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SYMPTOMS OF NASAL EFFACEMENT IN HISPANO-CELTIC

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INTRODUCTORY MATTERS

§1. This paper examines two discrete —and aberrant— features of Hispano-Celtic orthographic practice and aims to unite them as symptoms of a single (perhaps sporadically implemented) phonological process.[1] It focusses specifically upon the treatment of nasals before heterosyllabic plosives.

§2. As a preliminary, it must be stated that the overwhelmingly predominant practice for noting inherited /VN.T/ sequences in the Celtic adaptation of the semi-segmental, semi-moraic Iberian script is precisely as ‹VNT›, with the nasal homoörganic to the heterosyllabic plosive, e.gg.:[2]

(1) Labial:
a. **amPiTiśe(Ti)** (K.1.1 A5)

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[1] Which may, indeed, also have affected tokens which are written in the standard orthographic practice; see §§9 & 11.

[2] I employ throughout the traditional transcription of the sibilant characters whereby ᚴ = <**ś**> and ᛋ = <**s**>, unlike Villar, who now transcribes them as <**s**> and <**z**>, respectively (starting with 1995a & 1995b ≡ 1996), and Untermann, who now transcribes them as <**s**> and <**đ**>, respectively (starting with 1997a & 1997b); other scholars now generally follow either Villar´s or Untermann´s system. I maintain the traditional transcription owing to the manifest uncertainty of the phonemic or proximate phonetic value(s) of ᛋ, since I believe that the alternatives now in practice prejudice any account of the articulation of the speech sound(s) it represents, whether boardly or narrowly; Ballester 1993-1995, for example, suggests that <**s**> can represents [fs] or [ʤ] in addition to /ð/ or /z/. Since there are instances in the Hispano-Celtic corpus in which ᚴ and ᛋ seem clearly to be written in error for the other, e.gg., gen. pl. **śoiśum** (K.1.3 Ü) for expected ***śoisum**, and dat. pl. **ṬiÇẹ́rsePos** (K.6.1) for expected ***TiCeśePoś**, the prudent course would be to adopt an algebraic system of transcription whereby, for example, ᚴ were transcribed by <$\mathbf{s}_1$> and ᛋ by <$\mathbf{s}_2$>, but with two alternative transcriptions systems now competing with the traditional one in the published literature, introducing a fourth system would only create more potential for confusion.

Epigraphic abbreviations: Round brackets ( ) indicate characters ommitted by the engraver; square brackets [ ] indicate characters which have been restored or which can no longer be read; the tie-bar indicates characters engraved as a ligature, e.g. N͡T; the underdot ̣ indicates characters which are damaged and/or no longer clearly legible; the pipe | indicates line breaks.

b. **CamPaŕaCum** (K.5.2)

Coronal:
c. **ConTeŕPia** (A.75.2)
d. **leTonTunoś** (K.1.3 ii 60, K.16.1)

Dorsal:
e. **aianCum** (K.1.1. B4, 7, 8)
f. **śanCiliśTaŕa** (K.1.1 A4)

§3. But two other practices are attested. In the first, which has been commented upon often, the nasal is not noted at all. The forms which are usually cited as evincing this practice are (e.gg., Untermann 1997a: 384, Villar 1997: 910-911, Jordán 1998: 122):[3]

(2) a. **aŕaTiCoś** (A.61.1); mod. *Aranda* and *Arándiga* and Ἀρανδίς (Ptolemy, *Geog.* ii 5.5).
b. **aŕaTis** (A.61.2); comparanda as for (2a).
c. **aŕCaToPesoḿ** (K.0.7);[4] cf. **aŕCanTa** (K.1.3 iii 11, 12, 21, 44, 53, iv 20).
d. **CaiśCaTa** (A.49); cf. mod *Cascante* and the Tiberian coin legend MVNICIP(ium) CASCANTVM.
e. **CaaPaaŕinoś** (K.13.1); cf. **CamPaŕoCum** (K.5.2) and CA|NPARI|CVM (CIL ii 3074)?
f. **CeTe[ś]**[5] (K.18.2); cf. **CenTiś** (K.1.3 i 39, ii 3, iii 4, 56, iv 3) and GENTE (K.11.1).
g. **oCalaCom** (A.85); cf. mod. *Oncala*.
h. **śeCoTias laCas** (A.77); cf. Σεγόντια Λάγκα (Ptolemy, *Geog.* ii 6.55).[6]
i. **śTenioTeś** (B.3.1 = K.17.1); cf. **śTenionṬęś** (K.1.3 iv 2) & ṢTENIONTẸ (K.11.1).

