



The lost obstruents of modern Basque and proto-vasconic remodeling

By Alexis Martin, PhD, MD, MA, BA, UCLA

Abstract. The Basque language, or *Euskara*, is known for a typology that differs markedly from that of its Romance neighbors. Distinctive diachronic processes of the Pre-Proto-Vasconic language have deleted, or reduced by lenition, three classes of ancient obstruents and nasals. Remodeling on such a scale has imposed a broad imprint across the lexica and morphologies of both Proto-Basque and its descendant dialects.

Despite the monumental successes of internal reconstruction, the consequent inability to identify related languages outside of Basque for comparison persists and has obscured a more extensive knowledge of earlier stages of the Vasconic (Euskaran) language. With no external comparanda, the Euskaran language continues to be deemed an ‘isolate’. This investigation purports to mitigate the problem by following a solution originally proposed by the renowned philologist, Luis Koldo Mitxelena, ‘father’ of Euskaran historical phonology. In order to identify the ‘missing’ obstruents, select phonologic clues left within root morphemes of the diverse Vasconic dialects allow tentative reconstructions. These may then be compared with reconstructed analogs from other typologically similar and possibly related protolanguages. This study evaluated Proto-Nakh-Dagestanian for that purpose. The final analysis concludes that a comparison of higher-order protolanguages remains an optimal method for clarifying putative relationships, whether genetic or areal, between distant language groupings such as that alleged to exist between the Vasconic and Nakh-Dagestanian families.

Keywords: Basque language, Euskaran, Vasconic, Proto-Basque, Mitxelena/Michelena, Lakarra, Gorrotxategui, Hualde, Egurtzegi, Nakh-Dagestanian languages, protolanguages, Sprachbund, Vasconic,

1. Introduction. It is well known that the typology of the Basque language, or *Euskara*, resembles more closely the typologies of the languages of Eurasia than the those of its European neighbors. Aside from the much discussed topic of ergativity, many other distinctive features have been noted over the past 150 years to explain the markedness of Vasconic morphology, syntax and vocabulary (Bonaparte 1869, Trombetti 1925, Larrasquet 1928, Troubetskoy 1930). Of the diachronic processes behind this uniqueness, the REDUCTION TO ZERO AND THE LENITION OF SEVERAL CLASSES OF OBSTRUENTS AND NASALS are the most emblematic of the extensive remodeling that has taken place in the Proto-Vasconic lexicon and word canon. In the seminal work, *Historical Basque Phonology. The Complete works of Luis Mitxelena* (1990), the late ‘AITATXI’, or ‘beloved godfather’, of Basque historical phonology, Luis Koldo Mitxelena, wrote

extensively of the problems created by the phonologic restructuring which he viewed as a major impediment for comparativists in accessing earlier stages of the language. On a path to resolving this issue, Mitxelena insisted that investigations of historical comparative phonology should take priority over adhoc lexical comparisons from outside Euskaran. He cleverly demonstrated that the earliest Latin loanwords acquired by the Proto-Basque language during a period from the start of Roman incursions, c. 200 BCE, through the return of Vasconic and Aquitanian mercenaries from the Sertorian War of 70-80 BCE, were subject to the same diachronic processes as native lexemes. From these phonologic observations, he was able to identify specific processes effecting both loans and native lexemes alike (Mitxelena 1990, 1995).

Seizing upon Mitxelena's advances, Joseba Lakarra of the University of the Basque Country extended our knowledge of Proto-Basque through the deployment of INTERNAL RECONSTRUCTION by which he was able to outline the first glimpse of the pre-Iron-Age language referred to as PROTO-VASCONIC (Lakarra 1995, 2018). Relying on Lakarra's groundwork, the current study focuses on an even more remote period of the Euskaran language and examines its earliest reconstructable stage, referred to in the text as PRE-PROTO-VASCONIC, spoken presumably from the beginning of the Third Millennium BCE, or perhaps earlier, to the middle of the Bronze Age.

Remarkably, historical orthographic evidence exists which documents the presence of another Vasconic language closely related to both the Iron-Age Proto-Basque and the language of the neighboring Aquitanians (Mitxelena 1954, Gorrotxategui 2022). The newly discovered Vasconic language identified from the Irulegi inscription was uncovered in 2021 at excavations in Lower Navarre. Written with Iberian characters, the text validates the existence of the newest member of the Vasconic language group, whether an ancient dialect or separate language, which was spoken in the wine-producing Pyrenean foothills of Northeastern Spain at the time of Pompey's first Spanish campaign in 49 BCE (Aiesteran & alia 2024).

The absence elsewhere of historical orthographic evidence, however, makes the delineation of the extent of the Vasconic language-area within the rest of Ancient *Hispania* less certain. To judge from the toponymic evidence, one may assume that throughout the Early Bronze Age, Proto-Vasconic was spoken by the ancestors of the VASCONES within the present-

day Basque Country (Hualde & alia 1995) and by the closely related ARTENACIAN people, ancestors of the Iron-Age Aquitanians (Ard 2013). Known for their skills at megalithic construction, these descendants of Late Neolithic settlers excelled in creating dolmens, great menhirs and caches of fine tanged arrowheads. They resisted successfully the intrusive Beaker Folk while occupying a wide swath of the Atlantic Coast of France and Northern Spain as far south as the Meseta and as far north as Brittany and inland up to the type-site at Chalignac in the Charente (Hubschmid 1964, Burnez 2010). Classical geographers observed their Vasconic descendants were noted for their warlike abilities as skilled archers, cavalymen and metal-workers with superb weaponry (Strabo, *Geography*, IV, 2.1; Julius Caesar, *Commentarii de Bello Gallico*, I-1, III-25-27, Ptolemy, *Geography*, II-7, Pliny the Elder, *Naturalis Historia* IV, 109, Burnez 2010). A detailed sketch of the historic Vascones and Aquitanians appears in Gorrotxategui's exceptional article in Hualde et alia (1995, 31-57). Regarding their language, without more historical epigraphic documentation, like that of the Irulegi inscription, older stages of the language have remained elusive and beyond our reach until recently. In a review of the limitations of the historical comparative technique when applied to Euskaran, such inadequacies were foreseen and forewarned recently by the renowned Bascologist, José Hualde (2021: 54 (1-2): 19-52).

A statistical method for understanding the multiple diachronic changes of Proto-Basque was subsequently proposed by Miguel Carrasquer Vidal (2001) of the University of Leiden. Vidal's effective heuristic approach reaffirmed many of Mitxelena's conclusions but also observed that specific plosives and nasals had been reduced. More remarkably, some had simply been DELETED from earlier versions of the ancestral Proto-Vasconic inventory (Vidal 2001). With that insight, the problem begged the greater question, "WHAT ARE THE SPECIFIC OBSTRUENTS THAT WERE DELETED TO EFFECT THE DEGREE OF REMODELING OBSERVED IN EUSKARAN?" This overriding concern became the impetus for the present study.

