LETTER N1; Lo; 0; L; ;; ;; N; ;; ;;
1022C; NORTHERN PALAEOHISPANIC LETTER N3; Lo; 0; L;;;;; N;;;;
1022D; NORTHERN PALAEOHISPANIC LETTER N4; Lo; 0; L;;;; N;;;;
1022E; NORTHERN PALAEOHISPANIC LETTER R1; Lo; 0; L;;;; N;;;;
1022F; NORTHERN PALAEOHISPANIC LETTER R2 WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10230; NORTHERN PALAEOHISPANIC LETTER R2; Lo; 0; L; ; ; ; ; ; ; ; ;
10231; NORTHERN PALAEOHISPANIC LETTER S1 WITH ADDITIONAL STROKE; Lo; 0; L;;;; N;;;;
10232; NORTHERN PALAEOHISPANIC LETTER S1; Lo; 0; L;;;;; N;;;;
10233; NORTHERN PALAEOHISPANIC LETTER S2; Lo; 0; L; ;;; N; ;;;
10234; NORTHERN PALAEOHISPANIC LETTER S87; Lo; 0; L;;;;; N;;;;
10235; NORTHERN PALAEOHISPANIC NUMERAL ONE; No; 0; L;;;; 1; N;;;;
10236; NORTHERN PALAEOHISPANIC NUMERAL A; So; O; L;;;;; N;;;;
10237; NORTHERN PALAEOHISPANIC NUMERAL B; So; 0; L;;;; N;;;;
10238; NORTHERN PALAEOHISPANIC FRACTION ONE QUARTER; No; 0; L;;; 1/4; N;;;;
10239; NORTHERN PALAEOHISPANIC FRACTION ONE HALF; No; 0; L;;;; 1/2; N;;;;
```

## 11. Glyph Variation Chart

Encode d glyph		Transcript ion (see pp. 4-5)		Northern					
				Iberian			Celtib	erian	
			NI+	NI++	NI-	WC+	WC-	EC+	EC-
P	10200	á	PR	PP		PP	<b>&gt;</b>	PP	
D	10201	a		DD	$\triangleright$				7>
F	10202	é	<b>F</b> E	FE.		EE.	<u> </u>	<b>***</b>	
1	10203	e		Ł٧	FRAF				Ł
7	10204	í		MMM					
7	10205	i	74	MA	WWA	MM	747	7	$\sim$
	10206	ó		HHH					
7	10207	0	НИН	НИН	ННИ	HHH	HHH		HHH
<b>*</b>	10208	ú		<b>♠</b>					
$\uparrow$	10209	u	$\uparrow \uparrow$	$\uparrow \uparrow$	$\uparrow \uparrow \uparrow \uparrow \uparrow \uparrow$	$\uparrow \uparrow$	$\qquad \qquad $	$\uparrow \uparrow$	$\uparrow \uparrow$
	1020A	ba	(()	(					
A	1020B	be	<b>አ</b> ያያ	NN		W	V	}	$\Diamond \Diamond$
િ	1020C	bi	روارا	969	777	Ŗ	7	Ç	7
	1020D	bo	*	*	X	*	X	*	X

	1020E	bu	<u> </u>						
$\overline{\mathbb{A}}$	1020F	Ќа	AA	$\overline{\mathbb{A}}$					
$\land$	10210	ka	$\wedge \wedge$	$\wedge$		$\wedge$		$\wedge \wedge$	
$\wedge$	10211	go	$\wedge \wedge$	$\wedge \wedge$	ÅÅ ka/ga	$\Lambda\Lambda$	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	$\Lambda\Lambda$	AA/ga
1	10212	ga Ke	€ (:	•	Ka/ga		ka/ga		Ka/ga
(	10213	ke	<b>EXI</b> (E	(		G		U	ke/ge
	10214	ge	(<		ke/ge	C	ke/ge	$\overline{}$	
1/4	10215	ki	\$2.52	\$252		<b>"</b> "		4,7	