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[3] Untermann labels (2h) and (2i) as "[d]ie sichersten Belege"; (2c) and (2f) are said to be examples "[m]it einiger Wahrscheinlichkeit"; (2e) is said to be "weniger sicher"; (2a), (2b), (2d), and (2g) are said to be "mögliche Belege" at 384[34], citing Untermann 1975: i 72. In the same footnote, he, furthermore, wonders whether **aŕaTim** (K.1.1 A10) "könnte... zusammengehören" with (2a) and (2b); he wonders whether **CaPiśeTi** (K.1.1 A3) could contain a prefix **Cam-**, as perhaps (2e) does, at 384[35].

[4] N.B. that the form **PuńTaloś**, with the nasal noted, is attested in the same text.

[5] The context calls for a genitive singular form. Since we know that this etymon is an *i*-stem from nom. sg. **CenTiś** (K.1.3 i 39, ii 3, 25, iii 4, 56, iv 3), Untermann 1997a: 402, 699 restores the form as **CeTe[iś]**, with the inherited desinence unaltered; but since dat. sg. ṢTENIONTẸ and GENTE (K.11.1) share the same desinence, viz., *-ēˆ* < *-eiˆ* ← **-eiˆeiˆ*, and we know that **śTenioTeś** (B.3.1 = K.17.1) is genitive singular, it appears to me that it is likely that the form should be restored as **CeTe[ś]**.

[6] A further token which appears to be related to the second term of this toponym, viz., **laCiCum**, was discovered in 1994 near the town of Torrijo del Campo (Teruel) (Redón & Lebrón 1999: esp. 589).

To these tokens, I would add:

(3) j. **PiŕiCaTio** (A.3.3.4,[7] 3.4.5[8]); cf. **PiŕiCanTin** (A.3.1.1) and **PiŕiCanTi**[? (A.3.1.2, 3.2.3).

Lejeune 1955: 51 also suggests the following as possible tokens:

(4) a. **maTa** (K.8.1); cf. MANTAI[9] (CIL ii 5623). Untermann 1997a: 662 compares only **máTiC̣u̯[mí]** (K.10.1), MATO (CIL ii 926), and MATVNA[10] (CIL ii 1209)[11] to this form.

b. **PaCa** (K.4.2); Lejeune 1955: 51, 59, 106 wonders about interpreting this form as /branka/, perhaps the "abréviation d´un nom prope" or a noun meaning "terminus", "petra". Untermann 1997a: 644 notes that the small stone fragment on which this form is engraved is "[a]nscheinend vollständig, wenn es sich nicht um die letzten beiden Bstn. eines Textes handelt, dessen vorletzte Zeile darüber verlorengegangen ist." Clearly, as he notes, this inscription is "[n]icht verwertbar."

c. **ueT̯i̯TańaCa** (K.7.2); cf. VENDALO (CIL ii 3208) and VEND|IRICVS (CIL ii 5747). The transcription of the third character, viz.,⋎, is uncertain. The prototypical shape of ‹**Ti**› is ⋔, and hence Untermann 1997a: 659 prefers to transcribe it as "ein schlecht gezeichnetes westkeltib. **n**",[12] which is otherwise written as the fifth character in this form as ⋁. I remain agnostic as to the correct transcription, but note that <**Ti**> bears the shape ⋎ in **aŕatis** (A.61.2.3), **louiTiśCoś** (A.55.1.1, 55.1.3), **luTiaCoś** (A.76.1.2), **PiŕiCanTin** (A.3.1.1), and **PiŕiCanTi**[? (A.3.1.2).

This orthographic practice has been attributed to a variety of causes:

1. Orthographic convention: Some commentators have claimed that the non-notation of nasals before plosives was an occasional feature of the script. Schmoll 1959: 102 thus claims that the notation of the nasal was occasionally "vernachlässigt", an opinion shared by Tovar 1986: 90 and Untermann

[7] Untermann 1975: i 161 prints this inscription as **PiŕiCaTio**, but the facsimile at 1975: ii 9 reads **PiŕiCaṇT̯i̯o**, i.e., with the nasal written.

[8] Untermann 1975: i 161 prints this inscription as **PiŕiCaTio**, but the facsimile at 1975: ii 9 reads **]i̯CaTio**.

[9] Hübner 1869-1892: 903 prints this form as MANCI, but comments "fortasse *Manti* vel *Mantai*."

[10] Hübner 1869-1892: 162 comments that "[p]ro *Matuna* scr. fortasse *Matura*."

[11] Erroneously cited as CIL ii 2646.

[12] See note 18 on the western vs. eastern schools for writing the nasal characters in Hispano-Celtic epigraphy.