For the above reasons and for the linguistic parallels described here, a typologically similar protolanguage, Proto-Nakh-Dagestanian, long suspected of being related to Vasconic, has been revisited in this study. Despite the fact that any hypothetical connection between Vasconic and Caucasian languages has been poorly received by Trask and other Bascologists (Hualde et

alia 1995, 81-82), this analysis, nevertheless, follows Mitxelena's counsel (1995, 132) and investigates the Northeast Caucasian protolanguage as a putative source for a deeper understanding of the little known diachronic processes within Proto-Vasconic (Dumézil 1933a, 1933b, Lafon 1948, Mitxelena 1995, 132). Extrapolating from the aggregate of data presented in this study, one may ask if the two linguistic groups once shared a common origin, perhaps as early as the TAŞ TEPELER HORIZON of the Anatolian Aceramic Neolithic within the foothills of the Southern Taurus. Questions, arising from this controversial hypothesis, await further answers from more investigations yet to be completed (Skourtanioti et alia 2002, Günther 2015, Omrak 2016, Flores-Bello & Bauduer 2021).¹

The goal of the present analysis is more limited. It seeks to provide sufficient data to permit investigators to overcome the limitations imposed by the VASCONIC REMODELING which has, to date, impeded our ability to reconstruct more completely the earliest stages of the Proto-Vasconic language. The current study, consequently, focuses on the diachronic processes effecting only the nasal sounds and the obstruents during their trajectory from Proto-Vasconic to Proto-Basque. A detailed history of other diachronic changes effecting the affricates, fricatives, rhotics and laterals, is left to analyses currently awaiting publication. With the present corpus of data, it is hoped that investigators may be prompted to investigate and to decide for themselves the nature of any relationship, whether genetic or areal, between the venerable Euskaran language group and the equally old Nakh-Dagestanian family of languages of near-identical typology located at the eastern extreme of the same Neolithic 'Southern Arc' described by Lazaridis and Reich (2022).

¹ If the extra-linguistic data from recent genomic and palaeo-genomic investigations of the remains obtained from burials across the Neolithic 'SOUTHERN ARC' are to be believed (Lazaridis & Reich et alia. 2022), the disparate populations from ancient Cantabria, the Pyrenees, Levantine Spain, the Eastern Cis-Caucasus Region, as well as of Southern Anatolia, shared a common genetic origin more than six thousand years ago. The data further suggest their common ancestors once lived in proximity of one another somewhere at the edge of Western Asia, most likely in Southern Anatolia (Skourtanioti & Yilmaz 2002; Omrak & Günther 2016; Flores-Bello & Bauduer 2021; Atinişik & Kazanci 2022; Ghalichi & Reinhold 2024).

1.1 THE STUDY'S METHODOLOGY AND ASSUMPTIONS. The effected phonemes addressed in this study include nasals **n*, **m* and the dentals **t*, **t:*, **t'*, **d*, the velars **k*, **k:*, **k'*, **k':*, **g* and the uvulars **q'*, **q':*, **q*, and **q:*, and the labial **b*. There are separate subsections in which each set of reconstructed Vasconic root morphemes demonstrates a particular sound change. The process of selecting lexemes for the present analysis began a decade earlier with the identification of suitable candidates from a block of three hundred cognate sets belonging to five major Basque dialects. Specific indicators, or 'phonologic clues', that lenition or phonemic loss has occurred in Basque words, were detected. These include CHAINS OF CONSECUTIVE VOWELS (-*iao-*, -*aie-* etc.), INTERVOCAL **/-h-/*; the SEGMENTS */-LG-/*, */-LK-/*, etc. indicating the former presence of ancient velars or uvulars, shielded from deletion by a preceding resonant (*-l-* or *-r-*), and, finally, THE NASALIZATION OF VOWELS *ã-*, *iõ-*, *ẽu-* etc. In the Zuberoan dialect of Basque, the nasalization is also often accompanied by a shift in accent (Egurtzegi 2015). During preparation, the expanded Swadesh lists guided the prioritization of certain semantic groups; Larry Trask's *Etymological Dictionary of Basque* and the grand, two-volume encyclopedic dictionary of the Euskaran language by the celebrated Basque academician, Resurrección Maria De Azkue, were equally indispensable resources for identifying and excluding lexemes of suspected extraneous origin from Keltic, Latin, Romance, Arabic (De Azkue editions of 1908 and 1969, Trask 2008, Swadesh 1952). Latin loans to Basque, identified and verified in Munguía and Ayesta (1996) and in Trask (2008), were excluded. Most reconstructed root morphemes presented here have been published in other contexts by authorities on the Basque language (Mitxelena 1991, Lakarra & J. Hualde 1995, Egurtzegi 2013, Lakarra 2018, Hualde 2021, Gorrotategui 1984, 2022, Vidal 2001, Trask 2008).

Each Vasconic reconstruction was subsequently matched with a putative analog identified from cognate sets of reconstructed root morphemes taken from the lexicon of the second-order Nakh-Dagestanian protolanguage or from one or more of its first-order daughter protolanguages. The latter include Proto-Avar-Andi, Proto-Nakh, Proto-Tsezic, Proto-Lak and Proto-Lezgi. Almost all of the cognate sets have been previously published in other contexts by authoritative sources on Nakh-Dagestanian philology (Gudava 1964, Khaidakov 1973, Bokarev 1981; Kibrik and Kodzasov 1988, Comrie 1989, 1990; Nichols 2003).

Suspected loanwords from outside the Northeast Caucasian language family were identified and removed.

1.2 THE ROOT MORPHEME, WORD CANON, AND TRANSFORMATIONS. The earliest word canon C_1VC_2 is identical in both Pre-Proto-Vasconic and Proto-Nakh-Dagestanian. It consists, most frequently, of an initial stop, vowel and a resonant (*-n*, *-l* and *-r*). Examples of this pattern include the lexemes *tal*, *tor*, *kar*, *bar*, *bel*, *der*, *dar* etc. Other complex shapes, such as $C_1VC_2-C_3VC_4$, are of more recent origin and evolved during the development of Proto-Basque (Lakarra 1995: 201, Mitxelena 1995: 126-127).

Archaic processes of word building are also detectable, however, and include REDUPLICATION OF THE ROOT MORPHEME and the CONJOINING OF TWO DIFFERENT ROOT MORPHEMES. Cross-linguistically, though less familiar from Semitic and Indo-European word-building, both types have remained productive across many language groups, including Euskaran. Some of the oldest evidence within Eurasian languages has been observed in Pre-dynastic Sumerian documents of late Fourth-Millennium Uruk as well as in archaic Old Hurrian texts of the late Third Millennium BCE, e.g. Hurrian *šeše* ‘6’, *papani* ‘the mount’, *tatu-* ‘to love’ etc. (Wegner 2000: 107-115). An examples of reduplication in Pre-Proto-Vasconic is **qar-a-qar-*, Mn Basque *garagar* ‘barley’, composed of the reduplicated mono-segmental **qar-* ‘a grain’, which is continued in Mn Basque *gar-i* ‘grain’.