7	10216	gi	11	7	√ ki/gi	7	ki/gi	<b>-</b> /	ki/gi
$\overline{X}$	10217	ko	XXX	X		X	8	$\mathbb{X}$	
X	10218	go	X	X	X ko/go	X	X ko/go	X	X ko/go
0	10219	ku	⊙⊚	⊙⊚	<b>♦</b> ku/gu	00	<b>♦</b> ku/gu	$\odot$	<b>♦</b> ku/gu
0	1021A	gu	0	0		0		0	
Ж	1021B	ta	<u> </u>	XX		**		Ж	
X	1021C	da	X	X	X ta/da	X	X ta/da	X	X ta/da
$\oplus$	1021D	te	$\oplus \otimes \otimes$	$\oplus \otimes$		$\otimes$		$\otimes \otimes$	

$\Theta$	1021E	de	$\Theta \otimes \Phi$	$\Theta \otimes \Phi$	$\Diamond$ $\Diamond$	ОΦ	$\Diamond$	ОΦ	$\Diamond$
Щ	1021F	ti	<b>₩₩₩</b>					<mark> </mark>	
The second of th	10220		Ψ	<del>"</del>	ΥΨ	H	4	4	$\Psi\Psi$
		<mark>ti-di</mark>	<mark>di</mark>	ti	ti/di	ti	ti/di	<mark>di</mark>	ti/di
<b>-</b>	<mark>10221</mark>	<mark>di</mark>		무		ᆛ			
Ш	<mark>10222</mark>	to	Ш						
Ш	<mark>10223</mark>	to-do	∐ <mark>do</mark>	Ш	ШШ	Ш	Ш	∭ do	ΨШ
	40004		<mark>do</mark>	to	to/do	to	to/do	<mark>do</mark>	to/do
	10224	<mark>do</mark>					A		
	<mark>10225</mark>	tu	$\triangle \triangle \Lambda$	$\triangle \triangle \triangle$		$\Delta$	∆ tu/du	Δ	
$\wedge$	<mark>10226</mark>	du	$\overline{\Lambda}$	Λ	Λ	$\wedge$	tu/uu	$\wedge$	$\wedge$
		52.42			tu/du	, , ,		_	tu/du
	<mark>10227</mark>	ı			$\wedge$				
<b> </b>	<mark>10228</mark>	â		*	-				
W	<mark>10229</mark>	m	MM.	Ϋ́Ψ	<b>Y</b>			<b>Y</b>	W
7	1022A	ń		7					
7	1022B		77	7	MMM		2	<u> </u>	$\wedge$
		n				m	m	•	•
	1022C	,	<i> </i>  Y	<i> </i>  Y	$\vee$	$\vee$	VY		
	1022D	m	<b>一</b>	<b>一</b>	<del></del> _	<u>n</u>	<u>n</u>	<del></del>	
	10220	m	II	II		?	?	,	?
1	1022E	r	DD	14	4	•	•	•	•

φ	1022F	ŕ	ΦΦ	ΦΦ		ФФ		ФФ	
ρ	10230	ř	PŶ	<b>Υ</b>	Ŷ¢		¢ r		
}	10231	ŝ	** s	***		<b>\$</b> \$ z		<b>\$</b> \$	
{	10232	s		<b>{}</b>	>		\( \frac{1}{z} \)		\( \frac{1}{z} \)
M	10233	ś	MM	MM	MM	MM	MM	MM	MM
<b>*</b>	10234	S87	*	¥	*	~	~	~	
	10235	numeral 1							
	<b>10236</b>	numeralA	-		Ĺ		-		
	<mark>10237</mark>	numeralB							
_	<mark>10238</mark>	Fraction 1/4			- <				
=	<mark>10239</mark>	Fraction 1/2			= «				

NI+ = Northeastern Iberian dual standard

NI++ = Northeastern Iberian dual extended

NI- = Northeastern Iberian non dual

WC+ = Western Celtiberian dual

WC- = Western Celtiberian non dual

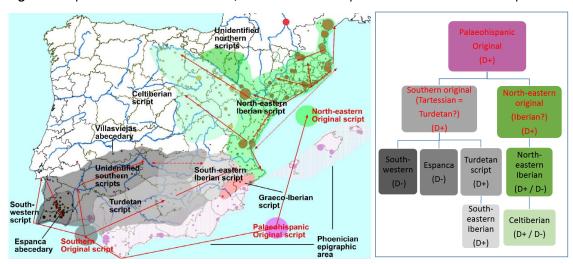
EC+ = Eastern Celtiberian dual

EC- = Eastern Celtiberian non dual

