Article

Unveiling the Enigmatic Origins of Sardinian Toponyms

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Abstract: With the boom in Indo-European (IE) studies among linguists from the early 20th century, toponymic studies on European place names have been largely based on the Proto-Indo-European (PIE). However, historical and archaeological records of non-IE groups, such as the Nuragic civilization of Sardinia, have presented the possibility of pre-IE/non-IE (Paleo-Sardinian) linguistic stratum influences on certain toponyms in Sardinia, Italy. This article aims to present a meta-study on existing toponymic reconstructions theorized by scholars, while offering a fresh perspective by employing methods of historical phonetic chains and sequences analysis to identify toponyms of interest. Analysis showed that certain Sardinian toponyms contain striking phonetic sequences that are uncharacteristic of PIE, such as *s(a)rd-, *kar-, *-ini, *-ài/*-éi, *#[θ]-. Overall conclusions appear to display the merits of (1) PIE and (2) pre-IE/ non-IE theories. Both provide plausible toponymic reconstructions. (1) The accuracy of IE theories is brought into question, as they appear to rely heavily on phonetic links to existing PIE roots, sometimes with a lack of consideration for other contextual or hydro-geo-morphological factors. (2) Conversely, pre-IE/non-IE theories are found to be highly speculative due to the lack of historical data, and knowledge, about the Paleo-Sardinian language.

Keywords: toponymy; Sardinia; Indo-European; Nuragic; Paleo-Sardinian

1. Introduction

The taxonomic study of place names, also known as toponymy, studies place names using methods of etymological reconstruction. Toponyms encompass the essence of a geographical area and are thus seen as a *sine qua non* for a place's existence (Tent 2015). The study of toponymy aims to provide us with valuable insights into spoken languages that have been lost to us with the passage of time. Many toponyms are seen as 'linguistic fossils', and are one of the few constants in an era that saw the rise and fall of a great many civilizations. The names are often retained for consistency in cartography as well as simply for convenience. In time, the origins of these names were lost and often misinterpreted or misattributed to local legends and implausible theories. These erroneous concepts are known as false etymologies. In the current section, a background of the reconstructed Proto-Indo-European language (PIE) and its significance in toponymic studies will be detailed. Section 2 of the article will briefly discuss the current linguistic landscape and the hypothesized Paleo-Sardinian language, followed by the motivations of the article in Section 3. Analysis of Sardinian toponyms containing the specific root forms *s(a)rd-, *kar-, *-ini, *-ài/*-éi, *#[θ]- and *Oristano* will be analyzed, with scholarly theories reviewed, in Section 4. Section 5 will provide concluding remarks and a summary review of the findings.

Since the common ancestor of Indo-European languages, PIE, was discovered, it has been the focus of scholars studying ancient languages and language-change processes over the course of history. Consistent attempts have since been made at reconstructing this 'prior' language and its features. PIE was discovered by polyglot Sir William Jones, who was fluent in multiple languages, including classical Latin and Ancient Greek. He noticed the similarities in words between Sanskrit (Vedic Sanskrit—c. 1500–600 BCE; Classical Sanskrit—c. 700 BCE–1350 CE) and Latin (753 BCE—developed into romance languages at