THE CONJOINING OF TWO DIFFERENT ROOT MORPHEMES is the most common method by which unrelated root morphemes give rise to new lexemes in Proto-Vasconic. This process is exemplified by **hin.der* ‘strength’ > Mn Basque *indar*, Biscayan dialect *iñdder* ‘power’, composed of the INTENSIVE **hin*, whose meaning was likely ‘force’ and a MOLLIFYING segment **der*, meaning ‘good’ or ‘beneficial’ (Trask 2008: 224).² Within these compounds, three of the four obstruents in lexemes of the shape $C_1VC_2+C_3VC_4$ were sometimes deleted. From this, a new pattern VCV emerged, often leaving only a lone intervening resonant (*/-r-/*, */-n-/* or */-l-/*)

² Such compounds are rarely transparent enough to be discovered within I-E languages. The Proto-Keltic **druwids* ‘Druid priest’, lit. ‘knower of the oak’, may offer a rare glimpse of this process when parsed as **daru* ‘oak’ + **wid-* ‘knowledge’, as well as Proto-Keltic **nizdos* ‘nest’ from **η-sed-* ‘inside-sit’.

surrounded by vowels. The peculiar result appears, at first glance, to be unrelated to any reconstructable precursor. Later diachronic processes, including metathesis, deglottalization and debuccalization, acted further to obscure and to reshape the final outcome. An example is the Basque word for ‘finger’, *erhi*, which demonstrates several of these processes. Its Pre-Proto-Vasconic precursor **t'er-k'i* is recoverable from a Proto-Nakh-Dagestanian analog **t'er-k'i* with the aid of Proto-Nakh **t'er-k'*- ‘finger’ (as evidenced from Chechen *t'alg*, Ingush *t'elg*, Batsbi *t'ark* ‘finger’) and confirmed by the core segment **t'er-* from the Proto-Dagestanic root morpheme **t'el-/t'ul-* ‘finger’, devoid of the diminutive-marker **-k'i*. Clearly, metathesis, debuccalization, and lenition, in combination with the radical deletions of the extensive remodeling, played significant roles in the final outcome of the processes that have so limited the classic technique of historical reconstruction. The extreme age of the Vasconic group, a period of no less than six millennia, and substratum contacts are presumably the likeliest contributors to this level of complexity. The outcome of the process has resulted in the generation of a large corpus of lexemes like *erhi* which now populate the native Basque lexicon but have not yet been explored.

Other common processes, more familiar to both Indo-Europeanists and Semiticists, are also identifiable within Proto-Vasconic word-building. These include FORMATIVE SEGMENT ANNEXATION and REDUPLICATION of C₁ at the onset position. Examples of these are numerous and, an important one is **der* ‘good, beneficial’. From this mono-segmental morpheme, the INTENSIVE FORM **deder* ‘beautiful’ with reduplicated C₁ arose in Proto-Basque. Lakarra demonstrated that a generalized diachronic debuccalization of initial voiced obstruents (*d-/b-/g-/t-*) during the Iron-Age transition created the modern form *eder* ‘beautiful’ (Lakarra 1995, 201). Reduplication of C₁ occurred not only among the stops but also among affricates, as seen in the intensive **dzedze-n* ‘bull’, Mn Basque *zezen* ‘bull’, constructed from **dze-* ‘a bovine’.³

GRAMMATICALIZED root morphemes of Pre-Proto-Vasconic often became AFFIXED FORMATIVE SEGMENTS in Proto-Basque. Once independent root morphemes themselves, these

³ **dze-* is also found with the diminutive suffix **-k'or* in Pre-Proto-Vasconic **dze-k'or* ‘bullock’. Similarly, from **dzu-* ‘to speak’, the intensive **dzudzu-en*, Mn Basque *zuzen* ‘right, correct’, is formed. Also, when **dzu-* ‘to speak’ is conjoined with the mono-segment **hur* ‘careful, stealth’, Mn Basque *zuhur* ‘judicious’ has been generated.

segments also testify to the antiquity of a system of vocalic apophony, that is to say, a system of vowel gradation or A/U/I-ABLAUT. Detectable in both Proto-Nakh-Dagestanian and Pre-Proto-Vasconic, identical systems of vowel alternation are shared by both protolanguages and have contributed to the vocalization of mutually shared formatives, **ħan-*, **ħin-*, **ħun-*, **b-a-*, **b-i-*, **b-u-*, **-dur*, **-dar*, **-der*, **-k'ar*, **-k'ir*, **-k'ur* etc.

An example of this process, the formative **b-a-*, derived from the verb **ba-* ‘to make; to give birth’, was grammaticalized, and, in one lexeme, paired with a core root morpheme **k':a-r/n-* ‘sole’ > Pre-Proto-Vasconic **ba-k':a-r* > Mn Basque *bakar* ‘alone’ and **ba-k':a-n-* > Mn Basque *bakan* ‘scarce’. The same core segment **k':a-r/n-* ‘sole’ recurs in Proto-Nakh-Dagestanian with an identical meaning. From it multiple descendants have evolved in the first-degree protolanguages, Proto-Andi-Proto-Tsezic **k'a-* ‘sole, alone’ (> Akhvakh *ro-k'o-* ‘lone, only’ etc.) and Proto-Lak-Dargi **k'a-n/r-* ‘lone’ (Klimov & Khalilov 2003: 368). In more extreme fashion, three obstruents at C₁, C₂, and C₃ were sometimes deleted in Proto-Basque, the resulting series of unexpected ‘naked’ vowels created an unusual pattern, seen in Standard Mn Basque *jaiο* (<**e-x:ani-χo-n*) ‘to be born’ and in Guipuzcoan Basque *yaio* (<**e-ħani-χo-*) ‘skillful, graceful’, ‘beautiful’ (Trask 2008: 365; De Azkue 1969: I 361) etc. Despite the successes of internal reconstruction, vowel chains such as these are parsimonious in permitting any recovery of deleted obstruents without the aid of external comparanda.

2. THE PRE-PROTO-VASCONIC AND PROTO-VASCONIC PHONOLOGIES. If it is correct that the Proto-Nakh-Dagestanian and Proto-Vasconic languages once shared a common history, whether areal or genetic, one may assume that many features of the earliest stages of the Proto-Vasconic language resembled more closely those of the Nakh-Dagestanian protolanguage. To describe the Vasconic speech of that remote epoch, when the two phonologies may well have been congruent, the term PRE-PROTO-VASCONIC is met with in this text. Table 1 summarizes a proposed model of the Pre-Proto-Vasconic system of phonemes.

(Insert Table 1 here)

2.1 THE PHONOLOGY OF THE PROTO-BASQUE LANGUAGE. TABLE 2 is inspired by the magnum opus *Fonética histórica vasca* in which Luis Koldo Mitxelena described a fully restored phonology of the Proto-Basque language (Mitxelena 1990). The innovative LENIS-FORTIS system of opposition that he proposed is the basis of our current understanding of the Proto-Basque consonant system. Though many of Mitxelena's statements were admittedly a refinement of notions developed by Martinet some decades earlier, as Egurzegi points out (2013: 125 *et seq.*), the unique insights of Mitxelena continue to serve as an inspiration for the ongoing research of renowned Bascologists such as Lakarra, Egurtzegi, Gorrotxategi and others (Martinet 1974: 533; Lakarra 2018, 1995).