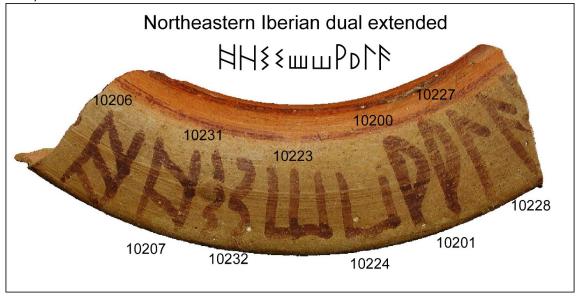
#### 12.- Images.

Phoenician	,	b	g	d	h	W	Z	ķ	.t	у	k	Ι	m	n	s	"	р	ş	q	r	š	t								
Triochician	¥	9	1	Δ	1	Ч	Ι	I	$\otimes$	٧	¥	1	4	4	ŧ	0	2	4	φ	4	W	Χ								
Southern PH	Α	ገ	٨	Δ	7	4	‡	Ħ	Φ	内	Ы	1	}	Ч	#	0		71	φ	q	Μ	Χ	Ψ	$\uparrow$	1	×	M	D		
Northern PH	*	P	Λ	Δ	E	Y	Ι	$\mathbb{Z}$	θ	7	$\P$	1	ſ	^		0		{	φ	٥	M	Χ	Ψ	$\uparrow$	7	ጸ	X	Р	ш	*

Fig. 1.- Comparison between Phoenician, Southern Palaeohispanic and Northern Palaeohispanic.



**Fig. 2.-** Palaeohispanic scripts. Most recent proposal of diffusion and Genealogic model (Ferrer i Jané 2018).



**Fig. 3.-** Example showing an inscription with code points and expected letter shapes in online/print publications (Castellet de Bernabé: fragment of a dual extended abecedary)<sup>3</sup>.

<sup>&</sup>lt;sup>3</sup> The two signs of the duality of the vowel **a** are apparently equal, but, it does not make any sense, as it is a dual abecedary. We suppose that the second a is drew in a clumsy way but is in fact the sign D.

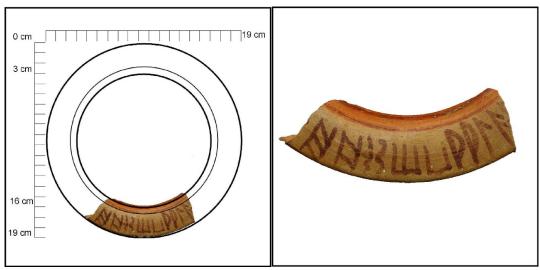
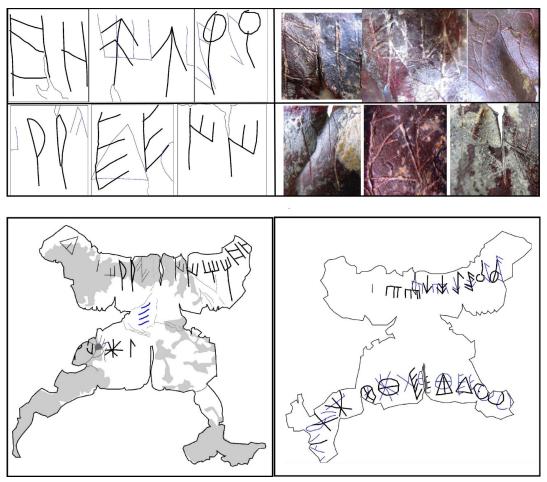


Fig 4.-Castellet de Bernabé's abecedary (Extended dual script). See fig. 3 for its codification.



**Fig 5.-** Tos Pelat's abecedary (F.13.77\*) (Extended dual script). Above, detail of dualities for vowels<sup>4</sup> and trill. Below: General view.

