

Wege zur Konfiguration der Zeichen-Phonem-Beziehung

herausgegeben von

Alessia Bauer / Gaby Waxenberger

unter Mitwirkung von Paola Cotticelli-Kurras

Reichert Verlag

Dieser Band ist mit finanzieller Unterstützung des *Dipartimento di Culture e Civiltà / FUR*
- *Università degli Studi di Verona* gedruckt worden.

Die Publikation ist ebenfalls von der *équipe HISTARA, École Pratique des Hautes Études,*
Paris unterstützt worden.



École Pratique
des Hautes Études



Umschlag: Vercelli Book, ms. CXVII, f. 99v, Biblioteca Capitolare di Vercelli;
photographiert im Rahmen vom Lazarus Project, 2013

Divergency and Correlation in the North Italic Alphabets. Some Thoughts about Future Lines of Research

Corinna Salomon

Abstract: The four epigraphic corpora of Northern Italy document numerous alphabet variants, all ultimately derived from the Etruscan alphabet. A well-established model for these alphabets' emergence and inner development exists only for Venetic; research is still ongoing for Raetic, Cisalpine Celtic and especially the undeciphered Camunic script. The present paper presents some considerations on the most pertinent recurring issues in the study of North Italic graphematics in a comparative perspective.

Keywords: alphabet contact, alphabet history, Camunic, Cisalpine Celtic, Este alphabet, Lepontic alphabet, Lepontic, Magrè alphabet, North Italic epigraphy, Raetic, Sanzeno alphabet, Venetic

The present paper is intended to give an introduction to the North Italic alphabets, specifically focusing on issues concerning their respective emergence, internal development and possible interrelations from an alphabet-historical perspective. Due to the restricted space, it is not possible to discuss all the alphabets and their histories in detail – taking all four corpora together, a considerable amount of literature has accumulated since the groundbreaking works of Mommsen and Pauli in the 19th century. I hope that this overview of the major points of discussion will enable the reader to gain an idea of the state of research and provide a path into this somewhat marginal, but rich and complex field.

The Etruscan alphabet

In the 8th century BC, the island of Pithekoussai (modern Ischia) off the coast of Campania was colonised by Greeks from Euboea. It is not quite clear whether the settlement was a proper colony or just a trading post, but it spawned the foundation of Kyme around the middle of the 8th century on mainland Italy. The alphabet used by the colonists was that of the Euboic mother-cities Chalkis und Eretria.

The acquisition of the Greeks' script by the Etruscans was not a long time coming. Pithekoussai is the find place of one of the oldest preserved Greek inscriptions, the Cup of Nestor, dated to the last quarter of the 8th century (Jeffery 1990: 235); the oldest document of written Etruscan, on a kotyle from Tarquinia (Ta 3.1),¹ is dated to about 700 (Wallace 2008: 17). The oldest Etruscan alphabetarium, on an ivory writing tablet from Marsiliana d'Albegna (AV 9.1; about 650), shows that the Etruscans adopted the Greek alphabet, in its eastern Greek 'red' variety as used in Euboea, in its entirety, without any changes with regard to the different phonemic systems of the two languages (Jeffery 1990: 236–239). The different language is, however, reflected in the kotyle inscription by the non-

¹ Sigla for Etruscan inscriptions refer to *Etruskische Texte* (ET).

occurrence of beta, delta and omicron, and by the use of gamma to write not a voiced stop, but the palatal allophone of the unvoiced stop.

Etruscan had a plosive system consisting of two sets, which were written with the Greek characters for the unvoiced unaspirated set (pi, tau, kappa) and the unvoiced aspirated set (phi, theta, chi). A phonetic realisation very much like the Greek is *communis opinio* among Etruscologists (Wallace 2008: 30f.). The obsolete characters for the Greek voiced stops were not used in inscriptions – except gamma, which, together with kappa and qoppa, became part of an orthographical rule, the so-called *kacriqu*-rule (after the useful mnemonic form attested on the kotyle), for writing allophones in southern Etruria: kappa is used before /a/, gamma before front vowels, qoppa before /u/. This convention was soon dropped, and gamma ended up being the sole letter for /k/. The Etruscan north only ever used kappa.

Omicron does not appear in inscriptions, because Etruscan had a four-part vowel system without phonemic /o/. In the 6th century, an additional character ⚡ was created for /f/, after a phase of writing the sound with a digraph <vh> or <hv>, and put at the end of the alphabet row. The attested alphabetaria document the gradual Etruscanisation of the alphabet, with the unused letters dropping out (cf. the collection of Etruscan alphabetaria in Pandolfini 1990: 19–94). The Etruscan language had – apart from a dental affricate written with zeta – two sibilants /s/ (probably [s]) and /ś/ (probably [ʃ]). No other sibilant characters than sigma and san were used in Etruscan, but while the south employed sigma for /s/ and san for /ś/, the two characters were switched in the north.

alpha	(beta)	gamma	(delta)	epsilon	waw	zeta	heta	theta
Α	β	γ	δ	ε	Ϝ	Ζ	Η	Θ
iota	kappa	lambda	mu	nu	(samekh)	(omicron)	Pi	san
Ι	Κ	Λ	Μ	Ν	⚡	Ο	Π	Σ
qoppa	rho	sigma	tau	upsilon	(ksi)	phi	Chi	/f/
Ϟ	Ρ	Σ	Τ	Υ	Χ	Φ	Ψ	⚡

Table 1: Standardised letters of the Etruscan alphabet, including those that were not used in inscriptions (in brackets) and the newly-added letter for /f/, following Wallace (2008: 20).

In the early phase of Etruscan literacy, the writing direction was not fixed; from around 600 BC onward, Etruscan inscriptions are generally sinistroversive, until Latin influence triggers a switch to dextroversive writing in the 1st century BC. Unlike in Greek practice, boustrophedon writing is rare. The archaic Etruscan texts often dispense with word separation, which only establishes itself in neo-Etruscan time (from the 4th century onward). Syllabic punctuation was used for a short time (ca. 600–470) in the south (Wallace 2008: 17–19).

Though the great ports and commercial cities Adria and Spina in the Po delta only became relevant as Etruscan settlements around 500 BC, and Etruscan settlements north of the Po such as Mantova and Bagnolo San Vito also yield epigraphic finds only from the 5th century onward, archaic Etruscan inscriptions in the very north are known from the Reno valley (around 600) and from Rubiera (late 7th century). It would be obvious to assume that

the alphabet spread to the various peoples north of the Po from Northern Etruscan writing traditions, but detailed analyses have shown that things are not quite as straightforward.

The epigraphical corpora of northern Italy

North of the river Po, four epigraphical corpora are distinguished today:

- The Venetic corpus is attested in the east, between the Po delta, the Isonzo valley and the Gail valley, i.e. mainly today's Veneto and Friuli. About 350 inscriptions from the late 7th century onward, mainly funerary inscriptions and votives on stone and bronze objects, document an Italic language.
- Raetic inscriptions come mainly from the Trentino, South and North Tyrol. The somewhat over 300 documents from the late 6th century onward are almost exclusively votives on bronze, antler and bone; the Raetic language is related to Etruscan.
- The inscriptions in the west of the northern Padan plain encode two Celtic languages: Lepontic, with a core area between Lago Maggiore and Lago di Como, later in the Ticino, from ca. 700 onward, and Cisalpine Gaulish as spoken by the immigrating Gauls all over the northern Po valley from ca. 400 onward. Tombstones and graffiti on pottery dominate among about the 400 inscriptions; a few Celtic coin legends from the Western Mediterranean area are also written in the Lepontic alphabet.
- The Camunni in the Oglio valley, who gave their name to the Valcamonica, carved rock inscriptions, which cannot be dated. The Camunic material must be considered undeciphered, since the documents are technically legible due to the many recognisable characters, but the underlying language has not so far been convincingly analysed or identified. There are also a handful of isolated inscription finds scattered over the central Alpine area, which are written in alphabet variants that are similar to the ones used in the petrographs.