(Insert Table 2 here)

2.2 THE PROTO-NAKH-DAGHESTANIC CORRESPONDENCES. A brief comparison of Tables 2 and 3 portrays that the phonology of the modified Proto-Nakh-Daghestanian System and modified from Nichols (2003).

(Insert Table 3 here)

2.3 THE REDUCTION OF NASALS */n/ AND */m/. The earliest diachronic process identified in Proto-Basque was first described by Larrasquet almost a century ago (Larrasquet 1928).

Both */m/ and */n/ appear to have become unstable by the earliest phases of the Proto-Basque period (Larrasquet 1928, 1938, Hualde 2003, Mitxelena 2011, Egurtzegi 2015). Vestiges of this persists today as NASALIZED VOWELS and an intrusive, nasalized laryngeal, transcribed here as *ń* (orthographic < ñ >) in many of the modern dialects. The bilabial nasal */m/ was delabialized and reappears as *n-* and *-n-* in Proto-Basque. An example is Pre-Proto-Vasconic: **meġar* > Mn Basque *negar* 'crying, tear'. The Proto-Nakh-Dagestanian reflex is **me-ġar-* 'tear, crying' from **ġar* 'bitter' > Proto-Avar-Andi **maq'ar* > Avar *ma'o* 'tear', Akhvakh *maq'a-r* Proto-Lak **ma(r)q*, Proto-Dargi **nerġ*, Proto-Lezgi **neġu* 'tear' (Klimov & Khalilov 2003, 98).

Examples of original */n/ appear in Pre-Proto-Vasconic **hin.der* > Old Biscayan Basque *iñdder* ‘strength, power’, first documented in 1545 (Trask 2008: 224). It occurs also in the word for ‘charcoal’, Pre-Proto-Vasconic **hin-k’:a-ts-* > Biscayan, Zuberoan *inkatz* ‘charcoal’, Guipuzcoan, Navarrese *ikatz* ‘charcoal’ (Trask 2008: 221), cf. Proto-Nakh-Dagestanian **k’:a/u-* ‘to burn’.

An insightful study of the reduction of */-n-/ by Ander Egurtzegi of the University of the Basque Country brings to light CONTRASTIVE VOWEL NASALIZATION and its relationship to the word accent in Modern Basque. Upon deletion of */-n-/, a shift in the accent often accompanies the nasalization of the following vowel (Egurtzegi 2015). Parsing of the Vasconic word for ‘bone’, **hane.ts’ur*, from the two root morphemes **hane* ‘marrow’ and **ts’ur* ‘white’, offers more insight into the effects of the loss of intervocalic */-n-/ within a polymorphemic compound. The resultant, later Proto-Basque form **anezur* ‘bone’ produced Roncalese Basque *hēzur* ‘bone’, Zuberoan *ézür* and Guipuzcoan *ezur* ‘bone’ (Michelena 1990: 299-310; Trask 2008: 191). Among the Northern Basque dialects, Lapurdian (Labourd) and Upper Navarrese, an aspirate < h > in addition to nasalization often signals a hiatus left by the loss of the nasal */-n-/. Ambiguously, it can also herald the loss of an intervocalic obstruent unless cognates from the western dialects are considered. There, *only* the loss of a VELAR OR UVULAR PLOSIVE, is marked by this same < h > in Biscayan and Guipuzcoan.⁴

2.4 THE DENTALS */t/, */t:/, */t’/ AND */d/. The unvoiced stop */t/ was highly aspirated in Proto-Vasconic in Proto-Basque and Aquitanian. Ultimately, it was debuccalized, that is, **t^h* > h > Ø. This resulted in a complete loss of the phoneme at onset. An example is Proto-

⁴ Where the plosive is shielded from deletion by a preceding resonant (*-n-/l-/* or */-r-/*), a vestigial lenited */-g-/* or */-k-/* often seems to ‘echo’ the original class of the reduced obstruent (Trask 2008: 96). Proto-Vasconic **nak:u-z-* ‘chaff’ is an example of an alignment of all these processes in the eastern Zuberoan Basque dialect where (a) a shift in accent to the first syllable occurred, secondary to the deletion of the initial nasal sound, (b) an intrusive resonant (*-l-*) appears, and (c) the deletion of both C₁ and C₂ follows. Hence, Proto-Vasconic **nak:u-z-* ‘chaff’ > Biscayan *algotz* ‘chaff’, Guipuzcoan *alkotz*, Lapurdian and Navarrese *agotz*, *āgotz*, Zuberoan *áhotz* ‘chaff’. The corresponding Proto-Nakh-Dagestanian analog is **nak:u-* ‘chaff’, as evidenced in two Dagestanian first-order protolanguages, Proto-Avar and Proto-Andi where **nak:u* means ‘straw, thatch’ etc. (Gudava 1964: 141).

Vasconic **tal-z-a* ‘alder tree’ > Proto-Basque **t^hal-z-a* > Mn Basque *haltza* ‘alder tree’ (Martinet 1955: 53; Mitxelena 1990: 256, Egurtzegi 2013: 124).⁵

Intervocalic **/-t-/* and the unvoiced ejective dental **/-tʰ-/*, by contrast, suffered lenition, both being reduced in Mn Basque to */-d-/*. This is apparent in reduplicated forms of the above-mentioned **tal-* in which Proto-Vasconic **ta-ta-l-/*ta-ta-r-* > Proto-Basque **a-tar* > Mn Basque *adar* ‘large tree branch’ arose. Remarkably, identical reflexes in Proto-Nakh-Dagestania show both **tal-* and its variant **ta-r-* ‘wood, tree; ‘poplar’ or ‘fir’ > Proto-Nakh **tal-* > Chechen *tāl* ‘poplar’, and Proto-Dagestania **tar-* > Lak *t:ar-lil* ‘fir’ and *t:ar* ‘fir needles’, Tabassaran *har* ‘tree, forest’, Agul *dār* ‘tree, wood’, Rutul *dar* ‘grove, forest’, Lezgian *tar*, *t:ar* ‘tree, wood’ (Khaidakov 1973: 53-57; Klimov & Khalilov 2003: 201, 213).⁶ An example of the reduction by lenition of the unvoiced EJECTIVE **/tʰ/* occurs in Pre-Proto-Vasconic **bat’a* ‘one, single, alone’ > Proto-Basque **bada* ‘one’ (the number one) > Mn Basque *bat* ‘one, a’. The corresponding reflex in Proto-Nakh-Dagestania is **bat’a* ‘separate, apart, single’ > Batsbi (*qas*)-*tʰ-* ‘to separate’, Avar *bat’a* ‘separately’, Andi *bat’a’idu* ‘to separate’, and Lak *bat’-ul-s:a* ‘separate’.

THE FORTIS UNVOICED DENTAL **/t:/*, though infrequent, was reduced to the lenis */t/* in Modern Basque. Pre-Proto-Vasconic: **e-t:e-n* ‘to cut, to slice’ (with the addition of verbalizing elements **e-/-n*) > Mn Basque *eten* ‘to slice, to cut’. The Proto-Nakh-Dagestania verb is **t:a-* ‘to cut, to slice’ > Chechen *ᶜ i-t:a* ‘to split, to cleave’, *dü-t:ara* ‘tools for cutting; axehead’, *ts’e-t:a* ‘chopped off body parts’, Lezgian compound verbs *t:u-k’un* ‘to cut’, Lak compound verbs *t:i-sin* ‘to cut’, *t:i-han* ‘to mow’, Archi *ya-t:ar-si* ‘scissors’, and Agul *ħu-t:-es* ‘scissors’ (Klimov & Khalilov 2003, 121, 435).