least from the 9th century CE). His findings surprised the world, as language borrowing was statistically unlikely between the two regions of Europe and India during the time when these ancient languages were spoken. The Grimm brothers then devised Grimm's law, describing patterns of sound change shared by multiple Indo-European languages (IE), which further supported the theory of an earlier shared proto-language. The PIE language family was thus derived and linked to various IE descendent languages, most of which are still spoken in different parts of the world today (Figure 1).
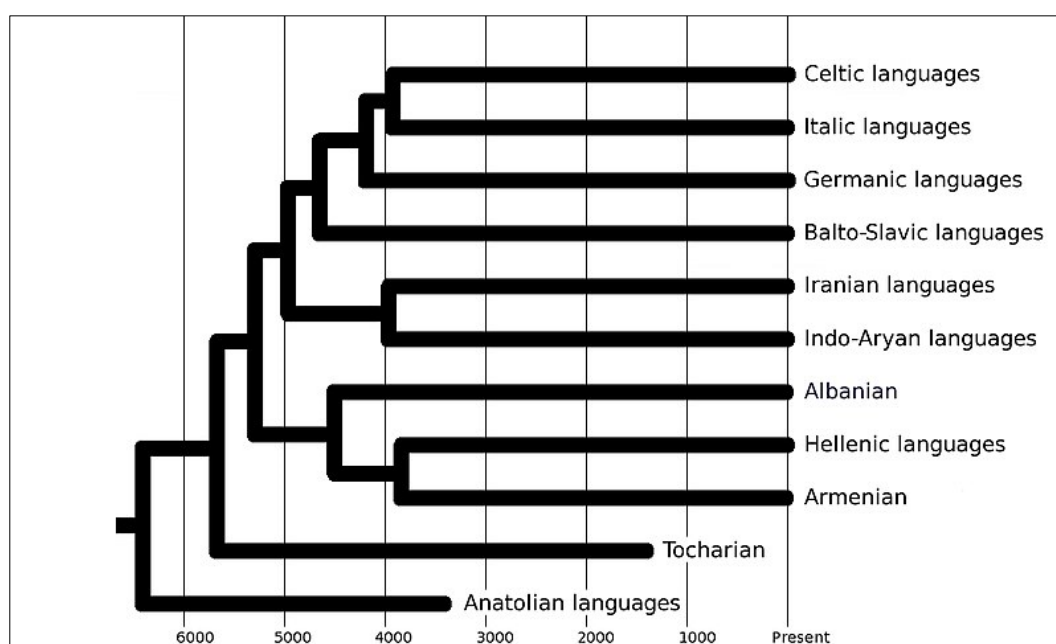

Figure 1. Indo-European language family relations chart ('Ancestry-constrained phylogenetic analysis of Indo-European languages' by Ordinary Person 2020/Wikimedia Commons is released under CC BY-SA 4.0).

The contribution by the Grimm brothers gave rise to the comparative method of studying languages and reconstructing hypothesized proto-languages, which comprise languages that lack existing written records (Fowler 1957). The popularity of PIE studies has led to the development of the substantial lexicon compiled in Austrian–German comparative linguist Julius Pokorny's (1959) Indo-European etymological dictionary: *Indogermanisches etymologisches Wörterbuch*, with a later revised version by the *Dnghu Adsoqiation*—the Indo-European Language Association (Pokorny et al. 2007).

2. Background

2.1. Sardinia and the Nuragic Civilization

Sardinia (Figure 2) is one of the twenty regions of Italy, situated to the west of the Italian peninsula. The island is, notably, the second-largest in the Mediterranean Sea. Sardinia is particularly intriguing to scholars due to its rich archaeological remains and history linked to ancient societies. Archaeological data revealed that Sardinia has been inhabited since the Upper Paleolithic and Mesolithic periods, giving the island its reputation as one of the most ancient bodies of Europe.

The earliest evidence of human settlements appears to be that of the Ozieri people, from c. 3200 to 2800 BCE. By c. 2000 BCE, new inhabitants from the Beaker culture appeared, which later developed into the Bonnanaro culture of Sardinia (1800–1600 BCE). Subsequently, the culture gradually became more advanced, and the people began building large conical dry-stone towers known as the *nuraghi*. The civilization that created these historic marvels was termed the Nuragic civilization, as a namesake for the *nuraghe* structures. The Nuragic civilization thrived in Sardinia during the Bronze Age from 1900

to 730 BCE (known as the Nuragic age). Like the iconic ancient Egyptian pyramids, the *nuraghe*, built from the Middle to Late Bronze Age (c. 1600–1200 BCE), were, and still remain, architecturally complex, megalithic structures (Blake 2015), with many still standing today, millennia after the collapse of the Nuragic civilization.

Figure 2. Location map of the island of Sardinia, Italy ('Sardinia in Italy' by TUBS 2011/Wikimedia Commons is released under CC BY-SA 3.0).