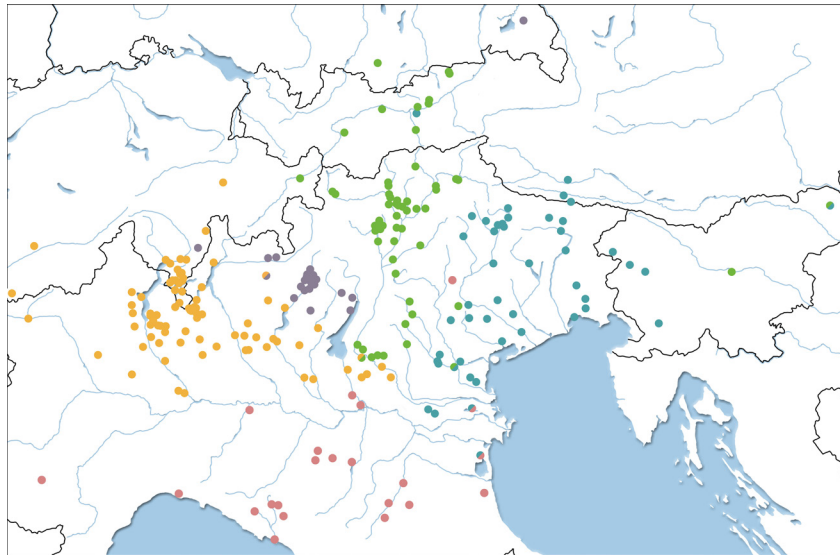


Fig. 1: Map showing the areas of attestation of the North Italic corpora (Venetic in blue, Raetic in green, Camunic in purple, Cisalpine Celtic in yellow). Etruscan inscription finds in the very north are indicated in pink.

Though the four corpora look superficially similar, there are clear differences in inscription types and alphabetic traditions. The peoples beyond the Po appear to have adopted different Etruscan writing traditions more than once, independently, and also sometimes from each other.

The Venetic alphabets

After the ‘traditional’ view on the origin of the Venetic alphabet, which assumed a derivation from the Etruscan alphabet variants of Adria and Spina (Pellegrini 1959), became untenable for chronological reasons, a more sophisticated model was developed by Prosdocimi, in detail, e.g., 1988. According to Prosdocimi, we have to distinguish two phases of Venetic writing. The first version of the Venetic script (archaic or ‘phase 1’) is attested in only four inscriptions, the most important document (*Es 120)² dating from the beginning of the 6th century at the latest. This archaic Venetic alphabet is based on a model from northern Etruria: it features a rare form of frameless theta in the form of a small St. Andrew’s cross ×, which is found in a handful of inscriptions from 6th-century Chiusi and Volsinii (Colonna 1972: 470), as seen in *Es 120. Another archaic inscription, *Es 122, shows that the digraph <vh> was used to write /f/ rather than the new Etruscan character Ɑ. Omicron is used for /o/.

A separate tradition lies at the basis of most of the younger, locally diverse alphabets (Este, Padova, Lågole di Cadore, etc., ‘phase 2’). The main evidence comes from the alphabet of Este, which is unusually well documented on a number of votive writing tablets from the sanctuary of the goddess Reitia near ancient Ateste. These tablets are bronze versions of actual wooden writing tablets with standardised letter rows in a grid and writing exercises beside the votive inscriptions. Together with the numerous inscribed votive styli, they show that Reitia’s cult was associated with writing, and that a scribal school must have been appended to the sanctuary. In this school, writing was taught with the help of syllabic punctuation,³ a practice which connects the Reitia sanctuary with the 6th-century writing tradition of the Portonaccio sanctuary in Veii in the south of Etruria. According to Prosdocimi, Etruscan priest-scribes introduced writing and cult at Este, whence the new tradition spread to other Venetic localities. Syllabic punctuation became the key feature of the Venetic script, though alphabets from other parts of the Venetic area deviate from the Este alphabet. Prosdocimi argues that the various phase-2 alphabets represent different solutions for reconciling the archaic Venetic alphabet, based on a Northern Etruscan model, with the younger Southern Etruscan one and particularly with the theoretical grid on which the writing instruction was based.

² Sigla for Venetic inscriptions refer to Pellegrini and Prosdocimi (1967) or (with an asterisk) Prosdocimi (1988).

³ The system of syllabic punctuation revolves around the concept of the basic open syllable. All letters for sounds which are not part of a simple CV-syllable are punctuated, i.e. marked by (usually) medial dots put before and after the respective letter. This concerns syllable-initial vowels and consonants in the syllable coda. Clusters of a certain structure (obstruent+*r/n/l*, also *kv*) qualify as simple onsets and are not punctuated; these clusters are listed on the tablets as part of the writing exercise (for details see Prosdocimi (1988: 336–342) and Marinetti 2002: 49).

alpha	epsilon	waw	zeta	heta	theta	iota	Kappa	lambda	mu
Α	ϵ	ϰ	ζ	η	θ	ι	κ	λ	μ
Ɑ	ϵ	ϰ	Ɱ	ϣ	Ɱ	ι	κ	λ	μ
nu	omicron	pi	san	rho	sigma	tau	upsilon	phi	chi
ν	ο	π	σ	ρ	ς	τ	υ	φ	χ
Ɱ	ο	π	Ɱ	ϱ	ς	Ɑ	Λ	⊕	Υ

Table 2: Letters of the archaic Venetic alphabet (above), and of the Este alphabet as attested on the bronze tablet Es 23

The most notable difference between the major phase-2 alphabets lies in the writing of the dental stops. The Venetians employed the letters for the Etruscan aspirated unvoiced row, which were superfluous in Venetic, to denote their Indo-European voiced stops. While, in the case of labials and velars, this transition happened smoothly (pi = /p/, phi = /b/; kappa = /k/, chi = /g/), the characters for the dentals were shifted around. Already the archaic *Es 120 clearly demonstrates the use of tau for /d/ (in *donasan* pl. ‘gave’); the above-mentioned Chiusi-style theta × must be expected to stand for /t/. This distribution is also documented for the phase-2 alphabet of Vicenza (in the stela inscription Vi 2). In the phase-2 Este alphabet (and also in the sanctuaries of Lågole and Auronzo di Cadore), /t/ as in the archaic inscriptions is written as (large) St. Andrew’s cross, but zeta, which was not required to write a dental affricate /z/, is employed to write /d/. A third combination is used at Padova, where first tau ↑, later St. Andrew’s cross X are in use for /d/, while /t/ is written with a more traditional framed form of theta ⊕ (rounded or angular).

One of the distinctive features of the Venetic script beside syllabic punctuation is the inversion of lambda and upsilon, so frequent that ↑ and Λ must be considered the standard forms. The model for this is not evident; Prosdocimi (1971: 33) suggests an inner-Venetic development aiming at stylistic unification (“regolarizzazione del ductus”) with preference for tip-up orientation to minimise distinctive features (especially in relation to pi with two bars).

The (ortho)graphical peculiarities of alphabet variants outside the major centres of writing are less well researched, not least because the attestation is comparatively sparse. The inscriptions from Slovenia written in the Isonzo alphabet were examined by Prosdocimi (1976: 220–223).

About ninety inscriptions from the sanctuaries at Este and Lågole di Cadore testify to the Latinisation of the Venetic literary culture in the 2nd and 1st centuries BC. They contain the usual Venetic names and dedication formulae, but written with Latin letters, though the latter often appear in somewhat idiosyncratic shapes that are reminiscent of North Italic letter forms.