⁵ Minimal pairs from Aquitanian further confirm this feature, e.g. *Tals-/Hals-*, from which come the feminine proper names *Talseia* and the Latinized *Talsconis* from **Tals-ko-*. Iberian onomastics too demonstrate the same morpheme *Tal-* with the presumably identical Vasconic attributive-genitive suffix *-ko* in names such as *Talscubilos*, *Tals-ku-*, *Tals-ko-* and *Tals-k-ar* from the Iberian inscriptions of Ensérune, Sagunt and Tarragona (Untermann 1990 : Band 3, 232, Michelena 1990: 256).

⁶ Of cross-linguistic interest are Hurrian *tali* ‘wood’ (Laroche 1980: 253), and Indo-European **dóru* ‘wood’.

THE VOICED DENTAL STOP */d/ continued unchanged medially in Vasconic but, initially, was debuccalized and lost.

2.5 THE BILABIAL */b/. The unvoiced labials /p/ and /f/ are found in contemporary Basque dialects and across the diverse Nakh-Dagestanian languages as well. There is no evidence to support their independent existence as they are allophones of */b/ AND */w/ respectively in both language families. The voiced bilabial stop */b/ is primal, however, and remains unchanged, in both Vasconic and Nakh-Dagestanian.⁷

2.6 THE REDUCTION OF VELARS AND UVULARS. The effect of deletions of Pre-Proto-Vasconic velars and uvulars on the Basque lexicon cannot be overstated. More impactful than any other group of diachronic changes, the deletions in these two groups resulted in numerous restructured lexemes with hiatuses marked by zero or < h > in place of a velar or uvular. THE LENIS UNVOICED VELAR PLOSIVE */k/ was deleted in Pre-Proto-Vasconic example **kun:i* ‘foot’ > Proto-Basque **on:i* > Mn Basque *oin* ‘foot’. Reflexes in Proto-Nakh-Daghestanic are **ku-n/r-* ‘extremity’ > Proto-Nakh **ko-r-* > Batsbi *kor-*, Ingush *kul-g-* ‘hand’ and Proto-Dagestanian **ku-n-i* / **ku-r-i* > Lak *kwa-ni-*, Archi *kul* ‘arm, hand’, Avar *kwer-* ‘arm’, Hunzib *koro*. Of comparative interest is Proto-Hurro-Urartian **kuri*, the source of later Hurrian *ukri* ‘arm’. THE FORTIS UNVOICED VELAR PLOSIVE */k:/ was also reduced to zero in Proto-Basque. The Pre-Proto-Vasconic verb **e-k:o* ‘to strike, to hit’ (note the verbalizing *e-*) became Proto-Basque **e-o* > Mn Basque *jo* ‘to strike’. The Proto-Nakh-Dagestanian reflex is **k:o* ‘to strike’ > Proto-Dagestanian **k:a-* ‘to strike’ > Avar *k:a-na* (3rd sg past); and Proto-Andi **bu-k:u* ‘to strike’ (with class-marker **b-u-*) > Botlikh *bu-k:u*, Akhvakh *bu-χori* ‘he struck’ (Gudava 1964: 102).

⁷ The bilabial appears in **ba* ‘kin, offspring’; ‘to produce’ which occurs often in words of social relationship in Basque, in Aquitanian and, presumably, in Iberian. Examples include Mn Basque *ne-ba* ‘brother of a sister’, *ala-ba* ‘daughter’, *ilo-ba* ‘niece/nephew’, *oša-ba* ‘uncle’, *ize-ba* ‘aunt’, *arre-ba* ‘sister of a man’ *aša-ba* ‘ancestors’, and *śeme* ‘son’ and the Aquitanian *Sembe-* < earlier *śen-ba* ‘son’ with fronting of earlier /a/, and the Iberian *-ba* ‘son of’ and *-ban* ‘produced’. The corresponding reflex */ba/ in Proto-Nakh-Dagestanian appears in Proto-Nakh **ba-der* ‘child’ > Chechen *beer*, Ingush *bier*, Batsbi *bader id.* (Nichols, 2003) and with the Proto-Dagestanian */-fir-/ , as a diminutive in **ba-tir* > Godoberi *bala* ‘child’, Tabassaran *bai* ‘son’, Tsakhur and Khinalug *bala* ‘child’ but, with metathesis and assimilative nasalization of /b/ > /m/, Avar *li-me-r* ‘child’,

THE LENIS UNVOICED EJECTIVE */k'/ AND ITS FORTIS VARIANT */k':/. The lenis ejective */k'/ continued as the aspirate *h* in all positions in Vasconic. Pre-Proto-Vasconic **k'or-ts-* 'tooth' > Proto-Basque **kor-z-* > Mn Basque *hor-tz-* 'tooth'. The Proto-Nakh-Dagestian reflex is **k'ar-ts-* 'tooth' (with a-grade ablaut) > Proto-Dagestian **k'arts-* > Proto-Lak **k:artsi* > *k:artsi* 'tooth', Proto-Tsezic **k'ir-ts-u* with i-grade ablaut, and, with metathesis and a-grade ablaut, Nakh **k'ar-ts-* > Proto-Nakh **tsa-r-k'-* 'tooth' > Chechen *tserg*, Ingush *tsarg*, Batsbi *tsark* 'tooth'. The fortis ejective */k':/, by contrast, was deglottalized and continued as the non-ejective fortis stop */k:/ in Proto-Basque but as the unvoiced stop /k-/ in Modern Basque, as in Pre-Proto-Vasconic **k':e* 'smoke' > Mn Basque *ke* 'smoke'. With a-ablaut of the medial segment, the series evolved in Pre-Proto-Vasconic as **hin-k':a-ts-* 'charcoal' > Biscayan and Zuberoan *inkatz* 'charcoal' and Lapurdian *ikhatz*, *ikhatz* (Trask 2008, 221). The corresponding reflex in Proto-Nakh-Daghestian is **k':u-* 'smoke' > Chechen *k'u-r*, Avar *k':u-i* 'smoke' etc. with u-grade ablaut (Klimov & Khalilov 2003: 197).

THE VOICED VELAR */g/ has no fortis equivalent.⁸ In word-initial and intervocalic positions, */g/ persists into the modern dialects of Basque where today it is SPIRANTIZED and realized intervocalically as the voiced fricative /ɣ/ under the influence of Iberian Romance.⁹

THE UVULAR UNVOICED LENIS PLOSIVE */q/ is believed to have been a strongly aspirated uvular stop which continues in Modern Basque as the voiced velar stop /g/. Pre-Proto-Vasconic **qar* 'flame' > Proto-Basque **gar* > Mn Basque *gar* 'flame; ardor'. The Proto-Nakh-Dagestian analog appears in the verbal morpheme **qar-* 'to burn, to roast', Proto-Nakh **qar-*

⁸ A voiced uvular sound */g̱/ related to */g/ is qualified as an affricate by Klimov and Khalilov while others describe it as a VOICED UVULAR STOP. The voiced uvular sound does not exist independently today in any of the Nakh-Dagestian daughter languages and is transcribed by Klimov and Khalilov as IPA **G** and by Bokarev as < **кѡг** > in Cyrillic notation. The sound is realized today only as an AFFRICATE. All authors agree, however, that it is a primary VOICED UVULAR phoneme, whether affricate or stop. For the purpose of this study, the sound is considered an affricate, represented by < g̱ >, and is dealt with in a separate report on affricates.