<sup>&</sup>lt;sup>4</sup> The two signs for the vowel **a** are apparently the same, which does not make sense, as it is a dual

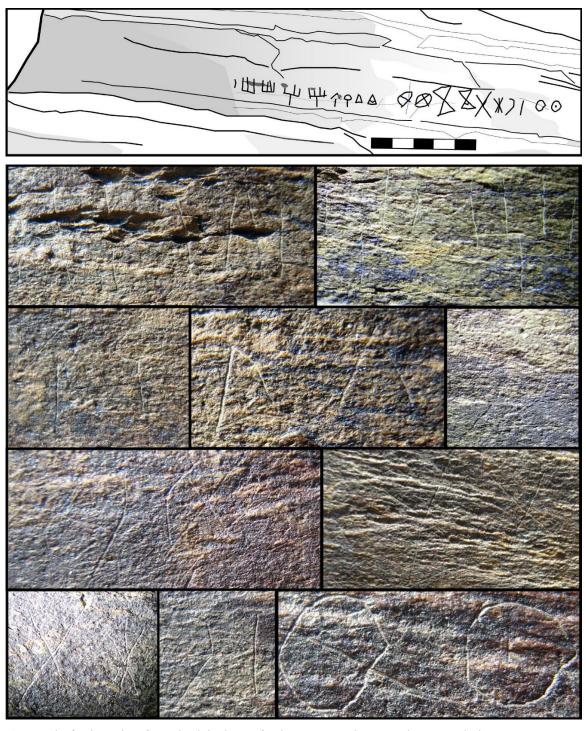


Fig 6.-Bolvir's abecedary (Standard dual script). Above: general view. Below: Detailed pictures.

abecedary, where a pair of marked and unmarked characters would be expected. We suppose that the second one is drawn here clumsily but should actually be the D sign .

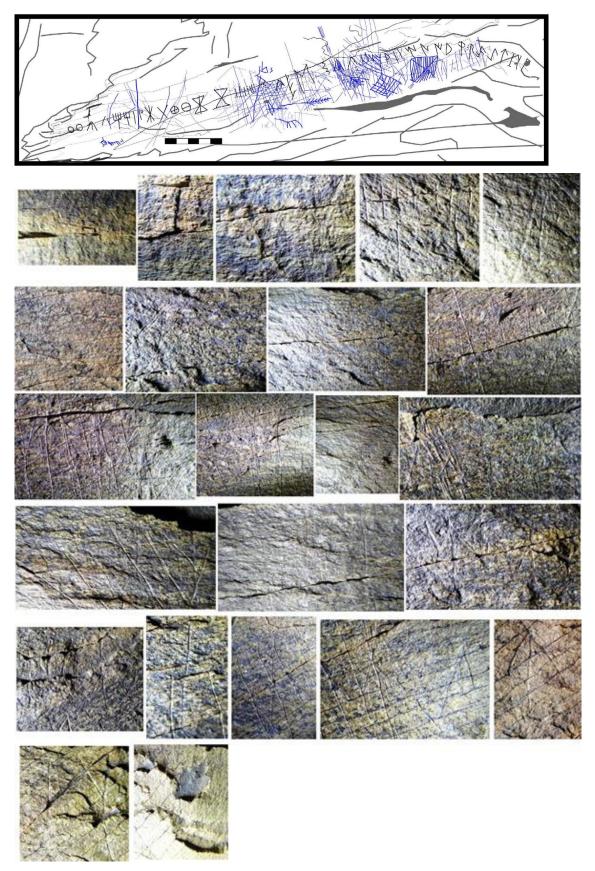


Fig 7.-Ger's abecedary (Standard dual script).

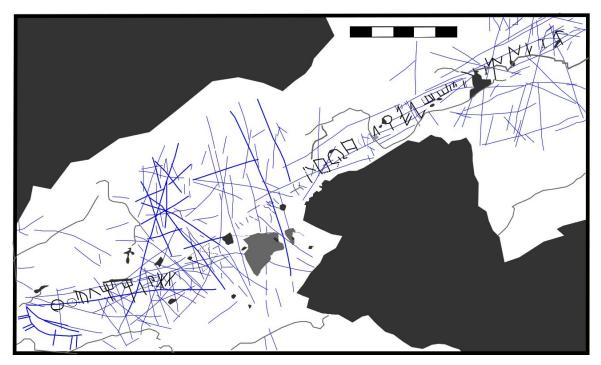


Fig 8.-La Tor de Querol's abecedary (Standard dual script).



Fig. 9.-Simplified abecedaries from Can Rodon (Non-dual script).