The Lepontic alphabet

The analysis of the Cisalpine Celtic corpus is complicated by the fact that two linguistic varieties are attested. It is not clear how exactly Lepontic and Cisalpine Gaulish relate to each other; research on whether Lepontic should be considered a different language or merely an archaic dialect of Gaulish is still ongoing (Uhlich 1999 and 2007; Eska and Evans 2010: 33–35; Stifter 2020: 9f.). In consequence, it is often difficult to determine whether different instances of geographical or chronological variation in the script are epigraphically or phonetically conditioned. Our understanding of the emergence and inner development of the Lepontic alphabet is therefore at this point only superficial; no comprehensive and widely accepted model like that of Prosdocimi for Venetic writing exists.

Most researchers agree that the Lepontic alphabet is derived directly from the (Northern) Etruscan alphabet (e.g., Verger 2001: 312f.; Maras 2014: 73f.), though some have argued for a dependence on the Venetic writing tradition (prominently Rix 1997: 232; recently Eska 2017). The chronology is uninformative, as the oldest Lepontic documents come from roughly the same time as the earliest Venetic ones, i.e. the late 7th century (Maras 2014: 76). Apart from up to three ceramic pieces (e.g., CO·53)⁴ bearing the sequence *aev* – the beginning of the alphabet without beta, gamma and delta – we have no alphabetaria. Among the North Italic alphabets, the Lepontic one bears the closest graphical resemblance to Etruscan, insofar as pi and lambda are distinguished systematically as \uparrow vs. \downarrow , as prevalent in Etruscan; upsilon accordingly appears tip-down ∇ , though inverted forms do occur. San has a particular ‘butterfly’-form \bowtie (Stifter 2015: 247–249); omicron is present from the earliest inscriptions (NO·1).

It is generally agreed that we can discern an inner development of the Lepontic alphabet, which involves the dropping of theta and chi as well as of zeta and waw. The disappearance of the latter allowed the graphical change of alpha from the traditional form with a chevron and bar A to a younger form with a straight hasta and two bars \uparrow – this development is frequently used to date inscriptions palaeographically (esp. De Marinis 1991), despite the fact that it is not clear whether it happened uniformly all over the area of attestation (Stifter 2015: 46, but also Maras 2014: 85f.). Indeed, most details are still problematic. It is not clear how homogeneous the Lepontic alphabet was in different phases of its use, particularly concerning the relations between the characters for obstruents and the exact phonetic values they denote (Motta 2000: 183–186; Stifter 2015: 249–253).

alpha	epsilon	waw	zeta	theta	iota	kappa	lambda	mu
A	\uparrow	\uparrow	\ddagger	$\ominus \oplus \times$		\downarrow	\downarrow	\updownarrow
nu	omicron	pi	san	rho	sigma	tau	upsilon	chi
\updownarrow	\circ	\uparrow	\bowtie	\downarrow	$\} \}$	\dagger	∇	∇

Table 3: Standardised letters of the Lepontic alphabet until ca. 500 BC

⁴ Sigla for Venetic inscriptions refer to *Lexicon Leponticum* (LexLep).

Pi, St. Andrew's cross and kappa are the standard letters for stops, and are usually assumed to be used for both unvoiced and voiced stops. Theta and chi, though always rare, seem to have initially been optional to write the voiced stops, but the data is contradictory. Phi is absent – whether and how this gap is connected with the Celtic loss of /p/ remains to be shown. The Prestino inscription (CO·48), a dedication on a slab of stone dated to roughly 500, is the only lengthy text in which a systematic use of the characters for dentals can be argued. Zeta represents the dental affricate (more precisely, the tau gallicum sound in *uvamokozis* [uʋamoɡotsis] or [uʋamogotsis] < **upamog^hostis* ‘having the highest guests’). Both pi and kappa represent voiced stops (in *uvamokozis*, twice the dat. pl. ending *-pos* and probably *plialeθu*); chi is absent. Tau in the shape † demonstrably denotes /d/ in *tetu* [dedu:] ‘dedicated’ and *siteś* [sedēn's] acc. ‘seats’), so that theta Θ appears to stand for /t/ (*plialeθu* [blialetu:]?). Tau in *uvtiauiopos*, however, is more likely to represent an unvoiced dental.

An onomastic suffix *-eTu-*, in which the dental is spelled with theta, is also attested in the coin legend NM·6.1 (400–350) *sexeθu*. Its etymology is uncertain, as both an analysis as *-edon-* and as *-eto-* is possible (Stifter 2015: 250f.) – [segetu:] or [segedu:]. A similar name *sekezos* – with kappa for /g/ and zeta for the dental – is attested on four ceramic bowls from Prestino (CO·57–60; 450–400). If this form is considered equivalent to *sexeθu* (apart from the different stem class), zeta can be interpreted to be used for /d/ as in the Venetic Este alphabet – alternatively, it may reflect an affricated dental in a form derived with *-io-* ([segedios]) (De Bernardo Stempel 2002: 175) or again the tau gallicum sound (Rubat Borel 2005: 25). The inscriptions mentioned here as examples are some of our most instructive witnesses, which should give the reader an idea of the state of affairs.

Literature on the formation and development of the Lepontic alphabet shows an increasing awareness that the latter appears to be not so much a single alphabet with widely uniform systematics and internal development, but an only superficially (i.e. graphically) homogenous group of chronologically, geographically, contextually and socially determined traditions of writing (Rubat Borel 2005; Prosdocimi and Solinas 2006; Maras 2014). Recently, there have been efforts to clarify the picture by fundamentally reassessing the phonetics which underlie the use of the characters for obstruents. Maras (2014: 76f.) (on the basis of Gambari and Colonna 1988) posits an archaic Lepontic alphabet in which not only the dental letters, as in Venetic, but the entire rows for obstruents are transposed: pi, tau and kappa write the voiced stops, theta and chi write the unvoiced stops. Another profound reinterpretation of the data is proposed by Eska (2017), who assumes that the opposition between the two obstruent rows in Lepontic was not at all in voicedness, but in aspiration. Neither of the two proposals is convincing in all aspects, but both are indicative of a willingness in current research to question basic and long-standing assumptions about the Lepontic alphabet.

Influence from Latin writing begins to make itself felt in Cisalpine Celtic inscriptions after the Roman conquest of northern Italy, i.e. from the late 3rd century onward. Latin letter forms sporadically replace Lepontic ones, and beta, gamma and delta re-enter the stage; eventually, many inscriptions are, like the Latino-Venetic ones, essentially Latin with a few North Italic features such as oblique bars. Dextroverse writing becomes the norm (Stifter 2015: 53f.). By the beginning of the Common Era, epichoric Celtic literacy in northern Italy has disappeared completely.

The Raetic alphabets

The Raetic writing tradition is younger than both the Venetic and the Lepontic one, with the oldest inscribed object – the Situla in Providence (HU-7)⁵ – dated to the last quarter of the 6th century. Like Venetic and probably Lepontic, the Raetic language is written with more than one alphabet. Traditionally, two different alphabets are distinguished and named after the respective major find places Magrè and Sanzeno. They are systematically different in the use of variants of a handful of letters, most importantly those for pi, lambda and upsilon: the Sanzeno alphabet features forms as common in the Etruscan and Lepontic alphabets, while the Magrè alphabet, with its inverted lambda and upsilon and pi with a pocket, resembles the Venetic alphabets. Further systematic differences include the forms of heta and tau, and of the letter for the dental affricate. Word separation is only used (sporadically) in the Sanzeno alphabet, while syllabic punctuation sometimes appears in Magrè-type inscriptions.