⁹ Proto-Vasconic **be-gi* 'eye' > Mn Basque *begi* 'eye', and Iberian orthographic *-biki-* 'eye' in onomastics. The Proto-Nakh-Dagestian reflex is the verbal root morpheme **g-* 'to see; to watch' which produced the Proto-Nakh verbal-noun **g-a-n* 'to see' > Chechen *g-an* 'to see, to watch', Proto-Tsezic **be-ga-l* 'to watch', and with intrusive labialization Proto-Lak **g-w-an-* 'to watch' (Klimov & Khalilov 2003: 459, Bokarev 1981: 21).

> Chechen/Ingush *qar-za*, Batsbi *qar-ts'ar* ‘to roast’. Proto-Dagestianian **q^war-* > Archi *qur-* ‘flame’, Agul *ugwas* ‘to burn’, Khinalug *yä-k:wi* ‘flame’ and, with reduplication, Kryz *gurgur* ‘flame’ (Klimov & Khalilov 2003: 490). THE FORTIS UVULAR PLOSIVE **/q:/* continues in onset positions as */g-/* in the Basque Upper Navarrese dialect, but as */h-/* elsewhere. Pre-Proto-Vasconic **q:ortsi* ‘to bury’ > Lapurdian, Zuberoan dialects (*e-*)*horts-i* ‘to bury’ but in Upper Navarrese (*e-*)*gortz-i* ‘to inter, to bury’ (Trask 2008: 172).¹⁰ The corresponding reflex in Proto-Nakh-Daghestanic of **/q:/* appears in **q:u-* ‘to dig, to inter’, Proto-Nakh **a-q:a* > Chechen *axka*, Batsbi *axkar* ‘to dig’, Proto-Dagestianian is **q:u-* > Avar *bu-q-ize* ‘to dig, to bury’, Bagulal *ba-q-una*, Khvarshi *be-γwa*, Lak *da-k:wa-n*, Lezgi *eq'ü-n* (Bokarev 1981: 33).

THE UNVOICED EJECTIVE UVULAR PLOSIVE **/q'/* suffered lenition in Basque, becoming the simple stop **/g/* in intervocalic positions. Initially, however, **/q'/* shared with **/k'/* the same instability in onset positions among the dialects where it alternates with zero, aspirate */h-/* and rarely with */k-/* in an as yet unexplained pattern. An example appears in the series Pre-Proto-Vasconic **q'un-be* ‘the young of an animal; young, little’ > Proto-Basque **kun-be* > Mn Basque *ume* ‘young of an animal’ and *kume* with the same meaning. The morpheme displays an alternation across the dialects as the minimal pair, *kume* : *ume* ‘child, offspring’. The equivalent reflex in Proto-Nakh-Dagestianian is **q'un-* ‘young; small’ > Chechen *q'uona* ‘young’, Ingush *q'ona*, Batsbi *q'ono*, ‘young?; ‘small’ and Proto-Avar **q'un-* > Avar *εun/εan-* ‘young’ and Proto-Dagestianian **q'u-ini* > Proto-Andi **mi-q'wi* (with metathesis and palatalization) > Andi *mič'i* ‘small’. THE FORTIS UNVOICED EJECTIVE UVULAR PLOSIVE **/q':/* of Pre-Proto-Vasconic was reduced to zero in all positions in both Proto-Basque and Modern Basque. An exception occurs with intervocalic **/q':/* in reduplications where it persists as */h-/*. Pre-Proto-Vasconic **q':u-š-* ‘to steal’ > Proto-Basque **hu-s-* > Mn Basque *o-s-* ‘to steal’ but the related substantive *ohoin* ‘thief’ < Proto-Basque **huho-ni-* < Pre-Proto-Vasconic **q':u-q':u-on-i* ‘thief’, where */h-/* replaces the sound **/-q':-/* in the core root morpheme. The corresponding reflex in Proto-Nakh-Dagestianian is Proto-Nakh substantive **q':u* ‘thief’ > Chechen, Ingush *q'u* ‘thief’, Batsbi *q'uv* ‘thief’. Notable is the intensive-formative segment */-š-/* of the Vasconic verb which also appears

¹⁰ Trask proposes **enortzi*. The presence of the *-g-* in the Upper Navarrese form suggests a uvular existed in place of Trask’s proposed nasal.

within Proto-Dagestianian TRANSITIVE BIVALENT VERBS, such as **(ba-) q':a-š-* 'to steal' and Proto-Avar-Andi *(*bi-) q':a-* 'to steal' (with a-grade ablaut) and Andi *be-q'aš:-du* 'to rob' (Gudava 1964: 139), Tindi *beqašo* 'he robbed' and Avar *bi-q'i-ze* 'to steal'. Reduplicated forms appear in Proto-Lezgian **q':uq':u-* 'to rob' (Klimov & Khalilov 2003: 466-467). The Hurrian verb also shares the identical segment, an intensive marker */-š-/*, within its verbal chain.

3. CONCLUSION. Reconstruction of the Pre-Proto-Vasconic phonology allows insight into many of the diachronic processes driving the phonologic evolution toward the modern Euskaran language. Changes effecting nasals and obstruents are those described in this analysis. One of the study's major findings is a reaffirmation of the truism that an optimal method for demonstrating unambiguously the relationship between two language groups is a meticulous comparison of the two respective PROTOLANGUAGES. Evidence from internal reconstruction, as well as from statistical lexical analysis of five contemporary Basque dialects, suggests that, during the Pre-Proto-Vasconic period, certain obstruents and nasals became unstable and were reduced or were deleted. Metathesis, deglottalization, debuccalization produced further transformations. Whether due to faulty acquisition by a non-Vasconic Mesolithic population or simply due to phonetic drift over millennia, an extensive and radical remodeling occurred. This reshaping of the language evolved to such a degree that attempts to recover earlier stages of the protolanguage using traditional tools of comparative linguistics without external comparanda became less feasible if not impossible. In a quest for external comparanda, the study identified the Proto-Nakh-Dagestianian as a candidate to allow further insight into perhaps the earliest, reconstructable form of Vasconic phonology. With phonologic clues left within the surviving Euskaran dialects, the study's data pointed to the identity of so-called 'lost obstruents', from which the analysis matched reconstructed skeletal shapes of Vasconic root morpheme with those of very conservative Northeast Caucasian forms. This produced seemingly more or less precise forms believed to have existed during the earlier stages of Proto-Vasconic. With continuing investigations, it is expected that more parallels between the Nakh-Dagestianian and the Vasconic protolanguages will surface. To date, the number of matches suggests that the two language families once existed in close proximity, either as members of a Sprachbund or, alternatively, as dialectal variants of each other. Extralinguistic observations from contemporary studies in palaeo-genomics, archaeology and anthropology, point to the correctness of the latter view.