1995: 201 & 1997a: 384. Untermann 1997a: 384 writes: "Wie andere Orthographien im antiken Mittelmeerraum neigt auch die keltiberische dazu, Nasale vor Verschlußlauten nicht zu schreiben", citing Lejeune 1955: 31 [recte 51]; see Uhlich 2002 for a discussion of this sporadically attested phenomenon in Etruscan, Gaulish, Venetic, Latin,[13] Osco-Umbrian, and Greek epigraphy.[14] I am well persuaded by the general direction of Uhlich's argument that variation in the writing of the nasal before plosives indicates "that the nasal was reduced... regularly, i.e. in all cases, and that there was orthographic uncertainty and consequently oscillation in representing the reduced sound."[15] Furthermore, the fact that variation in notation can occur within a single text, e.g., **aŕCaToPesomí** beside **PuńTaloś** in K.0.7, would appear to render doubtful the notion of "orthographic convention".

2. A sound change in fieri: De Hoz 1988: 51 understands the occasional non-notation of nasals before plosives to indicate that a phonological change was "en curso". This is clearly a viable possibility, which is in the same spirit as the proposal I advance infra.
3. The weak articulation of nasals in syllabic codae: Untermann 1975: i 88[52], Lejeune 1983: 14, and Jordán 1998: 123 state that the non-notation of nasals before plosives is indicative of their weak articulation. Villar 1997: 911, while not entirely dismissing the notion that the non-notation of the nasal could be an orthographic convention, somewhat favours the theory of articulatory lenition, but claims that it was later reversed. In the summation of his article (937), he lists sporadic /n/ > Ø / _[+plosive] in a section on "[f]eatures... in fieri or clearly a tendency". This hypothesis, too, is in the spirit of the proposal I advance infra, though the details differ considerably.

§4. In the second practice, which has rarely been commented upon, nasals are noted heteroörganically to the following plosive. There are three secure examples, all before labials:[16]

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[13] Faliscan, as Brent Vine reminds me, is to be added to this list. Further languages from the eastern Mediterranean may belong on it, as well.

[14] It has often been thought that the Lugano script in which the Cisalpine Celtic corpus is engraved conventionally failed to note nasals before voiceless plosives, e.gg., **Ṛịuo**Tialui (S 3) < **-ont-* and **arKaTo-** beside ARGANTO- in Roman characters in the bilingual inscription of Vercelli (RIG *E-2 = S 141) (e.gg., Whatmough 1933: 592, McCone 1993: 247). Lejeune 1971: 25, on the other hand, believes that the nasal in such groups simply was deleted. More recently, Uhlich 1999: 279 & 293 & esp. 2002 has convincingly argued that the fact that the nasal is twice written in such groups, viz., **anTeśilu** (S 25) and **PiuonTa** (S 39), indicates that the nasality spread to the preceding vowel prior to the effacement of the nasal.

[15] I maintain that the explanation for this phenomenon as evidence of a phonological process is applicable to all of the languages mentioned supra, though, of course, the precise details will differ in each case.

[16] Cf. note 24.

(5) a. **CinPiŕia** (K.1.3 iii 4); cf. Lat. *Cimbria*.
b. **ConPouTo** (A.74); cf. Κόμπλουτον (Ptolemy, *Geog.* ii 6.56).
c. **TinPiTus** (K.1.1 A6); < ***de/ī-en-bī-*** (Eska 1989: 108-109, Meid 1993: 120).

There are other examples of heteroörganic nasal + plosive sequences in the Hispano-Celtic corpus, as listed in (6), but they can be excluded[17] as genuine examples of this practice for various reasons:

(6) a. **mTuŕiśCum** (K.1.3 iv 5); an error in which a <**u**> has been left out after the initial <**m**>; cf. **muTuŕiśCum** (K.1.3 i 16, 58, ii 18, iv 16).
b. **so {Ṛẹ/ṃ}{ŕ/Ṛụ}eś** (K.1.5); it might be possible to read a sequence **-ṃṚụ-** in this inscription, in which case Untermann 1997a: 608 suggests that <**ṃ**> would be the last character in a form and <**Ṛụ**> the initial of clitic connective =**Ṛụe**; the remaining <**ś**> would then be the initial of the following form.
c. TaŕCunṚiuŕ (K.1.3 ii 45); surely an Iberian anthroponym (Untermann 1997a: 600).
d.]ḿṚịńaao (K.9.8); Untermann 1997a: 671 suggests that a word boundary should be indentified between <**ḿ**> and <**Ṛị**> in this fragmentary inscription.

There has been very little attention paid to the genuine examples of this orthographic practice:

1. Lejeune 1983: 14 claims that the coronal nasal character can sometimes function vestigially as the default nasal character before plosives.[18] But were this true, one is left wondering why this orthographic practice is attested so infrequently.
2. Schmoll 1960: 282, addressing **ConPouTo**, the only known example of a heteroörganic nasal before plosive at the time he wrote, claimed that **Con-** was abstracted from a compound in which the succeeding element began with a non-labial obstruent. Clearly, such explanation is ad hoc, as one would expect the phonotactics of Hispano-Celtic to have led to an immediate assimilation of the na-

[17] Or rendered doubtful owing to the fragmentary condition of the respective inscriptions.