The distinction between the two alphabets also involves geographical and chronological parameters. The notably uniform Sanzeno alphabet is attested predominantly in the Central Raetic area between Trento and the Bolzano basin in the 5th and 4th centuries, while Magrè-type inscriptions come from the north and south of the Raetic area throughout the time of attestation. In fact, the term ‘Magrè alphabet’ is a cover term for multiple local and chronological variants with specific properties – these include various different character sets and orthographies in the archaic documents (HU-7, PU-1, PA-1, VR-3), simplified syllabic punctuation at Serso in the Valsugana and at Magrè, the graphically and functionally obscure character \uparrow used at Serso and in a few scattered documents (Salomon 2017), pi with a large pocket \downarrow in inscriptions from the Inn valley, suspicious behaviour of zeta and san in inscriptions from the area of Verona (Salomon 2018: 42–46), and the idiosyncrasies of the two decidedly dissimilar petrograph alphabets attested in the Northern Limestone Alps. All these special features, however, are connected by their association with Venetic writing traditions.

alpha	epsilon	waw	zeta	heta	theta	iota	kappa	lambda	mu
Α	ϵ	Ϝ	ζ	η	θ	ι	κ	λ	μ
Λ	ϵ	Ϝ	–	Η	Χ	Ι	Κ	↓	μ
nu	pi	san	rho	sigma	tau	/z/	upsilon	phi	chi
ν	π	Ϻ	ρ	σ	τ	ζ	υ	φ	χ
ν	π	Ϻ	ρ	σ	τ	↑	υ	φ	χ

Table 4: Standardised letters of the Raetic Magrè (above) and Sanzeno alphabets

The systematic distinction, graphically, geographically and diachronically, between the Sanzeno and Magrè alphabets stands in opposition to certain shared features which set them apart from the other North Italic alphabets and can be considered typically Raetic, namely three-bar mu (otherwise only found in the Venetic alphabet of Vicenza and the Celtic petrographs of Carona, Bergamo), a preference for retrograde alpha and sigma, and the

⁵ Sigla for Raetic inscriptions refer to Schumacher (2004) and *Thesaurus Inscriptinum Raeticarum* (TIR).

presence of idiosyncratic letters to denote the dental affricate /z/. Particularly the fact that neither the Sanzeno nor the Magrè alphabet uses Etruscan zeta to denote /z/ constitutes the main argument for a derivation of both Raetic alphabets from Venetic, as proposed by Rix (1998: 48–52). Zeta was absent or was put to different use in the Venetic alphabets, so Venetic mediacy between Etruscan and Raetic writing can explain the necessity to come up with new characters for /z/ in Raetic. Yet Rix' interpretation of the use of the characters for obstruents in the Venetic and Raetic alphabets, which is also meant to support this theory (1998: 50–57), is not entirely convincing; too many orthographical variants in too small a data set make the analysis difficult.

Rix favours specifically the archaic Venetic alphabet as the model for the Raetic alphabets, which does not account for phase-2 features like syllabic punctuation and (possibly) the sporadic use of zeta for a voiced or lenited dental stop as in the Este alphabet in PU-1 *øelzuries* and the Steinberg petrographs ST-2 and ST-3 *kaszrinuale*. Quite apart from the evident (and unsurprising) influence of Venetic writing especially in the south-east of the Raetic area, there may well have been more than one Venetic source for the various Magrè-type variants. In the case of the Sanzeno alphabet, on the other hand, its graphical and orthographical homogeneity as well as the geographical and chronological restriction may point to the tradition having emanated from a sanctuary at Sanzeno in the Val di Non in the first half of the 5th century. This is the time in which the archaeological Fritzens-Sanzeno culture flourished in the Trentino and in South Tyrol – under Etruscan stimulus.

In contrast to the Venetic and Cisalpine Celtic corpora, examples of Latinisation are almost absent from the Raetic corpus. A single inscription from the Bolzano basin (BZ-24) shows the otherwise typical mix of Latin and North Italic letter forms. In the area north of Bozen, this lack of evidence could be due to the fact that the Alpine tribes were suddenly and forcibly subdued in the Roman Alpine campaign of 15 BC, but it is surprising in the south, which was gradually and peacefully integrated into the Empire as part of regio X.

The Camunic alphabets

The Camunic script, conspicuous for its obvious graphical peculiarities, is the odd one out among the North Italic alphabets. While some letter forms show it to be a member of the ancient Mediterranean alphabet family, not all characters can be readily identified with their models. The characters used in the handful of documents from places beyond the Oglia valley bear resemblance to those of the petrographs, though the alphabets cannot be said to be identical. Indeed, different systems seem to have been employed within the Valcamonica itself. The finding of twelve petrograph alphabetaria, or fragments of such, in the 1970s (Tibiletti Bruno 1990 and 1992) did little to clear things up – the inconsistent inventories of the letter rows only add new variants and raise additional questions by featuring unusual letter forms in unexpected places. Rock inscriptions from different localities, alphabetaria and the inscriptions from abroad exhibit substantial differences, which could so far be neither conclusively sorted out individually, nor reconciled.

alpha	beta	gamma	delta	epsilon	waw	zeta	heta	theta
Λ	𐌚	<	𐌛	𐌜	𐌝	Υ	𐌞	𐌟
iota	kappa	lambda	mu	nu	samekh	omicron	pi	san
𐌠	𐌡	𐌢	𐌣	𐌤	𐌥	ο	ϖ	𐌧
qoppa	rho	sigma	tau	upsilon				
Ⓣ	𐌨	𐌩	?	Λ				

Table 5: Camunic alphabetarium PC 10 from Piancogno (Tibiletti Bruno 1990: 67–76), with letters slightly standardised where their shape deviates from the otherwise most common forms (nu, qoppa). The positions of mu and nu as well as of gamma and delta are interchanged in the original; delta is written in ligature with beta.

The presence of a complete Greek row including the letters for voiced stops and omicron has been suggested to indicate that Camunic writing was derived directly from a Greek source, without Etruscan mediacy – Tibiletti Bruno (1992: 374–378) even argues that this Greek model was not of the “red” variety like the Euboic alphabet from which the other Italic alphabets ultimately derive, but of the ‘blue’ type. Yet even under such a radical premise, the shapes of the letters are highly unusual. So far, no theory for the derivation of the Camunic script (e.g., Marchesini 2011) has been entirely convincing.

In any case, the Camunic script’s evident independence from the other North Italic writing traditions is somewhat surprising considering the inscriptions’ remote and circumscribed situation in the Oglia valley. The Camunic alphabets do appear to have interacted with neighbouring writing traditions secondarily, though. The epigraphically Camunic or at least Camunoid inscriptions from beyond the Valcamonica have been argued to encode diverse languages. While the two inscriptions on stelae from Montagna in Valtellina (PID 252) and Tresivio (PID 253) feature endings similar to those commonly found in Camunic rock inscriptions, the non-Latin part of the Voltino bilingua (BS·3.2) has been read as Etruscan as well as Raetic and Celtic (Eska and Wallace 2011: 94 with literature). Celtic has also been suggested for the inscription on the Castaneda flagon (GR·3), datable to the 5th or 4th century (Markey and Mees 2004). The difficult inscription AV-1 from Bavaria was classified as linguistically Raetic by Ziegeus and Rix (1998).

What to do next

From an editorial perspective, the most important next step is the complete collection and publication of the Camunic inscriptions, which constitutes a precondition for the corpus’ analysis. This is not to say that such an edition would immediately result in profound insights about the alphabets and the underlying language, but the last comprehensive publications by Mancini (1980) and Tibiletti Bruno (1990) are clearly insufficient to support further research. The situation is different in Venetic, despite the fact that the last complete edition dates from 1967 (Pellegrini and Prosdocimi), as both language and writing are much better understood; new inscriptions have been and are being published regularly in *Studi Etruschi*. An additional

volume to the original edition, containing a collection of all new finds, as well as a complete online edition, are in planning at the Università Ca' Foscari Venezia.