Further investigations are clearly needed to clarify the details of such a hypothesis (Munchayev 1975, Lazaridis, Reich & alia 2022; Atinişik and Kazanci & alia 2022; Amirkhanov 2023; Ghalichi, Reinhold & others 2024).

* * *

REFERENCES

- AIESTARAN, MATTIN, JAVIER VELAZA, JOAQUÍN GORROTXATEGUI, ENEKO IRIARTE ET ALIA. 2024. A Vasconic inscription on a bronze hand: writing and rituality in the Iron Age Irulegi settlement in the Ebro Valley. *Antiquity* 98.397.66-84.
- ALEKSEYEV, MIKHAIL. 2003. *Comparative Historical Morphology of the Nakh-Dagestanian Languages Category: Nouns* (in Russian). Moscow: AcademiaPress.
- AMIRKHAPOV, HIZRI. 2023. The Gobustan Neolithic Culture. *History, Archaeology and Ethnography of the Caucasus* 19, No.2, 2023.
- ARD, VINCENT. 2013. Ceramic Traditions and Cultural Identities: West-Central France during the Late Neolithic II Period. *Oxford Journal of Archaeology*. November 2013. DOI:10.1111/OJOA, 12020.
- ATINIŞIK, EZGI, DENIZ KAZANCI ET ALIA. 2022. A genomic snapshot of demographic and cultural dynamism in Upper Mesopotamia. *Science Advances*. 2022 Nov.4, 8 (44).
- BOKAREV, EVGENIY. 1981. *The Comparative-Historical Phonetics of the East Caucasian Languages* (in Russian), Moscow: Nauka Press.
- BONAPARTE, PRINCE LOUIS-LUCIEN. 1869. *Le Verbe Basque en Tableaux*. Paris: Librairie Ancienne Honoré Champion.
- BURNEZ, CLAUDE. 2010. *The Camp at Chalignac (Charente) in the Third Millennium BCE* (in French). British Archeological Reports. London. ISBN 10: 1407307091.

- COMRIE, BERNARD. 1989. *Language Universals and Linguistic Typology: Syntax and Morphology*. Oxford: Blackwell.
- DE AZKUE, RESURRECCIÓN MARÍA. 1969. *A Dictionary of Basque-Spanish-French* (in French and Spanish). Bilbao: La Gran Enciclopedia Vasca.
- DUMÉZIL, GEORGES. 1932. *Comparative Studies on the Languages of the Northwest Caucasus* (in French). Paris: Librairie Ancienne Honoré Champion.
- 1933a. *Introduction to the Comparative Grammar of the Northern Caucasian Languages* (in French). Paris: Librairie Ancienne Honoré Champion.
- 1933b. *Comparative Research on the Caucasian Verb* (in French). Paris: Librairie Ancienne Honoré Champion.
- EGURTZEGI, ANDER. 2015. A different distribution of contrastive vowel nasalization in Basque. *Loquens*. 2 (1) January 2015.017.eISSN 2386-2637.
- FLORES-BELLO, ANDRÉS, AND FRÉDÉRIC BAUDUER. 2021. Genetic origins, singularity, and heterogeneity of Basques. *Current Biology*, vol. 31, issue 10, 24 May 2021.
- GHALICHI, AYSHIN, AND SABINE REINHOLD, ADAM ROHRLACH, ALEXEY KALMIKOV ET ALIA. 2024. The rise and transformation of Bronze Age pastoralists in the Caucasus. *Nature* 635, 917-925.
- GORROTXATEGUI, JOAQUÍN. 2022. The Relationship between Aquitanian and Basque: Achievements and Challenges of the Comparative Method in a Context of Poor Documentation. In Thiago Costa Chacon. (ed.). *Language Change and Linguistic Diversity: Studies in Honor of Lyle Campbell*. Edinburgh University Press, 105-129.
- GREENBERG, JOSEPH H. 1987. *Language in the Americas*. Stanford: Stanford University Press.
- GUDAVA, T'OGO. 1964. *Consonant Development of the Andi Languages* (in Russian). Tbilisi: Tbilisi State University Press.
- GÜNTHER, TORSTEN, CRISTINA VALDIOSERA, HELENA MALMSTRÖM, AND MATTIAS JAKOBSSON. 2015. Ancient genomes link early farmers from Atapuerca in Spain to modern-day Basques. *Anthropology*, September 8, 2015: 112 (38) 11917-11922, and in

- Proceedings of the National Academy of Sciences of the United States of America*, ISSN 0027-8424, E-ISSN 1091-6490, Vol. 112, no 38, 11917-11922.
- HOLISKY, ANN, AND RASUDAN GAGUA, Tsova-Tush (Batsbi) in Smeets 1994. 147-212.
- HOLISKY, ANN AND KEVIN TUIITE. 2003. *Current Trends in Caucasian, East European and Inner Asian Linguistics*, Amsterdam.
- HUALDE, JOSÉ. 1987. Proto-Basque Yod. In *Fontes Linguae Vascorum Studia et Documenta*. Donostia.
- HUALDE, JOSÉ IGNACIO. 2021. On the Comparative Method, Internal Reconstruction, and Other Analytical Tools for the Reconstruction of the Evolution of the Basque Language: An Assessment. *Anuario del Seminario de Filología Vasca Julio De Urquijo*, 54 (1–2): 19–52.
- HUALDE, JOSÉ, JOSEBA LAKARRA, AND LARRY TRASK. 1995. Towards a History of the Basque Language. In *Current Issues in Linguistic Theory*, Series 131, Amsterdam/Philadelphia.
- HUBSCHMID, JOHANNES. 1954. *Pyrenäenwörter vorromanischen Ursprungs und das vorromanische Substrat der Alpen*. Salamanca.
- KHAIDAKOV, S.M. 1973. *Comparative Dictionary of the Dagestani Languages* (in Russian). Moscow: Nauka Press.
- KIBRIK, ALEXANDER AND SANDRO KODZASOV. 1988. *Comparative Study of the Dagestani Languages: the Verb*. Moscow: Moscow State University.
- 1990. *Comparative Study of the Dagestani Languages: the Substantive*. Moscow: Moscow State University.
- 2003. *Dictionary of the Caucasian Languages*, (in Russian). Moscow.
- LAFON, RENÉ. 1948. Basque-Caucasian Correspondences (in French). The *Journal Eusko-Jakintz*, vol 2, 359-370, San Sebastián (Donostia).
- 1949. Basque-Caucasian Correspondences. On several cases of the loss of initial *k* in Basque (in French). The *Journal Eusko-Jakintz*, vol 3, 141-153, San Sebastián (Donostia).