[18] This is connected to a theory of Schmoll 1960, further developed by Lejeune 1983: 21-23, concerning the evolution of the Iberian script, which is postuladed to have originally possessed only one nasal phoneme, usually written 𐊺. When the speakers of Hispano-Celtic adopted the script, it was necessary to distinguish the labial and coronal nasal phonemes of the language. This was accomplished by adopting the rare characters 𐊼 and 𐊽 —apparently employed only to indicate nasal allophones in Iberian— for this purpose. That two additional characters were adopted by the Celtiberians led to the development of two configurations for the use of the nasal characters, viz., 𐊺 = <**mí**> and 𐊽 = <**ń**> in the western school and 𐊼 = <**m**> and 𐊺 = <**n**> in the eastern school (see further Lejeune 1993: 67-69).

sal to the place of the heterosyllabic plosive, even in such an instance.

UNITING THE VARYING ORTHOGRAPHIC PRACTICES

§5. It seems clear that previous discussion of these two orthographic practices has not fully accounted for their existence. In this paper, I will approach them from a different perspective and argue that these orthographic practices are not simply conventions, but represent various realisations of a single phonological process, viz., nasal effacement, whereby the feature [+nasal] spreads leftwards to the preceding vowel, but then is partially or completely delinked from the consonant (Schourup 1972: passim). Indeed, it is probable that the interpretation of the predominant orthographic practice, whereby inherited /VN.T/ sequences are written as ‹VNT›, is not as straightforward as it seems, but, instead, also represents various outcomes of the nasal effacement process (see §§9 & 11).

§6. First of all, it is important to note that nasals in syllabic codae, particularly before heterosyllabic consonants, are perceptually weak (e.gg., Foley 1977: 60, Ohala & Kawasaki 1984: 115-119, Fagan 1990: 226). This results in the cross-linguistc tendency for tautosyllabic /VN/ sequences to be realised phonetically as a variety of allophones, more than one of which may occur freely in an individual language (Schourop 1972: 537, Kawasaki 1986: 82-83, Barry 1991: 14):[19]

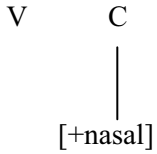
(7) a. [VN], i.e., the vowel remains oral.[20]
b. [Ṽ N], i.e., the feature [+nasal] spreads to the preceding vowel.
c. [Ṽ$_n$], i.e., the feature [+nasal] spreads to the preceding vowel and a very weak, residual consonant remains, i.e., partial delinking or partial effacement.
d. [Ṽ], i.e., the feature [+nasal] spreads to the preceding vowel and the consonant is delinked from that feature, i.e., complete effacement.

As Barry 1991: 14-15 points out, the formalism of current autosegmental phonological theory can account for (7a), (7b), and (7d) adequately, but not for (7c):

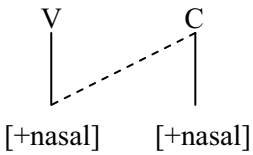
[19] In English, for example, (7b) is ubiquitous even in careful speech, but (7c) and (7d) also occur in casual speech.

[20] As, for example, in Castilian Spanish; Ohala & Solé 1991 and Solé 1992 demonstrate that vowels before nasals are targeted as oral in Castilian Spanish, whereas they are targeted as nasalised in American English

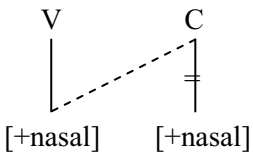
(8) a. [+nasal] does not spread leftwards



b. [+nasal] spreads leftwards

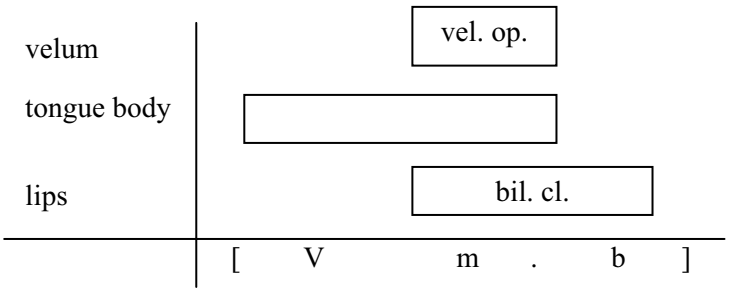


d. [+nasal] spreads leftwards and delinks from the consonant



§7. A more phonetically-oriented approach, Articulatory Phonology, however, is able to model all four articulations by focussing upon variations in timing beween articulatory gestures (e.gg., Schourup 1973: 211-213, Browman & Goldstein 1989, 1990, & 1991, Steriade 1991). Under this approach, a /VN.T/ sequence, e.g., /Vm.b/, which is realised phonetically as [Vm.b], can be modelled as:[21]

(9)