The Cisalpine Celtic and Raetic inscriptions are comprehensively published in online editions, though not on the same level. *Thesaurus Inscriptionum Raeticarum* (TIR) is based on first-hand examinations of all witnesses and is continuously updated, including all (relevant) documents from recent print editions (LIR, MLR) as well as numerous new finds. *Lexicon Leponticum* (comprising all epigraphical Celtic material from Italy and the Alps) provides the only sensible sigla system for the Cisalpine Celtic corpus, but it is based on data from previous literature and awaits its refurbishment to serve as a necessary update to the last print edition (Morandi 2004).

Alphabets in contact

As can be seen from the overviews above, many of the individual issues with which we grapple in the different corpora are quite similar. The core problems in the analysis of the origins and developments of the North Italic alphabets involve the letters for obstruents, especially dental stops, sibilants and sibilant clusters, the origin of St. Andrew's cross, and whence to derive omicron. The Celtic and Venetic languages being of Indo-European descent, it is at this point difficult to determine if or in which cases similarities of the alphabets are the result of parallel developments which are due to speakers of similarly structured languages adapting similar (or identical) models, or whether the Lepontic alphabet is derived from or was influenced by the Venetic writing tradition or vice versa. For example, Rix (1997: 232) books the presence of omicron and St. Andrew's cross in Lepontic and especially the evidence of the Prestino inscription, whose distribution of framed theta for /t/ and tau for /d/ he connects with the Venetic alphabet of Padova, as evidence for Lepontic writing being dependent on Venetic writing. Theories like that of Rix, who considers Venetic to be the source of North Italic writing in general, stand in opposition to models of alphabet development which work with ongoing interactions between the North Italic writing traditions (e.g., Stifter 2015).

There is no doubt that the North Italic alphabets did not exist in isolation from each other. In addition to the Camunoid inscriptions, which appear to encode various languages and spread as far as Bavaria, there is ample tangible evidence for contacts between the speakers of the North Italic languages and, consequently, of the writers of the respective alphabets. Eska (2017, 70f.) lists examples for Celtic elements in Venetic inscriptions; Celtic as well as Venetic onomastic material is prominently represented in Raetic inscriptions. A linguistically Celtic, but alphabetically Venetic inscription is known from Oderzo (TV·1); a Venetic votive inscription (It 1; Schumacher 2009) was found at the Raetic sanctuary on the Demlfeld in North Tyrol. The most immediate evidence comes from the Negau helmet A, found in a hoard near Ženjak in Slovenia – of three legible inscriptions applied on the helmet, one is linguistically and epigraphically Raetic (SL-2.1), one is certainly epigraphically Raetic and linguistically opaque (SL-2.4), and one, according to the best interpretation (Marstrand 1925: 45–51), is a Celtic name written in the Venetic alphabet of Este (SL-2.3). We also should not disregard the two inscription stones of Feltre, which are widely considered to be Etruscan in language and script (ET Pa 4.1; Rix 1998: 58 [n. 83]), but have also been suggested to be Raetic (Morandi 1999: 91f.; LIR p. 281f.).

Omicron and the letters for voiced stops

As far as I can see, it is widely agreed that omicron in the North Italic alphabets – specifically, Lepontic and Venetic – could be retrieved as a *lettre morte* from the Etruscan alphabet row and re-activated to be used with its original Indo-European sound value, although the possibility that it was re-introduced from the Greek alphabet has often been considered a valid option – e.g., by Pellegrini (1959: 191–195), who assumed the letter to have been acquired through contact with Greeks in and south of the Po delta and in the western Mediterranean, respectively. This notion is supported by the fact that, in the Venetic alphabets, omicron is situated not in its original place, but at the very end of the row, as shown by the votive tablet Es 23, which bears a complete alphabetarium in addition to the usual consonant-only row. Prodocimi (1988: 329), in the context of his two-phase model, prefers to think that the letter came to the Venetians with the Etruscan alphabet in phase 1, and was retained in phase 2, where it had to be put at the end of the row because the Etruscan phase-2 model from Portonaccio had already discarded omicron, so that the letter had no place in its original position in the teaching grid. For the Lepontic alphabet, Pellegrini's (1959: 193–195) Greek derivation has suffered from the finding of increasingly older inscriptions (Gambari and Colonna 1988: 144f.; Maras 2014, 76f.), though the Greek presence at the mouth of the Rhône does date back to the late 7th century.

Models in which omicron is derived from the Etruscan alphabet without Greek involvement have to explain why omicron was re-activated, while the letters for the voiced stops were ignored. Prodocimi (1988: 331–333) and Gambari and Colonna (1988: 144f.) assume that the characters for the Etruscan aspirates were preferred for being active letters, despite the wrong sound value, over *lettres mortes*, and 'dead' omicron was only used because there was no alternative available among the active letters. Maras (2014: 77) tentatively suggests that his switched obstruent letter sets in Lepontic can explain the choice of the Etruscan letters for aspirates over those for voiced stops, if the Celtic unvoiced stops were aspirated. The issue is obviously somewhat simplified if one assumes that the almost equivalent inventories of the Venetic and Lepontic alphabets, with omicron and the letters for aspirates to the exclusion of the letters for voiced stops, are linked, i.e. that the choice was made only once and adopted for all other North Italic alphabets. Thus, Rix (1997: 244) argues a phonetic basis for the choice in Venetic: assuming that the second Etruscan obstruent row was not aspirated, but fricative, he holds that phi, theta and chi were in fact the obvious choice, because the Venetic voiced stops were articulated as spirants in the intervocalic inlaut.⁶ Eska (2017: 69–71) argues that the only sporadic employment and eventual abandonment of chi and theta in the Lepontic alphabet points to a Venetic mediacy between the Etruscan and Lepontic alphabets, as the Etruscan use of the letters would have fitted the Lepontic phonetics (as reconstructed by him) perfectly.

An aspect which needs to be considered here is that of the oral transmission of sound values which must necessarily accompany that of the written letters. The notion that *lettres*

⁶ Rix himself supports this notion only with problematic evidence derived from comparison with Camunic and Runic (1997), but Marinetti (2002: 47) adduces the Venetic spelling <maisteratorfos> for the dat. pl. *maisteratorbos* in Auronzo.

mortes could have been re-activated in their original function without recourse to the original source is problematic – even if unused characters were retained in an alphabet row, the transmission of the sound values would be down to speakers of the mediating language, which by definition did not have phonemic distinction of these very values. Could speakers of Etruscan have reproduced sound values which to them were allophones at best so accurately that speakers of Venetic and Lepontic could salvage the original Indo-European grapheme–phoneme correspondence intact?

St. Andrew's cross

The discussion concerning the use of the characters for obstruents in the North Italic alphabets is tied in with the question of the derivation of St. Andrew's cross \times . The issue was, again, treated in most detail by Prosdocimi (1988: 332) for Venetic. Prosdocimi, regarding the archaic distribution, explains the swap of dental letters, tau for /d/ and theta for /t/, by assuming a developing homography of tau † and the frameless St. Andrew's cross theta \times / χ . A tendency for tau to turn into an oblique cross-shape can in fact be seen on some of the Este tablets, where the letters can be unambiguously identified by their position in the alphabetarium: tau is a smaller and sometimes lopsided cross (e.g., in Es 23), theta is a large cross whose tips reach into the corners of its panel. The phonetic values were swapped before the characters were graphically differentiated again. To further avoid homography in this area, tau was substituted by zeta at Este; at Padova, the form of theta was changed to the framed variant, which allowed tau to turn into \times . In other words, according to Prosdocimi, Venetic St. Andrew's cross as a letter for a dental phoneme has two separate origins: from theta in the Este alphabet, from tau in the Padova alphabet.