- 1952. *Basque and Caucasian Studies* (in French). Salamanca: University of Salamanca Press.
- LAKARRA, JOSEBA. 2018. Basque and the Reconstruction of Isolated Languages. Lyle Campbell (ed.). *Language Isolates*, 59–99. London: Routledge.
- 1995. The Reconstruction of the Pre-Proto-Basque Root. Towards a History of the Basque Language, in *Current Issues in Linguistic Theory*, 131, edited by Jose Hualde, Joseba Lakarra and Larry Trask. London: John Benjamins Publishing.
- LAROCHE, EMMANUEL. 1980. *Glossary of the Hurrian Language* (in French). Paris: Editions Klincksieck.
- LARRASQUET, JEAN. 1928. *Action of the Accent in the Evolution of Consonants of Souletin Basque* (in French). Paris: Librairie Vrin.
- 1933. *The Souletin Accent* (in French). Paris: Librairie Vrin.
- 1934. *Le Basque Souletin Nord-Oriental*, Paris: Librairie Vrin.
- 1939. *Le Basque de la Basse-Soule orientale*. Paris: Editions Klincksieck.
- LAZARIDIS, IOSIF, AND DAVID REICH et alia. 2022. The genetic history of the Southern Arc: a bridge between West Asia and Europe. *Science*, vol. 377, No. 6609, 2022.
- MARTINET, ANDRÉ. 1955. *Economie des Changements Phonétiques, traité de phonologie diachronique*. First Series: *Manualia et Commentationes* of Bibliotheca Romanica, edited W. Von Wartburg. Berne: Editions A. Franck.
- MARTINEZ-ARETA, MIKEL. 2013. Introduction: Basque and Proto-Basque Language. Internal and Typological Approaches to Linguistic Reconstruction. *Mikroglottika Minority Language Studies*. Volume 5. Frankfurt am Main: Peter Lang.
- MITXELENA, LUIS KOLDO. 1954. Aquitania Onomastics (in Spanish) in *Pirineos* 10: 409-458, Donostia (San Sebastian).
- 1990. *Historical Basque Phonology. The Complete Works of Luis Michelena I* (in Spanish). Donostia (San Sebastian).
- 1995. *The Ancient Basque Consonants* in HUALDE, JOSE, JOSEBA LAKARRA, AND LARRY TRASK. 1995, 101-131.

- MUNGUÍA, SANTIAGO, AND JUAN ETXEBARRIA AYESTA. 1996. *From Latin to Euskera. Latinetik Euskarara*, (in Spanish). Bilbao: University of Deusto.
- MUNCHAYEV, RAUF MAGOMEDOVICH. 1975. *The Caucasus at the Dawn of the Bronze Age* (in Russian). Moscow: Nauka Press.
- NICHOLS, JOHANNA. 2003. The Nakh-Dagestanian Consonant Correspondences. In HOLISKY, ANN AND KEVIN TUITE. 2003, 207-264.
- OMRAK, AYÇA, TORSTEN GÜNTHER, ET ALIA. 2016. Genomic evidence establishes Anatolia as the source of the European Neolithic gene pool. *Current Biology*, vol. 26, no. 2, 25 January 2016.
- SKOURTANIOTI, EIRINI, AND YILMAZ ERDAL, ET ALIA. 2002. A Genomic History of Neolithic to Bronze Age Anatolia. *Cell*, vol. 181, issue 5, 28 May, 2002:1158-1175.
- SWADESH, M. 1952. Ethnolinguistic dating of prehistoric ethnic contacts. *Proceedings of the American Philosophical Society*, 96, 452–63.
- TRASK, LARRY. 2008. *Etymological Dictionary of Basque*, edited by Max W. Wheeler. Sussex: University of Sussex.
- TROMBETTI, ALFREDO. 1925. *The Origins of the Basque Language* (in Italian). Bologna.
- TROUBETSKOY, PRINCE NICHOLAS. 1930. North-Caucasian Word Comparisons (in German). *Weiner Zeitschrift für die Kunde des Morgenlandes*. Vienna.
- UHLENBECK, CHRISTIANUS. 1947. The ancient layers of the Basque vocabulary (in French). *Eusko-Jakintza*, vol. 1., 543.
- UNTERMANN, JÜRGEN. 1975. *Monumenta Linguarum Hispanicarum*, vol. I. Wiesbaden.
-- 1997. The Iberian Inscriptions from Spain (in German). *Monumenta*, vol. III. Wiesbaden.
- VIDAL, MIGUEL CARRASQUER. 2001. Proto-Vasconic Phonological System: A Statistical Analysis and Reinterpretation. *Academia*, April 2001.
- WEGNER, ILSE. 2000. *Hurrian, An Introduction* (in German). Wiesbaden: Harrassowitz Verlag.
- WHEELER, MAX W. 2008. Viz. Trask, Larry. 2008.

The Pre-Proto-Vasconic Consonants		
Obstruents	Fricatives and Affricates	Resonants/Sonants

Position	Lab.	Dent.	Vel.	Uvul.	Apic.	Lami.	Apic.	Lami.	Glott.	Nas.	Rhotic	Lat.
Lenis	b	t d	k g	q	ś	s	tś	ts	h	n	r	ł & l
Fortis	w	t:	k:	q:	ś:	s:	tś:	ts:	ħ	n:	r:	ł:
Ejectives		t'	k'	q'					ç			tʃ'
Fortis Ejectives			k':	q':								tʃ':
Palatal/Prepalatal					š		č			ñ		dʃ
Unanalyzable Clusters					št	st						

Table 1. The Pre-Proto-Vasconic Phonologic System

The Proto-Basque Phonological System

Obstruents	Affricates	Fricatives	Resonants/Sonorants/

Position	Labial	Dental	Velar		Apical	Laminal	Glottal	Nasal	Rhotic	Lateral
Onset	b	t^h d	k^h g	č tś ts	ś	s	h	n	r	l
Fortis		t:	k:					n:	r:	l:
Coda	-	t		z	ś	s		n:	r:	l:

Table 2. The Proto-Basque Phonologic System

Table 3. The Proto-Nakh-Dagestanian Phonologic System

	Dental and Labial	Velar	Uvular	Laryngeal	Apical Palatal	Laminal	Laterals and Resonants
Voiced	d b	g		ɣ	ž	z	r l m n
Unvoiced	t p	k	q	ʰ	č		
Fricatives		χ (ç)	x x:	h		s š š:	ɬ ɬ:
Affricates		ğ	ğ*	ɣ	dž	dz ts	dʎ tʎ
Ejectives	tʼ	kʼ	qʼ	h	čʼ	tsʼ	tʎʼ
Fortis	t:	k:	q:		č:	ts:	tʎ:
Fortis Ejectives		kʼ:	qʼ:		čʼ:	tsʼ:	tʎʼ:

Notes to Table 3. * The phoneme /ğ/ was a *voiced uvular plosive* (IPA **G**) but surviving today in many languages of the Northeast Caucasian family as an *affricate*. Various researchers hear and subsequently transcribe this sound differently. Gudava describes the phoneme in Georgian phonologic terms as a WEAK UVULAR ABRUPTIVE AFFRICATE, i.e. /qʼ/ (Georgian *panyngali* or ‘pharyngeal’). However, Klimov describes the sound as a ‘VOICED UVULAR PLOSIVE (IPA **G**), but admits it is often realized as an affricate.