The *nuraghe* have been pivotal in giving us a glimpse into the workings of the Nuragic society, which would otherwise be lost in time, as well as into the innovative usage of materials and complex construction techniques. The magnificent sight of these widespread structures has cemented the island as a popular tourist attraction. There are currently around 7000 *nuraghi* in total (an average of 1 per 3 square kilometers), with experts estimating the original number to be closer to 10,000 (Vacca et al. 1998). In particular, UNESCO lists the well-preserved village of Barumini (Figure 3) as one of its World Heritage Sites. The site contains the majestic 18.5-meter-tall *Su Nuraxi Nuraghe*, which houses intricate chambers and a spiral staircase, lined with surrounding subsidiary towers (Su Nuraxi Di Barumini 2021).

Information about the Nuragic people is scarce. Despite the best efforts of scholars and archaeologists from around the world, no evidence of a writing system or written texts has been uncovered thus far. However, some insights into the lives of the Nuragic inhabitants can be gathered from ancient Egyptian sources containing documented references to their culture and lifestyle. Ancient Egyptian inscriptions from the 14th to 12th century BCE referred to the Nuragic inhabitants as the *Shardana*, "people of the sea" or "sea people" (Ugas 2016). Other physical and cultural physiognomic features that appear to link the ancient Sardinians to the *Shardana* include genetic data, aspects of economy and trade, weapons, literary references, and Nuragic materials exported or imitated across the eastern Mediterranean lands (Ugas 2016). Ancient sources such as Homer's *Odyssey* and the works of Simonides of Ceos suggested that the early 'sea people' of Sardinia engaged in attacking and raiding regions, mainly Egypt and Mycenaean sites. In the early 20th century, archaeologist Antonio Taramelli (1982) conducted excavations in the Sardinian Nuragic sites. He discovered unique bronze figures, which show warriors donned in kilts, similar to depictions found in Egyptian temples. Taramelli thus postulated that the ancient Sardinians were linked to the *Shardana*, although other scholars have contested this hypothesis. Giovanni Lilliu (1983) believed the clothing to have been imported by

foreign comrades or enemies. Etruscologist Massimo Pallottino (1950) hypothesized that the *Shardana* came from the Aegean and the Asian coasts. Sardinian linguist Massimo Pittau (1995, 2001) suggested a close connection between the Nuragic Sardinians and the Etruscans.

Figure 3. *Su Nuraxi di Barumini* ('Nuraghe Su Nuraxi' by Norbert Nagel 2013/Wikimedia Commons is released under CC BY-SA 3.0).

Mycenaean artifacts have also been uncovered in Sardinia, alluding to Nuragic trade and contact with other civilizations in the Bronze Age (Blake 2015). Since the 1950s, archaeological excavations have uncovered numerous bronze sculptures depicting important personnel such as warriors and leaders, animal motifs, and vehicles of transport such as boats, as shown in Figure 4. Remnants of ancient temples and other religious landmarks have also provided scholars with additional insights into the religious beliefs of the Nuragic people.

Patton (1996) hypothesized that the Nuragic people had significant internal social competition due to geographic and social isolation from other communities. These internal pressures may have motivated the people to construct the *nuraghi*, explaining the seemingly disproportionate effort required in the building process, considering the impracticality of these structures, similar to the elaborate moai structures found on Easter Island today. Archaeological findings and records from external contacts during the Late Bronze Age (LBA) also appear to describe an economy centered on traditional resources, such as the rearing and farming of livestock. Scholars believe that the lack of advancement and diversification within the economy, such as trading of metals or exotica, could have caused the ultimate balkanization and migration of the Nuragic people, eventually leading to the end of the Nuragic era and the abandonment of the *nuraghi* (Blake 2015).