This gestural score is to be read as follows: The vocalic gesture of the sequence is articulated by the tongue body —a precise articulator is not noted here because the vowel is not identified;[22] /m/ is articulated by two gestures, bilabial closure and the simultaneous opening of the velo-

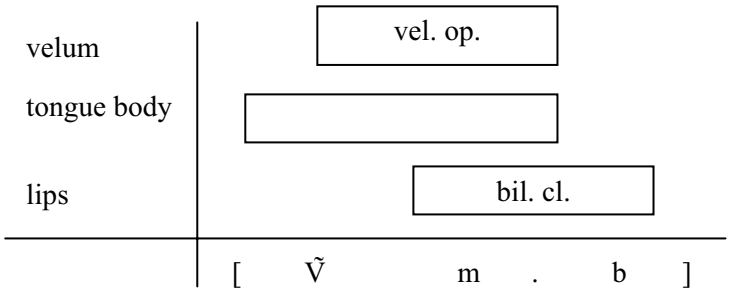
[21] Abbreviations: bil. cl. = bilabial closure; vel.op. = velic opening.

[22] Thus, for example, /y/ would be specified as "palatal narrow", /æ/ as "pharyngeal wide", /o/ as "uvular narrow", /u/ as "velar narrow", etc.

pharyngeal port;[23] /b/ is articulated by bilabial closure. Were the consonant group [nd] or [ŋg], for example, the clousure would be articulated by the tongue tip or the tongue body, respectively.

§8. Under this approach, then, a /VN.T/ sequence, e.g., /Vm.b/, which is realised phonetically as [Ṽm.b], is modelled as:

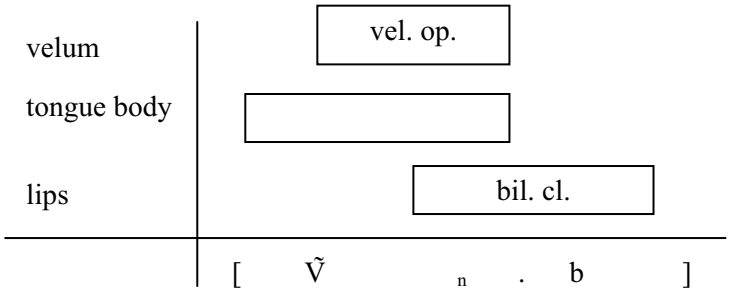
(10)



In this instance, the velopharyngeal port opens early in anticipation of the articulation of the nasal with the result that nasality spreads to the vowel. To judge from the realisation of this phonetic environment in the modern Celtic languages, this may be the treatment of many vowels before tautosyllabic nasals in Hispano-Celtic (though see §11), i.e., /VN.T/ sequences may sometimes have been articulated as proximate phonetic [ṼN.T]. In other words, tokens such as **amPiTiśeTi**, **leTonTunoś**, and **aianCum** may represent instances in which the nasal feature has spread leftwards, but there is no overlap in the timing of the articulation of the place of the nasal and heterosyllabic plosive (but cf. §9).

§9. The timing of the place of articulation of the nasal, however, may be somewhat delayed such that it is partially overlapped by that of the heterosyllabic plosive. Under this approach, /VN.T/ sequences, e.g., /Vm.b/, which are written ‹VMT›, i.e., with the nasal character heteroörganic to the plosive, can be modelled as:

(11)

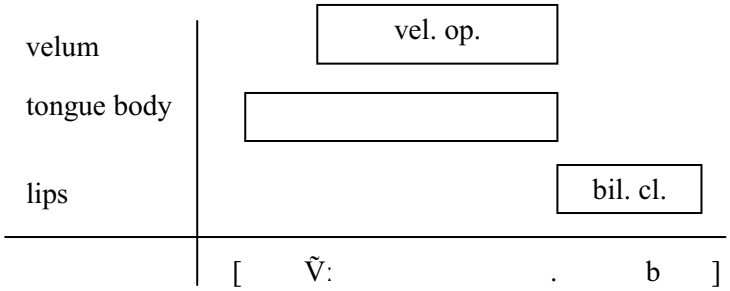


[23] Thus creating the nasal murmur (or resonance) (Ladefoged & Maddieson 1996: 102-103, Stevens 1998: 487).

In this instance, the velopharyngeal port opens early in anticipation of the articulation of the nasal with the result that nasality spreads to the vowel, but at the same time the gesture which articulates the place of the nasal is delayed so that its acoustic signal is partially hidden behind that of the heterosyllabic plosive (Browman & Goldstein 1989: 215, 1990: 360-368, 1991: 326). The partial obscuration of the gesture which articulates the place of the nasal, combined with the fact that the place of articulation of nasals is not robust in syllabic codae —owing to the relative absence of salient spectral change between the vowel and the nasal murmur, especially when followed by a heterosyllabic consonant (Repp & Svastikula 1988, Beddor & Evans-Romaine 1995: 157 & 164), leads me to posit that in tokens such as **CinPiŕia**, **ConPouTo**, and **TinPiTus** the nasal can be perceived, but not distinctively for place of articulation.[24] These tokens, then, amount to orthographic errors —but phonetically undestandable ones— by the respective engravers. It is important to note, however, that there are probably many more instances in which engravers did not err with regard to the place of the nasal, and, therefore, that a considerable number of tokens written with ‹VNT› sequences, in fact, represent proximate phonetic [$\tilde{V}_n$.T].