Interestingly, Prosdocimi points to St. Andrew's cross in the Lepontic alphabet as evidence for cross-shaped tau, presuming that that letter is in fact tau. This, however, is by no means clear. Maras (2014: 82f.), for example, considers Lepontic St. Andrew's cross to be theta, to account for the letter's appearance in places where we would expect /t/ (e.g., the verbal form VA·6 *kari* χ e [karite] 'raised [vel sim.]'). With reference to the Venetic treatment of dentals, he distinguishes between archaic Lepontic writing traditions based on whether they introduced frameless theta = St. Andrew's cross in the second half of the 6th century to replace framed theta (Sesto Calende, Golasecca, Castelletto Ticino) or tau (Como–Prestino), and assumes that the opposition between the letters for dentals was eventually neutralised. He makes no explicit mention of Prosdocimi's homography of lopsided tau and St. Andrew's cross theta in Venetic, though it seems to me an obvious addition to the theory, turning the otherwise unmotivated abandonment of phonological distinction into a case of graphic merger – cf., however, Eska (2017: 65, n. 39), who points to the later use of san for /d/ as explained by Stifter (2010).

I am not convinced that Maras' theory is correct in all details; specifically, his identification of all occurring cross-shapes, including †, as St. Andrew's cross and consequently theta needs to be reconsidered. Still, it is at this point advisable to assume that Lepontic St. Andrew's cross is a variant of theta. The form is absent from the very earliest inscriptions,

which have framed theta.⁷ It first appears in the second half of the 6th century (VA·6), but is notably absent in the inscription on the Prestino stela, which employs \ominus and \dagger . The cross-shape \dagger , which I would be inclined to label as tau, appears twice more, once in the archaic TI·36.3 (*metalui*) and once in the late NO·21.1 (*karnitus*), both times in opposition to χ . χ never occurs beside framed theta. In any case, though the details of the development are not at all clear to me, I believe that Maras is right in attempting to identify separate systems instead of trying to explain all the inconsistent data as variation within the same system.

The same may be true for the Raetic alphabets. St. Andrew's cross appears beside tau (\dagger or \ddagger ; on the latter see Salomon 2017: 244–250) in numerous inscriptions in both the Magrè and the Sanzeno alphabet, while any form of framed theta is absent – it is therefore preferable to identify Raetic St. Andrew's cross as theta as well.⁸ Yet doubts remain – considering the differences between the Raetic alphabets and also the variation within the Magrè alphabet, it is not a given that Raetic St. Andrew's cross has only one origin. Moreover, at Magrè, it is sometimes difficult to distinguish between St. Andrew's cross and regular tau, as many crosses are lopsided in exactly the way which Prosdocimi suspects to have caused the dental confusion in the first place (e.g., MA-1 *pi^hamne*, MA-6 *θ^hriahis*).

It is certainly conspicuous that the large St. Andrew's cross – a letter which is, to my knowledge, entirely absent from Etruscan – ended up being the most widely used letter for dental stops in most North Italic alphabets. Camunic, as usual, deviates, with χ appearing only sporadically in inscriptions and not at all in the alphabetaria.

San and zeta

Sigma is the letter used to denote the standard sibilant in all North Italic alphabets, while san is clearly secondary. San in Venetic leads a marginal existence, being eclectically used to denote dental clusters with fricative features (a transparent example is Es 76 <veskeš> for *veskets*). The use of san in Lepontic is investigated in detail by Stifter (2010: 367–374), who shows that san is used throughout the time of attestation to denote dental clusters, specifically such as emerge as tau gallicum in Transalpine Gaulish inscriptions (e.g., VA·6 *isos* < *istos, VR·15 *košio* < *g^hostijos), but is also employed, in later phases, to write /d/ (e.g., MI·10.1 *mešiolano* < *medjolanom, VR·14 *kelešu* < *keledon-). Zeta is also attested denoting the tau gallicum sound, in the Prestino inscription's *uvamokozis* < *upamog^hostis.⁹ Stifter (2015: 252f.) suggests that the expansion of the function of Lepontic san is caused by the use of san and zeta in Venetic: as both zeta and san were options to represent dental-sibilant clusters, and zeta was known from the Venetic Este alphabet to denote /d/, san could by analogy also be used for /d/.

⁷ No image of the inscription mentioned by Maras (2014: 76, n. 1), which apparently contains a form of tau, is available to me.

⁸ Small St. Andrew's cross, the original Chiusi-style form of frameless theta in Venetic, appears in two inscriptions from the Inn valley (IT-7, IT-8), but a connection is unlikely.

⁹ Zeta occurs here beside san in *sites* [seden's], apparently distinguishing two different etymological sources of tau gallicum which were still articulated differently in the 5th century.

The use of sigma for Indo-European /s/ appears to be derived from Southern Etruscan usage. It is attested already in the archaic Venetic inscriptions (*Es 120), which is surprising if the archaic alphabet is derived from a Northern Etruscan model as claimed by Prodocimi. Prodocimi (1988: 330f.) suggests that Venetic /s/ was phonetically closer to the Etruscan marked sibilant /ś/ than to the unmarked one, and was therefore written with sigma. Should the Venetic distribution of the characters for sibilants be indeed based on the phonetic characteristics of Venetic, their inversion in both Raetic and Lepontic may depend on the Venetic use. Prodocimi, however, also considers the possibilities that the dominant Southern Etruscan writing practice generally had an influence on the formation of the North Italic alphabets, including archaic Venetic,¹⁰ or that the Northern Etruscan model was not too consistent in its use of the two characters.¹¹ Colonna (Gambari and Colonna 1988: 147) explains the use of sigma for /s/ in Lepontic by assuming that the use of the two characters was generally not determined phonetically, but that sigma was always used for the most common sibilant – the alveolar sibilant in southern Etruria and in Lepontic, the palatal sibilant in the Etruscan north; Maras (2014: 77f.) prefers to think that the Indo-European situation with only one sibilant was so unlike the Etruscan one that sigma may have been chosen at random. Any of these options would allow for the independent allocation of the two characters in the Southern Etruscan manner in Venetic, Raetic and Lepontic.

Despite the probability that the usage of sigma and san in the Raetic alphabets depends on that in Venetic and/or Lepontic, the situation here is different insofar as the language most likely did have two simple sibilant phonemes, just like Etruscan. San occurs about twenty times and is restricted to positions in the *anlaut*, before and between vowels (of no particular quality, though high vowels dominate), and before *n*. The latter context may indicate a palatalisation phenomenon *s > ś / _n*, which is also known from Northern Etruscan (Eichner 2012: 25, n. 43). This distribution suggests that san was used to denote the equivalent of the Etruscan palatal sibilant, but seeing that the neighbouring traditions for Indo-European languages employed the letter for various dental-sibilant clusters, it cannot be excluded that it was also put to such a use in Raetic, so that the use of san in Raetic is not uniform.¹²

In inscriptions from San Giorgio di Valpolicella in the area of Verona, san occurs in three of six language-encoding inscriptions, while sigma is entirely absent. It might be considered that san denotes /s/ at San Giorgio,¹³ following Northern Etruscan practice, which would tie in with the absence of St. Andrew's cross and the possible use of zeta for

¹⁰ See Rubat Borel (2005: 16) and Maras (2014: 84) on a possible instance of qoppa in the Lepontic alphabet (NO-22), which would also constitute a Southern Etruscan element.

¹¹ For the second one cf. ET p. 12f. on sigma for /s/ in Northern Etruscan writing: these cases can be due to influence from Southern Etruscan or Latin writing practice, or to imported spellings in loanwords, but it must be remembered that the dialectal differences involving palatalisation processes in Northern and Southern Etruscan are not yet so well understood that individual cases can be judged with certainty.