Upon inhabitation by the Phoenicians in the 9th century BCE, ships became the main mode of transport between continental regions, and Sardinia's location became an ideal port for passing ships. Its prime geographical location, centered in the western Mediterranean, allowed for a flourishing maritime network and booming economy, despite its isolated location. According to Dyson and Rowland (2007), the Phoenicians established an early trading relationship with Sardinia from the 8th to 7th century BCE, integrating it with the vast Mediterranean trading networks from Lebanon to Iberia. The Sardinian trade boomed upon Carthaginian (Punic) settlement on Sardinia from the 6th century BCE until the end of the First Punic War, when the Romans conquered the island (van Dommelen et al. 2017; Dyson and Rowland 2007).

Figure 4. Nuragic bronze figures ('Bronze statuettes of nuragic civilisation at Cagliari Museum' by Prc90 2014/Wikimedia Commons is released under CC BY-SA 3.0).

2.2. The Paleo-Sardinian Language

Sardinia's linguistic landscape was categorized as diglossic by sociolinguists, starting from the Italian unification in 1861 up to the 1950s. Italian was designated as the language of official administration and education, while Sardinian (or Sard) and other minority languages became the local languages used in non-official and casual domains (Sole 1988; Loi Corvetto and Nesi 1993). However, since the 1950s, Italian has become ever more prevalent even in casual speech, triggering fears of possible language endangerment or the future extinction of the Sardinian language and other minority languages in Sardinia (Tufi 2013).

The Sardinian language is a diasystem that includes several varieties and sub-varieties that have not gone through linguistic or national unification, but contain similar linguistic, phonetic, grammatical, and lexical elements (Figure 5). Languages are grouped via methods of linguistic typology, identifying similar grammatical and structural features (Tufi 2013). The main linguistic variants are Logudorese (highlighted in yellow) and Campidanese (highlighted in dark orange). Other minority languages outside of the Sardinian language group include Catalan and Ligurian (Tufi 2013).

Some languages spoken in Sardinia are linked to Corsican and not considered varieties of the Sardinian language. They include: Gallurese (highlighted in green), spoken in the northern part of the island, a Corsican–Italian-type language which appears to show some contact with Corsica and the Corsican dialect (Blasco Ferrer et al. 2017), and Sassarese (highlighted in light green), a variety of Italian spoken in Sassari and nearby towns.

Analysis of the language features of Sard revealed that it is a lexically and linguistically close descendent of Latin (Putzu 2019). However, it appears that Sardinian differs significantly from most other Romance languages, with sources often categorizing Sardinian as a separate linguistic group. Although Sardinia is part of Italy, non-Sardinian Italians tend to display a not always neutral perception of the local language (Tufi 2013). This perception dates back to earlier recorded history. In his work *De vulgari eloquentia*, written during the late Middle Ages (c. 1302–05 AD), the Italian poet Dante Alighieri claimed that