§10. In yet other instances, the timing of the gesture which articulates the place of the nasal may be delayed so much that it is completely overlapped by that which articulates the heterosyllabic plosive. Under this approach, /VN.T/ sequences, e.g., /Vm.b/, which are phonetically realised as [$\tilde{V}$:.b], are modelled as:[25]

(12)



[24] It is probably not coïncidental that the only secure tokens of this orthographic practice involve the writing of a coronal nasal character before a bilabial plosive; since the coronal is the least marked of the nasal phonemes, an indistinctly articulated nasal is likely to be heard as unmarked, regardless of the place of the adjacent plosive.

A parallel is the use of the character 𐬀 = <ŋ> before all plosives in the Avestan script (Hoffman & Forssman 1996: 88). Hoffman & Forssman 1996: 45 state that this character "bezeichnet einen postuvularen Nasal *N*, der lediglich durch Senken des Gaumensegels —ohne Mundverschluß durch Zunge oder Lippen— gebildet wird. Er steht regelmäßig vor allen Verschlußlauten einschließlich *c j*". This description accords well with my proposal. (I should like to thank Jens Elmegård Rasmussen for calling the Avestan facts to my attention.)

[25] As the gestural score suggests, the duration of the vowel in such instances is usually lengthened (e.g., Hajek 1997: 84-86).

In this instance, the gesture which articulates the place of the nasal is completely hidden behind that which articulates the plosive (Browman & Goldstein 1989: 215, 1990: 360-368, 1991: 326). Since the opening of the velopharyngeal port is in no part simultaneous with the gesture which articulates the place of the nasal, it is not realised phonetically at all.[26] This accounts for the non-writing of the nasal character in tokens such as **aŕaTis**, **CaiśCaTa**, and **śeCoTias laCas**.

Complete effacement of the nasal in this environment compels me, then, to postulate the existence of at least some phonemically nasalised vowels in Hispano-Celtic; 3. person present subjunctives in *-ā-*, for example, would have contrasted sg. *-āt(i)* vs. pl. *-ãt(i)* < **-ānt(i)*.

§11. One may be tempted to conclude, then, that while the timing of the gesture which articulates the place of the nasal before heterosyllabic plosive was sometimes delayed in Hispano-Celtic such that it became partially or completely hidden behind that which articulates the plosive, such a delay occurred only sporadically. The situation may not be so cut and dried, however. Some languages are known to insert an epenthetic nasal —which may be phonemic or subphonemic depending upon language— between a nasalised vowel and a plosive, often with subsequent denasalisation of the vowel (Ruhlen 1978: 227, Krakow & Beddor 1991): Thus [Ṽ.T] > [ṼN.T] (> [VN.T]), e.gg.:

(13) Hindi (M. Ohala & J.J. Ohala 1991, J.J. Ohala & M. Ohala 1993: 238-239):[27]
a. Skt. *candra* > OHin. *cãda* > NHind. [tʃãnd] “moon”.
Polish (Stieber 1973: 92 & 97, Mazur 1993: 362):
b. OPol. *dǫbъ* > NPol. [domp] “oak”.
Portuguese (Morais Barbosa 1983: 83-98, Fagan 1988: 145-154, Sampson 1999: 177):
c. Lat. *campus* > OPort. *cãpo* > NPort. [kɐ̃^{m}p^{u}] ~ [kɐmp^{u}] “field”.

The partial or complete effacement of nasals before heterosyllabic plosives, then, may have been a generalised phenomenon in Hispano-Celtic,[28] and the nasal character in orthographic ‹VNT› sequences would represent either the remnant of a partially effaced nasal or the restoration of a nasal by epenthesis following its complete effacement.

SUPPORTING EVIDENCE

§12. It is worth noting that the Latin of ancient Hispania attests orthographic effects similar to those found in Hispano-Celtic. This is sig-

[26] Though, of course, the tautosyllabic vowel is nasalised owing to the continuing open state of the velopharyngeal port.

[27] This epenthesis occurs only before voiced plosives in Hindi.

[28] Cf. the case of Cisalpine Celtic mentioned in note 14.

nificant evidence in favour of treating the Hispano-Celtic orthographic practices as genuine reflexions of a phonological process rather than as orthographic conventions or errors by engravers.