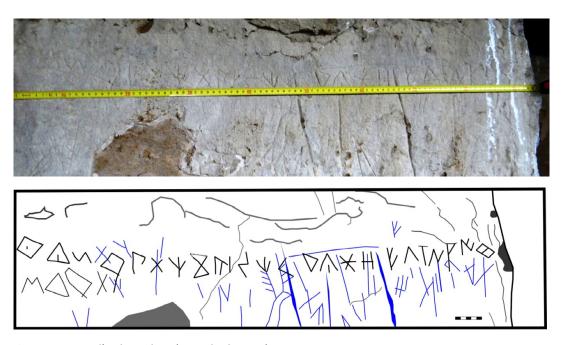


Fig. 10.-Esquirol's abecedary (Non-dual script).



Fig 11.- Lead sheet from Ullastret (C.2.4) (dual script).



Fig 12.- Lead sheet from La Balaguera (F.17.\*) (dual script).

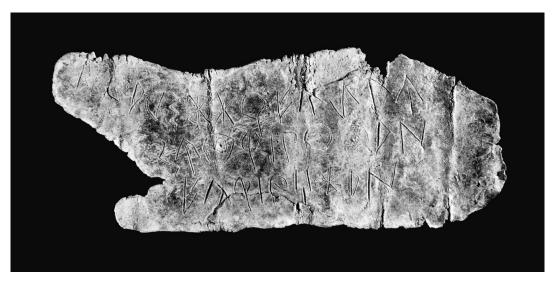


Fig 13.- Lead sheet from Castellet de Bernabé (F.13.75\*). Extended dual abecedary with explicit duality for  $\acute{\bf r}$ .



Fig 14.-Stone plaque from Empúries (non-dual script).



Fig 15.- Stele from Vispesa bearing a non-dual northeastern Iberian inscription.



Fig 16.- Bronze coin from undikesken (non-dual script), with mark of value: e = (1/2)



Fig 17.-Bronze coin from undikesken (non-dual script), with mark of value: e- (1/4)

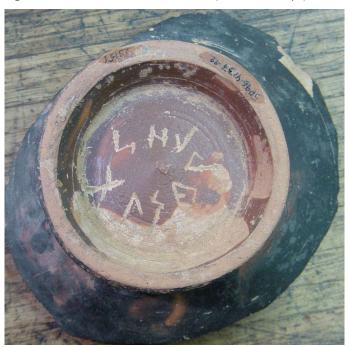


Fig 18.- Ceramic vase from Terrassa bearing the name talskubilos (non-dual script).



Fig 19.- Spindle-whorl from Gebut (non-dual script, right to left).



Fig 20.-Painted inscription in a ceramic vase from Llíria (F.13.5) (Extended dual script).



Fig 21.- Stamps on dolium from Pech Maho (B.7.32) (Standard dual script).



Fig 22.- Vase from Joncosa (D.18.1\*) (non-dual script).

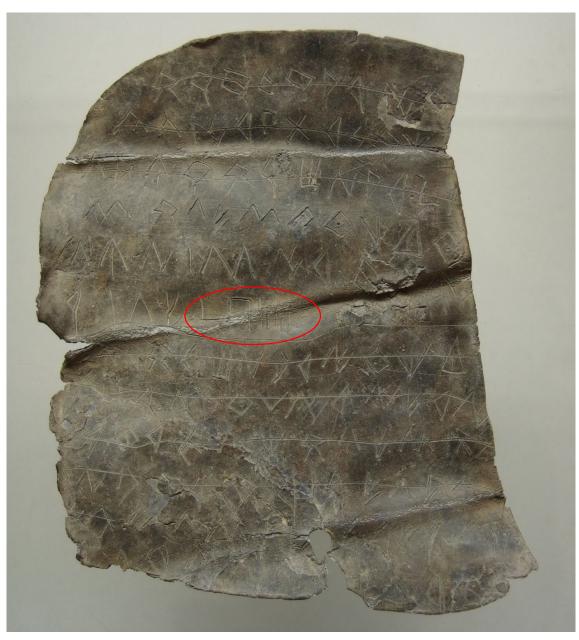


Fig 23.- Lead plaque from Yátova (F.20.1) (non-dual script) with numerals (red circle).