the ancient Sardinian people do not have a language that is originally their own, often imitating *gramatica* (i.e., Latin) and 'lacking a vernacular of their own, "as apes do with humans" (Alighieri 1996, *De vulgari Eloquentia*, I, xi, 7; Muller 1929).
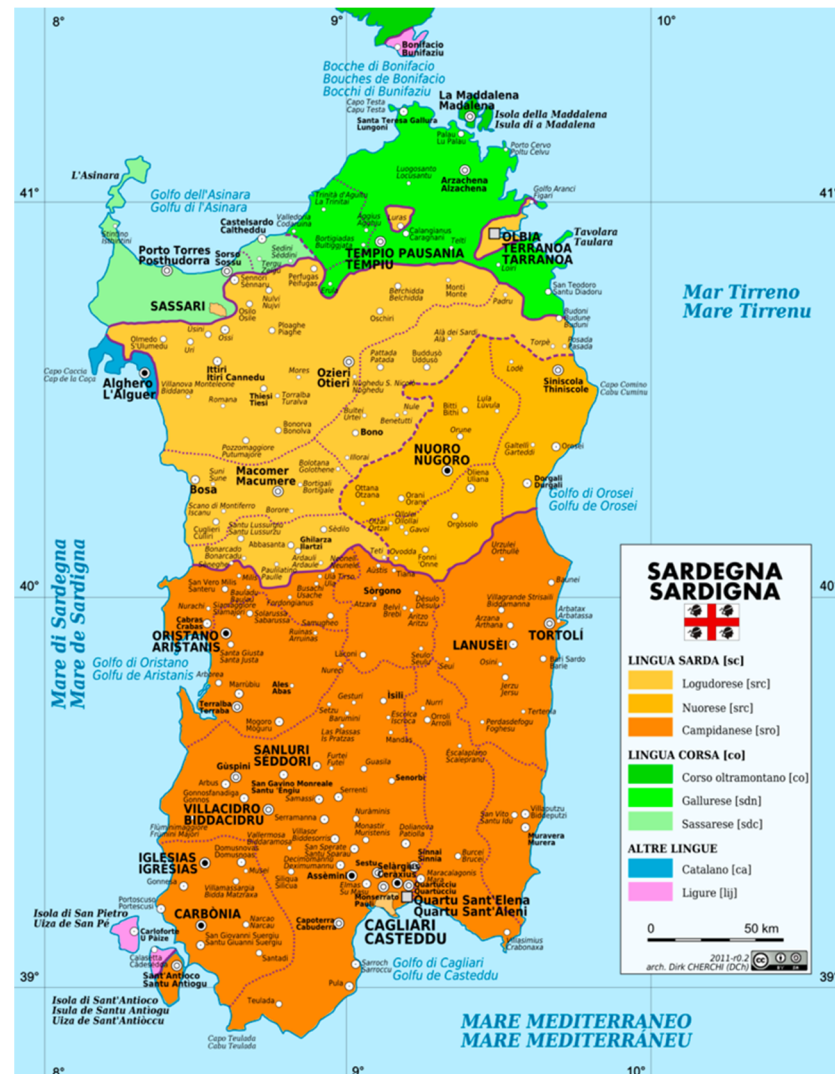

Figure 5. Language varieties spoken in Sardinia ('Sardinia Language Map' by Dch 2009/Wikimedia Commons is released under CC BY-SA 3.0).

The Sardinian language has been observed by linguists to contain specific pre-Latin elements, significantly uncharacteristic of Latin, likely indicative of unknown language influences, before the Latinization of Sardinia (Pittau 1995). Although some Punic (Phoenician) links have been identified, a large portion of the language is still linguistically incompatible with known languages. This suggests the heavy influence of a different language. Linguists have termed this mysterious language 'Paleo-Sardinian'. Without any written findings or specific data on Paleo-Sardinian, little can be concluded about the specifics of the language, such as its origins and genetic links to other languages, except that it was possibly spoken by the Nuragic people. However, specific toponyms can provide us with some linguistic forms and features of the language. Despite the conclusions that these forms were unrelated to the Indo-European language family, many scholars continue to debate the origins of the language and a consensus has yet to be reached.

3. Motivation and Methodology

Upon the discovery of PIE, Indo-European scholars have attempted to reconstruct Sardinian toponyms, with attribution to hypothesized IE origins. As with any linguistic element in a language, toponyms would be consistent with phonetic laws. However, there are toponyms present that are 'problematic' in nature and do not appear to conform to PIE linguistic laws, which could signal a pre-IE or non-IE origin. Some examples of pre-IE/non-IE languages include ancient Egyptian, Sumerian and Akkadian, pre-Anatolian (e.g., Hattic), pre-Greek substrates (e.g., Minoan), pre-Italic languages (e.g., Etruscan), Paleo-Sardinian (also known as the 'Nuragic language') and an existing descendent of pre-Celtic language—Basque, spoken today in northern Spain and southwestern France. Pre-IE root forms have been proposed in recent studies. A methodological example includes the pre-IE root **borm-*, postulated by Perono Cacciafoco (2015b) to account for the origins of a prehistoric toponymic system.