¹² Two onomastic elements may indicate that san could denote geminated sibilants in loans from Indo-European: SZ-15.1 *kapaśu*^o is possibly formed with a suffix which usually appears as *-ass-* in Roman inscriptions; comparanda with <SS> can be found for BZ-3 *laśa(mu)*.

¹³ A possible piece of evidence is furnished by VR-14 *lavśa*, if it is to be compared with repeatedly attested *lavise*, unless the sibilant in VR-14 is palatalised after (syncopated?) /i/.

the dental affricate at that site (Salomon 2018: 42–46). The latter, if indeed the case, would be unique in the Raetic context, where zeta is not used to write /z/. Instead, two different letters are used respectively in the Sanzeno alphabet (↑) and in the inscriptions from the major find place Magrè exclusively (𐌆). The letters' value can be determined through a number of comparanda, viz. repeated *pinaxe* ~ Etr. *zinace* 'put [vel sim.]', SZ-4.1 *pal* ~ Etr. *zal* 'two', and possibly SZ-5 *vap-* ~ Celt. **yats-* (Schumacher 1998: 98, n. 14).

The graphical derivations of both these letters are unclear. The 'arrow sign' ↑ is reminiscent of tau, and indeed Rix (1992: 420) suggests that it is simply tau with a broken bar, but tau does not occur in this shape in the Etruscan alphabet or regularly in any of the North Italic alphabets, all of which have a single unbroken bar. A character ↑ appears in the variable and problematic codas of the Camunic Piancogno alphabetaria, in the Camunoid inscription on the Castaneda flagon (GR·3), and in two dubious inscriptions from the Gailtal (Gt 20, Gt 22, ascribed to the Venetic corpus), but it is not clear whence this letter is derived and which sound value it represents, nor whether there is a connection with the Raetic letter.

The letter 𐌆 (once 𐌆) at Magrè has a possible graphic parallel only in Camunic alphabetaria, where a character 𐌆 occupies the position of san (see table 5). Since san denotes the tau gallicum sound [t^s] in the Lepontic alphabet, it might be considered whether the writers at Magrè employed san in a Camunic form, but with its Lepontic value, to represent /z/. This connection, however, is very tenuous. 𐌆 at Magrè is clearly secondary, and appears to lack its third pocket simply because the complex form 𐌆 tends to get oversized in comparison to the other letters. Rix (1992: 420; also 1998: 47) and Markey (2001: 93) suggest 𐌆 to be developed from a digraph of tau and sigma or san; Schumacher (2004: 311) considers both Raetic letters for /z/ to be creations from scratch. Also, Raetic standard san 𐌆 is attested in the Magrè inscriptions. There may be a slight possibility that both Camunic and Raetic forms of san are used to write the affricate at Magrè – MA-14 *sur* is opaque, but MA-4 -]śu can be compared with -bu in MA-2, MA-5 and MA-23. Markey (2006: 157), who assumes 𐌆 to stand for /d/, reads Celtic names in -*edon-* (cf. CO·48 *plialethu*, NM·6.1 *sexeθu* mentioned above) – while the letter clearly represents /z/ in *pinaxe*, the notion that it might also be used for /d/ takes us full circle back to Lepontic san.

Conclusion

As, I hope, the discussions above have shown, there is much to be gained from a very close study of the North Italic inscriptions in terms of letter shapes and letter usage, especially when we give less regard to the boundaries of corpora and compare graphematic features and their functions within a more comprehensive North Italic perspective. Especially in the earlier phases of the 170 years of research on North Italic epigraphy, palaeographic considerations have played a major, at times even primary part in the efforts to define epigraphic groups in Northern Italy, but ever since our understanding of the underlying languages has begun to increase, linguistic definitions have taken precedence as the basis upon which we distinguish the North Italic corpora. Yet, while there are some clear correlations between languages, alphabets and also archaeological groups, this must not obscure the fact that – as long established for Venetic and Raetic and likely for Cisapine Celtic and Camunic – we are dealing with numerous writing traditions within any one corpus. All these alphabets or

rather alphabet variants – with the possible exception of the Camunic alphabet – were no more different from each other than today’s versions of the Latin alphabet as it was adapted to write the languages of Europe, and were essentially readable to people with different linguistic and orthographical backgrounds. Any level of multilingualism must have been highly conducive not only to interference between the traditions, but to the development of new ones. Beyond the Reitia sanctuary, we have little access to the mechanisms by which the knowledge of writing spread through Northern Italy, and it is not at all a given that the main borders between writing traditions and their alphabets coincide with linguistic borders.

Bibliography

- Colonna, Giovanni, ‘Clusium et Orvieto’, in: *Studi Etruschi* 40 (1972): 470–471.
- De Bernardo Stempel, Patrizia, ‘La ricostruzione del celtico d’Italia sulla base dell’onomastica antica’, in: *L’onomastica dell’Italia antica*, Paolo Poccetti (ed.). Roma 2002: 153–192.
- De Marinis, Raffaele Carlo, ‘I Celti Golasecchiani’, in: *I Celti. Catalogo della mostra di palazzo Grassi*, Sabatino Moscati et al. (eds). Milano 1991: 93–102.
- Eichner, Heiner, ‘Sakralterminologie und Pantheon der Etrusker aus sprachwissenschaftlicher Sicht’, in: *Kulte – Riten – religiöse Vorstellungen bei den Etruskern und ihr Verhältnis zu Politik und Gesellschaft. Akten der 1. Internationalen Tagung der Sektion Wien/Österreich des Istituto Nazionale di Studi Etruschi ed Italici (Wien, 4.–6. 12., 2008)* (Denkschr. d. ÖAW, Phil.-hist. Kl. 440), Petra Amann (ed.). Wien 2012: 17–46.
- Eska, Joseph F., ‘Phonological contrasts and character reduction in the alphabet of Lugano’, in: *Zeitschrift für celtische Philologie* 64,1 (2017): 59–80.
- Eska, Joseph F. and Wallace, Rex E., ‘Script and Language at Ancient Voltino’, in: *Alessandria* 5 (2011): 93–113.
- Eska, Joseph F. and Evans, D. Ellis, ‘Continental Celtic’, in: *The Celtic Languages*, Martin Ball and Nicole Müller (eds). London/New York 2010: 28–54.
- ET = Meiser, Gerhard (ed.), *Etruskische Texte. Editio minor, rev. ed. with Valentina Belfiore and Sindy Kluge* (Studien zur historisch-vergleichenden Sprachwissenschaft 4). Hamburg 2014.
- Gambari, Filippo Maria and Colonna, Giovanni, ‘Il Bicchiere con Iscrizione Arcaica da Castelletto Ticino’, in: *Studi Etruschi* 54 (1986 [1988]): 119–164.
- Jeffery, L[ilian] H., *The Local Scripts of Archaic Greece. A study of the Origin of the Greek Alphabet and its Development from the Eighth to the Fifth Centuries B.C., rev. ed. with a suppl. by A. W. Johnston*. Oxford 1990.
- LIR = Mancini, Alberto, *Le Iscrizioni Retiche* (Quaderni del dipartimento di linguistica – Università di Firenze, Studi 8–9). Padova 2009–10.
- Mancini, Alberto, ‘Le iscrizioni della Valcamonica’, in: *Studi Urbinati di storia, filosofia e letteratura, Suppl. ling.* 2 (1980): 75–167.
- Maras, Daniele F., ‘Breve storia della scrittura celtica d’Italia. L’area Golasecchiana’, in: *zixu* 1 (2014): 73–93.
- Marchesini, Simona, ‘Alla ricerca del modello perduto. Sulla genesi dell’alfabeto camuno’, in: *Palaeohispanica* 11 (2011): 155–171.
- Marinetti, Anna, ‘Caratteri e diffusione dell’alfabeto venetico’, in: *AKEO. I tempi della scrittura*. Cornuda 2002: 39–54.