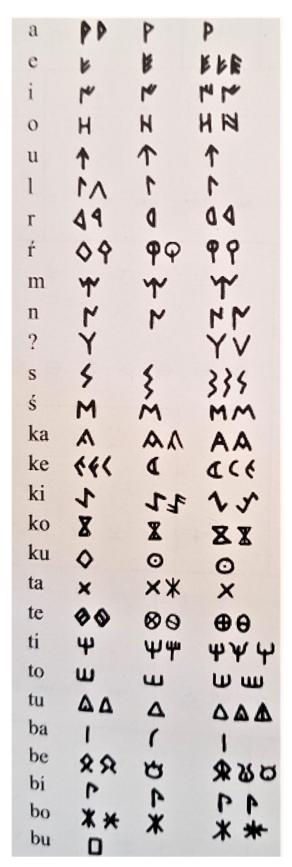


Fig 24.- Northeastern Iberian script (de Hoz 2011).

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#### ISO/IEC JTC 1/SC 2/WG 2

#### PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS

#### FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 106465

Please fill all the sections A, B and C below.

Please read Principles and Procedures Document (P & P) from <a href="http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html">http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html</a> for guidelines and details before filling this form.

Please ensure you are using the latest Form from <a href="http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html">http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html</a>.

See also <a href="http://std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html">http://std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html</a> for latest Roadmaps.

Proposal to encode the NORTHERN PALAEOHISPANIC script

Joan Ferrer, Noemí Moncunill, Javier Velaza, and Deborah Anderson

liaison

#### A. Administrative

2. Requester's name:

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

1. Title:

	-		
4. Submission date:		F	ILL IN
5. Requester's reference (if applicable):			
6. Choose one of the following:			
This is a complete proposal:			X
(or) More information will be provide			
B. Technical – General			
1. Choose one of the following:			
a. This proposal is for a new script (set o	of characters):		X
Proposed name of script:		NORTHERN PALAEOHIS	PANIC
b. The proposal is for addition of charac	cter(s) to an existing block:		
Name of the existing block:			
2. Number of characters in proposal:			58
3. Proposed category (select one from below	- see section 2.2 of P&P do	ocument):	
A-Contemporary B.1-Specialized	(small collection)	B.2-Specialized (larg	ge collection)
C-Major extinct D-Attested ext	inct x	E-Minor extinct	
F-Archaic Hieroglyphic or Ideographic	G	 i-Obscure or questionable	usage symbols
4. Is a repertoire including character names pr	yes		
a. If YES, are the names in accordance v			
in Annex L of P&P document?			yes

TP<sup>5</sup>PT Form number: N4502-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

	b. Are the character shapes attached in a legil	ble form suitable for review?	yes
5. Fo	nts related:		
	a. Who will provide the appropriate computer	rized font to the Project Editor of 10646 for publishing the	he standard?
	The Atelier National de Recherche	Typographique (Thomas Huot-Marchand and Arthur Fra	ncietta)
	b. Identify the party granting a license for use	of the font by the editors (include address, e-mail, ftp-s	ite, etc.):
		Fill in	
6. Re	ferences:		
	a. Are references (to other character sets, dic	tionaries, descriptive texts etc.) provided?	Yes
	b. Are published examples of use (such as san	nples from newspapers, magazines, or other sources)	
	of proposed characters attached?	yes	
7. Sp	ecial encoding issues:		
	Does the proposal address other aspects of cl	haracter data processing (if applicable) such as input,	
	presentation, sorting, searching, indexing, tra	nsliteration etc. (if yes please enclose information)?	yes

#### 8. Additional Information:

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. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <a href="http://www.unicode.org">http://www.unicode.org</a> for such information on other scripts. Also see Unicode Character Database (<a href="http://www.unicode.org/reports/tr44/">http://www.unicode.org/reports/tr44/</a>) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

### C. Technical - Justification

1. Has this proposal for addition of cha	Has this proposal for addition of character(s) been submitted before?								
If YES explain	L2/15-119, L2/15-120, and L2/15-012								
2. Has contact been made to members	of the user community (for example: National Body,								
user groups of the script or chara	cters, other experts, etc.)?	yes							
If YES, with whom?	Scholars in Spain, Portugal, France, Germany, and	UK							
If YES, available relevant	locuments:								
3. Information on the user community	or the proposed characters (for example:								
size, demographics, information technology use, or publishing use) is included?									