Carnoy 1906: 170 provides a number of examples of heterosyllabic /N.T/ sequences which are written heteroörganically, e.gg.:[29]

(14) a. DECENBER (CIL ii 4587)
b. INPENSA (CIL ii 3269)
c. PONPE(ius) (CIL ii 1867)
d. SENP[RON(iae)] (CIL ii 2972)

Carnoy explains these orthographies as the result of etymological spelling and other processes of analogy,[30] but since such an explanation is ad hoc and not available for all of the attested tokens, e.gg., (14c) and (14d), it is likely that some of these tokens represent instances in which the nasal was articulated so weakly that its place was indistinct (cf. §9).

Carnoy 1906: 171-172 also lists a number of tokens in which the nasal is not written at all in inherited /VN.T/ sequences, e.gg.:

(15) Labial:
a. IPENS(is) (CIL ii 1192)
b. SEPRONIE (CIL ii 6008)

Coronal:
c. QVITVS (CIL ii 3086)
d. TENETES (CIL ii 1088)

Dorsal:
e. ACVCENSIS (CIL ii 6153)[31]
f. DEFVCTVS (CIL ii 4173)

Some of these he attributes to the effects of analogy, while for the others he remains agnostic.[32] Sampson 1999: 44-45 notes, however, that there is little evidence for the spreading of nasality to a preceding vowel in the Latin of ancient Spain, so the gestural scores for partial and complete nasal effacement in its inherited /VN.T/ sequences, e.g., /Vm.b/, are to be modelled, respectively, as in (16) and (17):[33]

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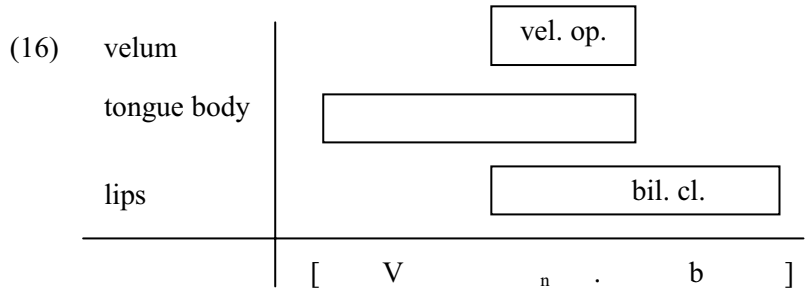
[29] All of his best examples involve the writing of the coronal nasal character before a bilabial plosive. This is probably exactly what we should expect; cf. note 24. Leumann 1977: 194 & 215 provides a few extra-Hispanic tokens of the writing of the bilabial nasal character before coronal plosives, which he attributes to "Schreiberwillkür".

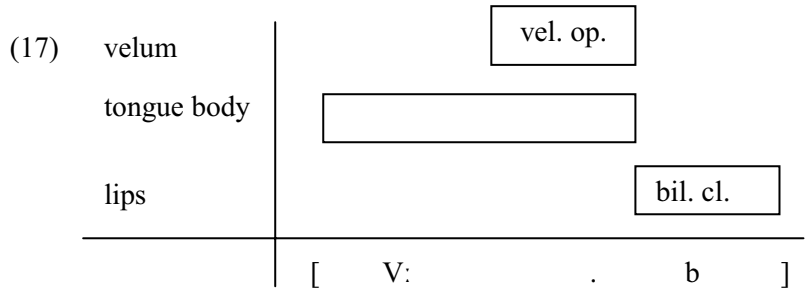
[30] Similarly Leumann 1977: 194 in his discussion of the phenomenon in Old Latin inscriptions.

[31] Hübner 1869-1892: 984 comments that *"Acucensis* videtur esse *Aquincensis* ex Aquino Pannoniae inferioris".

[32] Leumann 1977: 216 regards such tokens as the result of "Nachlässigkeit" by the respective engravers. Sampson 1999: 48, however, notes that hypercorrect orthographies, e.g., SCIANTIS (CIL ix 5860) for 2. pl. pres. subj. *sciātis* "you know", are occasionally attested, which are diagnostic of the fact that we are concerned with a genuine phonological process, not orthographic neglect. Were we dealing with orthographic errors, there would be no motivation for the hypercorrectly spelt tokens.

[33] The existence of some incidental nasality is indicated by the rare tokens which show the raising of mid vowels, e.gg., FRVTONIVS (CIL ii 1199) (cf. FRONTONIV(s) (CIL ii 345)) and





It appears, then, that nasal effacement before heterosyllabic plosives occurred in both Hispano-Celtic and the Latin of ancient Spain —though probably to a lesser degree in the latter. However, while this process was effected by a delay in timing of the gesture which articulates the place of the nasal in both languages, in Hispano-Celtic the velic gesture spread leftwards to nasalise the tautosyllabic vowel, while in Latin its duration decreased.