- Markey, Tom, A 'Tale of Two Helmets: The Negau A and B Inscriptions', in: *JIES* 29 (2001): 69–172.
- Markey, Tom, 'Early Celticity in Slovenia and at Rhaetic Magrè (Schio)', in: *Linguistica* 46 (2006): 145–171.
- Marstrander, Carl Johan Sverdrup, 'Les inscriptions des casques de Negau, Styrie', in: *Symbolae Osloenses* 3 (1925): 37–64.
- MLR = Marchesini, Simona, *Monumenta Linguae Raeticae, with Rosa Roncador*. Roma 2015.
- Mommsen, Theodor, 'Die nordetruskischen Alphabete auf Inschriften und Münzen', in: *Mittheilungen der antiquarischen Gesellschaft in Zürich* 7/8 (1853): 197–260.
- Morandi, Alessandro, *Il cippo di Castelciès nell'epigrafia retica*. Roma 1999.
- Morandi, Alessandro, *Celti d'Italia II: Epigrafia e lingua dei Celti d'Italia*, ed. Paola Piana Agostinetti (Popoli e civiltà dell'Italia antica 12.2). Roma 2004.
- Motta, Filippo, 'La documentazione epigraphica e linguistica', in: *I Leponti tra mito e realtà. Raccolta di saggi in occasione della mostra*, Raffaele C. De Marinis, Simonetta Biaggio-Simona (eds). Locarno 2000: 181–222.
- Pandolfini, Maristella, 'Gli alfabetari etruschi', in: *Alfabetari e insegnamento della scrittura in Etruria e nell'Italia antica* (Biblioteca di Studi Etruschi 20), Maristella Pandolfini, Aldo L. Prodocimi (eds). Firenze 1990: 3–94.
- Pauli, Carl, *Altitalische Forschungen 1: Die Inschriften nordetruskischen Alphabets*. Leipzig 1885.
- Pellegrini, Giovan Battista, 'Origine e diffusione degli alfabeti preromani nell'Italia superiore', in: *Spina e l'Etruria padana. Atti del primo convegno di studi etruschi* (Studi Etruschi suppl. to vol. 25). Firenze 1959: 181–196.
- Pellegrini, Giovan Battista and Prodocimi, Aldo Luigi, *La lingua venetica*. Padova 1967.
- Prodocimi, Aldo Luigi, 'L'alfabeto (venetico) delle iscrizioni di Idria (Is 1, 2, 3) e gli alfabeti delle iscrizioni di Negau (A-B) e Vače, appendix to Aldo Luigi Prodocimi and Piergiuseppe Scardigli, 'Negau', in: *Italia linguistica nuova ed antica* (GS Parlangèli), Vittore Pisani, Ciro Santoro (eds). Galatina 1976: 203–229 (179–229).
- Prodocimi, Aldo Luigi, 'Note di epigrafia retica', in: *Studien zur Namenkunde und Sprachgeographie (FS Finsterwalder)* (IBK 16), Wolfgang Meid et al. (eds). Innsbruck 1971: 15–46.
- Prodocimi, Aldo Luigi, 'La lingua', in: *I Veneti Antichi. Lingua e cultura*, Giulia Fogolari, Aldo L. Prodocimi (eds). Padova 1988: 221–440.
- Prodocimi, Aldo Luigi and Solinas, Patrizia, 'Celticità linguistica in Italia prima del 400. Documenti e prospettive', in: *Celtes et Gaulois. L'archéologie face à l'histoire. La préhistoire des Celtes*, Daniele Vitali (ed.). Bibracte 2006: 217–234.
- Rix, Helmut, 'Thesen zum Ursprung der Runenschrift', in: *Etrusker nördlich von Etrurien. Etruskische Präsenz in Norditalien und nördlich der Alpen sowie ihre Einflüsse auf die einheimischen Kulturen. Akten des Symposiums von Wien – Schloß Neuwaldegg, 2.–5. Oktober 1989* (Sitzungsber. d. ÖAW, Phil.-Hist. Kl. 589), Luciana Aigner-Foresti (ed.). Wien 1992: 411–441.
- Rix, Helmut, 'Germanische Runen und venetische Phonetik', in: *Vergleichende Germanische Philologie und Skandinavistik (FS Werner)*, Thomas Birkmann et al. (eds). Tübingen 1997: 231–248.
- Rix, Helmut, 'Rätisch und Etruskisch' (IBS Vorträge 68). Innsbruck 1998.
- Rubat Borel, Francesco, 'Lingue e scritture delle Alpi occidentali prima della romanizzazione. Stato della questione e nuove ricerche', in: *Bulletin d'Études Préhistoriques et Archéologiques Alpines Aoste* 16 (2005): 9–50.

- Salomon, Corinna, ‘Zu Varianten von Pi und Tau in rätischen Inschriften’, in: *Die Sprache* 51,2 (2014/2015 [2017]): 237–263.
- Salomon, Corinna, ‘*Thesaurus Inscriptionum Raeticarum* – New readings and inscriptions’, in: *Die Sprache* 52,1 (2016/2017 [2018]): 32–101.
- Schumacher, Stefan, ‘Sprachliche Gemeinsamkeiten zwischen Rätisch und Etruskisch’, in: *Der Schlern* 72,2 (1998): 90–114.
- Schumacher, Stefan, *Die rätischen Inschriften. Geschichte und heutiger Stand der Forschung*, 2nd ext. ed. (IBK Sonderheft 121). Innsbruck 2004.
- Schumacher, Stefan, ‘Eine neue venetische Inschrift aus Ampass bei Hall in Tirol, *h₂nr (FS Eichner)’, in: *Die Sprache* 48 (2009): 201–208.
- Stifter, David, *Lepontische Studien: Lexicon Leponticum und die Funktion von san im Lepontischen, Akten des 5. Deutschsprachigen Keltologensymposiums Zürich, 7.–10. September 2009* (Keltische Forschungen. Allgemeine Reihe 1), Karin Stüber et al. (eds). Wien 2010: 361–376.
- Stifter, David, ‘Keltische Schriftsysteme – Die lepontische Schrift: Entwicklung in Interaktion’, in: *Historical Linguistics* 128,1 (2015): 236–259.
- Stifter, David, *Cisalpine Celtic. Language – Writing – Epigraphy* (AELAW booklet 9). Zaragoza 2020.
- Tibiletti Bruno, Maria Grazia, ‘Nuove iscrizioni camune’, in: *Quaderni Camuni* 49/50 (1990): 33–171.
- Tibiletti Bruno, Maria Grazia, ‘Gli alfabetari’, in: *Quaderni Camuni* 60 (1992): 309–380.
- TIR = *Thesaurus Inscriptionum Raeticarum*, Stefan Schumacher, Corinna Salomon, Sindy Kluge (eds), www.univie.ac.at/raetica [4.9.2019].
- Uhlich, Jürgen, ‘Zur sprachlichen Einordnung des Lepontischen’, in: *Akten des zweiten deutschen Keltologensymposiums (Bonn, 2.–4. April 1997)* (Buchreihe der Zeitschrift für celtische Philologie 17), Stefan Zimmer et al. (eds). Tübingen 1999: 277–304.
- Uhlich, Jürgen, ‘More on the linguistic classification of Lepontic’, in: *Gaulois et celtique continental* (École pratique des hautes études. Sciences historiques et philologiques. III. Hautes études du monde gréco-romain 39), Pierre-Yves Lambert, George-Jean Pinault (eds). Genève 2007: 373–411.
- Verger, Stéphane, ‘Un graffite archaïque dans l’habitat hallstattien de Montmorot (Jura, France)’, in: *Studi Etruschi* 64 (1998 [2001]): 265–316.
- Wallace, Rex, *Zikh Rasna. A Manual of the Etruscan Language and Inscriptions*. Ann Arbor/New York 2008.