Reference:	See proposal								
4. The context of use for the proposed	characters (type of use; common or rare)	rare							
Reference:	See proposal								
5. Are the proposed characters in curre	nt use by the user community?	yes							
If YES, where? Reference:	Books, articles, database, etc.								
6. After giving due considerations to th	e principles in the P&P document must the proposed characters be	entirely							
in the BMP?		no							
If YES, is a rationale pro	vided?								
If YES, reference:									
7. Should the proposed characters be k	ept together in a contiguous range (rather than being scattered)?	yes							
8. Can any of the proposed characters	e considered a presentation form of an existing								
character or character sequence									
If YES, is a rationale for	its inclusion provided?	yes							
If YES, reference:	See proposal								
9. Can any of the proposed characters	e encoded using a composed character sequence of either								
existing characters or other prop	osed characters?	no							
If YES, is a rationale for	its inclusion provided?								
If YES, reference:									
10. Can any of the proposed character(	s) be considered to be similar (in appearance or function)								
to, or could be confused with, ar	existing character?	yes							
If YES, is a rationale for	If YES, is a rationale for its inclusion provided?   yes								
If YES, reference:	See proposal								
11. Does the proposal include use of co	mbining characters and/or use of composite sequences?	no							

If YES, is a rationale for such use provided?	
If YES, reference:	
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	no
If YES, reference:	
12. Does the proposal contain characters with any special properties such as	
control function or similar semantics?	no
If YES, describe in detail (include attachment if necessary)	
	•
13. Does the proposal contain any Ideographic compatibility characters?	no
If YES, are the equivalent corresponding unified ideographic characters identified?	
If YES, reference:	

	1020	1021	1022	1023
0	<b>P</b>	10210	<b>H</b>	<b>P</b>
1	<b>D</b>	10211	<b>T</b>	<b>\$</b> 10231
2	10202	10212	10222	<b>\$</b> 10232
3	10203	10213	10223	10233
4	10204	10214	10224	10234
5	10205	<b>\$</b>	10225	10235
6	10206	10216	10226	10236
7	10207	10217	10227	10237
8	10208	10218	F 10228	10238
9	10209	10219	10229	10239
Α	10203	O 1021A	1022A	19235
В	ช	Ж	Ν	
С	1020B	1021B	1022B	
D	1020C	1021C  1021D	1022C  T 1022D	
E	1020E	1021B	1022B	
F	1020E	1021E	Ф 1022F	

# Northern Palaeohispanic

10200 P	NORTHERN PALAEOHISPANIC LETTER A WITH ADDITIONAL STROKE
	Northeastern Iberian (Dual extended)
10201 D	NORTHERN PALAEOHISPANIC LETTER A
10202 ₺	NORTHERN PALAEOHISPANIC LETTER E WITH ADDITIONAL STROKE
	Northeastern Iberian (Dual extended)
10203 比	NORTHERN PALAEOHISPANIC LETTER E
10204 №	NORTHERN PALAEOHISPANIC LETTER I WITH
	ADDITIONAL STROKE • Northeastern Iberian (Dual extended)