THE CASE OF MODERN TOPONYMS

§13. Villar 1997: 991 points out that some Hispano-Celtic toponyms have survived into modern Spanish in all of which the nasal of inherited /VN.T/ sequences is present, viz.:

(18) a. *Aranda*; cf. **aŕaTis** (A.61.2) and **aŕaTiCoś** (A.61.1).
b. *Arándiga*; comparanda as for (18a).
c. *Langa*; cf. **laCas** (A.77) and **laCiCum**.[34]
d. *Oncala*; cf. **oCalaCom** (A.85).
e. *Sigüenza*; Cf. **śeCoTias** (A.77).

SENTINTIAM (CIL ii 1963); hence the presence of the velic gesture in (17). Cf. Ohala & Solé 1991 and Solé 1992 on Castilian Spanish.

[34] See note 6 on the latter form.

He concludes, therefore, that, "at most, [there was] a possible articulatory weakening of /n/ in this position[35] but never its actual loss. At the time of Romanization, the /n/ in Celtiberian toponyms and anthroponyms would have received the strong articulation characteristic of the Latin language and was therefore preserved."

This may very well be correct. Experiments have shown that speakers of languages which do not have phonemically nasalised vowels can distinguish them as well as speakers of languages which do (Beddor & Stange 1982, Hawkins & Stevens 1985, Beddor 1993). It is probable, then, that speakers of Latin in ancient Hispania heard the nasalised vowels of Hispano-Celtic, but, as is usual when a language borrows lexical items which contain phones foreign to its phonemic inventory, substituted native for foreign phones, in this instance, a /VN/ sequence. Cf. the case of Lusisms in Castilian Spanish, in which nasalised vowels are borrowed, via substitution, as /VN/ sequences, e.g., Port. *repartição* → Span. *repartición* "distribution, share-out" (cited after Salvador 1967: 259).

Another alternative exists, however. As discussed in §11, its is possible, if not probable, that nasal effacement was a widespread phenomenon in Hispano-Celtic, but that after inherited /VN.T/ sequences evolved to /Ṽ.T/, an epenthetic nasal was inserted between the nasalised vowel and the heterosyllabic plosive with possible denasalisation of the vowel. The Hispano-Celtic toponyms which have survived into Modern Spanish, then, may merely reflect a stage at which such epentheses had become the general treatment.[36]

THE CASE OF HISPANO-CELTIC INSCRIPTIONS ENGRAVED IN ROMAN CHARACTERS.

§14. One, or both, of these explanations may underlie the fact that inherited /VN.T/ sequences are always orthographically note as ‹VNT› in Hispano-Celtic inscriptions which are engraved in Roman characters (as noted already by Lejeune 1955: 132-133). In the first scenario, it seems likely that phonemically nasalised vowels would have been written as ‹VN› in Roman characters in accordance with Latin orthography; cf. **arKaTo-** /argãto/- in the Lugano script beside ARGAṆTO- in Roman characters in the bilingual Cisalpine Celtic inscription of Vercelli (RIG *E-2 = S 141). In the second, it may be that, by the time that Hispano-Celtic inscriptions came to be written in Roman characters, nasal epenthesis between nasalised vowels and heterosyllabic plosives had come to be generalised.

[35] Viz., in syllabic coda before heterosyllabic plosive.

[36] Of course, both possibilities could have conspired together were epenthesis only sporadically implemented.

RECAPITULATION

§15. The principal results of this paper may be summarised as follows:

1. The two aberrant orthographic practices employed to write inherited /VN.T/ sequences in Hispano-Celtic, viz., ‹VMT› and ‹VT›, are not merely orthographic conventions, but provide evidence for the existence of the phonological process of nasal effacement before heterosyllabic plosives in the language.

2. Cross-linguistic considerations, furthermore, suggest that the nasal character in orthographic ‹VNT› sequences may be epenthetic in origin and, therefore, that nasal effacement before heterosyllabic plosives was a generalised phenomenon in Hispano-Celtic, thus leading, at least for a time, to the phonemicisation of some nasalised vowels.

3.- Inscriptions which were engraved in Roman characters, towards the end period of attestation of the language, do not evince any examples of either of the aberrant orthographic practices, either because the orthography of Latin was employed, i.e., orthographic ‹VN› sequences were employed to write the nasalised vowels of Hispano-Celtic, or because epenthetic vowels had come to be inserted between nasalised vowels and heterosyllabic plosives ubiquitously following the complete effacement of the nasal in inherited /VN.T/ sequences.[37]

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Abbreviations:

A	=	Untermann 1975	K	=	Untermann 1997a: 349-722
B	=	Untermann 1980	RIG E	=	Lejeune 1988: 1-54
CIL ii	=	Hübner 1869-1892	S	=	Solinas 1995
CIL ix	=	Mommsen 1883			

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[37] I should like to thank Devin Jenkins, Peter Schrijver, and Jürgen Uhlich for discussing issues connected to vocalic nasalisation and its orthographic representation with me at various points.

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