10205 №	NORTHERN PALAEOHISPANIC LETTER I
10206 Ħ	NORTHERN PALAEOHISPANIC LETTER O WITH
	ADDITIONAL STROKE
10207 H	Northeastern Iberian (Dual extended)     NORTHERN PALAEOHISPANIC LETTER O
10207 11	NORTHERN PALAEOHISPANIC LETTER U WITH
.0200 .	ADDITIONAL STROKE
40000 4	Northeastern Iberian (Dual extended)
10209 ↑ 1020A I	NORTHERN PALAEOHISPANIC LETTER U NORTHERN PALAEOHISPANIC LETTER BA
1020A 1 1020B Ψ	NORTHERN PALAEOHISPANIC LETTER BE
1020C P	NORTHERN PALAEOHISPANIC LETTER BI
1020D <del>*</del>	NORTHERN PALAEOHISPANIC LETTER BO
1020E 🛮 1020F 🛦	NORTHERN PALAEOHISPANIC LETTER BU NORTHERN PALAEOHISPANIC LETTER KA WITH TWO
10201 M	ADDITIONAL STROKES
10210 A	NORTHERN PALAEOHISPANIC LETTER KA WITH
10211 ∧	ADDITIONAL STROKE NORTHERN PALAEOHISPANIC LETTER KA
10212 €	NORTHERN PALAEOHISPANIC LETTER KE WITH TWO
10010 (	ADDITIONAL STROKES
10213 (	NORTHERN PALAEOHISPANIC LETTER KE WITH ADDITIONAL STROKE
10214 (	NORTHERN PALAEOHISPANIC LETTER KE
10215 🕏	NORTHERN PALAEOHISPANIC LETTER KI WITH ADDITIONAL STROKE
10216 √	NORTHERN PALAEOHISPANIC LETTER KI
10217 🕱	NORTHERN PALAEOHISPANIC LETTER KO WITH
10218 X	ADDITIONAL STROKE NORTHERN PALAEOHISPANIC LETTER KO
10219 0	NORTHERN PALAEOHISPANIC LETTER KU WITH DOT
1021A O	NORTHERN PALAEOHISPANIC LETTER KU
1021B X	NORTHERN PALAEOHISPANIC LETTER TA WITH ADDITIONAL STROKE
1021C X	NORTHERN PALAEOHISPANIC LETTER TA
1021D ⊕	NORTHERN PALAEOHISPANIC LETTER TE WITH
1021E ⊖	ADDITIONAL STROKE NORTHERN PALAEOHISPANIC LETTER TE
1021日 U	NORTHERN PALAEOHISPANIC LETTER TE NORTHERN PALAEOHISPANIC LETTER TI WITH TWO
40000 111	ADDITIONAL STROKES
10220 円	NORTHERN PALAEOHISPANIC LETTER TI WITH ADDITIONAL STROKE
10221 보	NORTHERN PALAEOHISPANIC LETTER TI
10222 ш	NORTHERN PALAEOHISPANIC LETTER TO WITH TWO
10223 ш	ADDITIONAL STROKES NORTHERN PALAEOHISPANIC LETTER TO WITH
	ADDITIONAL STROKE
10224 ⊔	NORTHERN PALAEOHISPANIC LETTER TO
10225 Δ	NORTHERN PALAEOHISPANIC LETTER TU WITH ADDITIONAL STROKE
10226 Δ	NORTHERN PALAEOHISPANIC LETTER TU
10227	NORTHERN PALAEOHISPANIC LETTER L
10228 F 10229 Y	NORTHERN PALAEOHISPANIC LETTER A2 NORTHERN PALAEOHISPANIC LETTER N2
10229 1 1022A N	NORTHERN PALAEOHISPANIC LETTER N1 WITH
-	ADDITIONAL STROKE
1022B № 1022C V	NORTHERN PALAEOHISPANIC LETTER N1 NORTHERN PALAEOHISPANIC LETTER N3
1022C V 1022D I	NORTHERN PALAEOHISPANIC LETTER N3 NORTHERN PALAEOHISPANIC LETTER N4
1022E 4	NORTHERN PALAEOHISPANIC LETTER R1
1022F P	NORTHERN PALAEOHISPANIC LETTER R2 WITH ADDITIONAL STROKE
	ADDITIONAL STROKE

10230 P NORTHERN PALAEOHISPANIC LETTER R2
 10231 S NORTHERN PALAEOHISPANIC LETTER S1 WITH ADDITIONAL STROKE
 10232 NORTHERN PALAEOHISPANIC LETTER S1
 10233 M NORTHERN PALAEOHISPANIC LETTER S2
 10234 NORTHERN PALAEOHISPANIC LETTER S87
 10235 I NORTHERN PALAEOHISPANIC NUMERAL ONE
 10236 L NORTHERN PALAEOHISPANIC NUMERAL A
 10237 NORTHERN PALAEOHISPANIC NUMERAL B
 10238 - NORTHERN PALAEOHISPANIC FRACTION ONE QUARTER
 10239 = NORTHERN PALAEOHISPANIC FRACTION ONE HALF