Toponyms containing uncommon linguistic elements uncharacteristic of PIE (e.g., in its phonetic or morphological structure) could be indications of probable linguistic substrate influence from a pre-IE/non-IE language and should be considered when toponymic research is conducted in these language-specific regions. With incomplete data about the Paleo-Sardinian language, it is nearly impossible to reach a definite conclusion on the origins of the language and, consequently, the toponyms themselves. However, the lack of information has not deterred linguists and historians from devising etymologies and theories of these place names.

This article aims to study these 'problematic' toponyms and provide a systematic review and analysis of the theories from both the pre-IE/non-IE and IE-based toponymic reconstructions raised by scholars. This paper intends to address the issue of the lack of comprehensive studies on the topic written in English and to present not very well known Italian sources to a wider audience. The focus will be on Sardinian examples that could show probable influences from pre-IE linguistic stratums. For a more balanced analysis, methods of linguistic analysis on phonetic chains and root forms will be applied to identify names with particularly ambiguous or non-IE linguistic features.

4. Results and Discussion

4.1. Root **s(a)rd-*

The root **s(a)rd-* is widely used in Sardinia today and has also been referenced in many historical sources and documents (Table 1), solidifying its status of linguistic stability. Other toponyms and names outside of a clear frame of reference to the Sardinian region, but which have been hypothesized to be linked to the root **s(a)rd-*, are highlighted in orange.

Table 1. Related names containing root **s(a)rd-* (Dedola 2015; Dedola n.d.).

Place Names	Main Island	Sardinia/Sardō
	Communes	Sardara
	Capital of Ancient Kingdom of Lydia	Sardis
Names/terms referencing person(s)	General adjective referencing Sardinian people	Sardu
	Male Name	Sardus
	Female Name	Sardō
	Sardinian Surnames	Sardu, Sardo, Sardà, Sardànu, Sardòne
	Historical Figures (Found in written historical	Sarduri II King of Urartu Sardố of Lydia

The earliest record of the form *s(a)rd-* is from the Nora Stone, an ancient stele found on the southern coast of Sardinia in 1773. The stele is dated to around the 8th or 9th century BCE (Dussaud 1924; Cross 1972; Pilkington 2012) and contains a series of inscriptions written in the ancient Phoenician alphabet, alluding to contact between Phoenician merchants and the Nuragic people. Noting the right-to-left writing script of the Phoenician language, the transliterated word *Šrdn* (Shardan) (Peckham 1972; Cross 1972) appears in the third line of the inscription (Figure 6).

Figure 6. Nora Stone ('Nora Stone in Gesenius's 1837 Scripturae Linguaeque Phoeniciae Monumenta') by Gesenius (1837).

Although the root *s(a)rd-* was evidently long established before the Phoenicians landed on Sardinian shores, not much is known about the actual origins of› the root itself. Multiple scholars have since attempted to produce reconstructions for 'Sardinia', which will be elaborated on in the following section.

4.1.1. IE Theories (Lydian Theory; Paleo-Sardinian Theory)

The main IE theory brought up by multiple scholars is that the root may be pre-Roman in nature, originating from Lydian, an extinct western Anatolian Indo-European language attested from 700–200 BCE. Lydia was an ancient civilization that existed between 1200 and 546 BCE in the Asia-Minor region located in present-day Turkey. Its location in 540 BCE is shown in Figure 7.

Pittau (1995, 2001) hypothesized that the Nuragic people of Sardinia were linked to the Etruscans and descended from populations in Lydia. He evidenced his claims by referencing Plato's *Timaeus*, where Plato stated that Sardinia and its inhabitants, '*sardianoi*' (Ancient Greek: Σαρδιανοί), derived their proper name from *Sardis* (*Sárdeis*, Ancient Greek: Σάρδεις), the capital of Lydia, and, thus, the Nuragic people were the *Sardianói* of Lydia (Pittau 2001). He also raised the point that the ancient-Egyptian references to the 'Sea people' could have come about due to proximity with Egypt, instead of Sardinia itself. Moreover,

Egyptian Pharaohs were recorded in the Bible to have hired Lydians as mercenary soldiers, solidifying the idea that Egypt and Lydia had a close relationship (Pittau 2011).
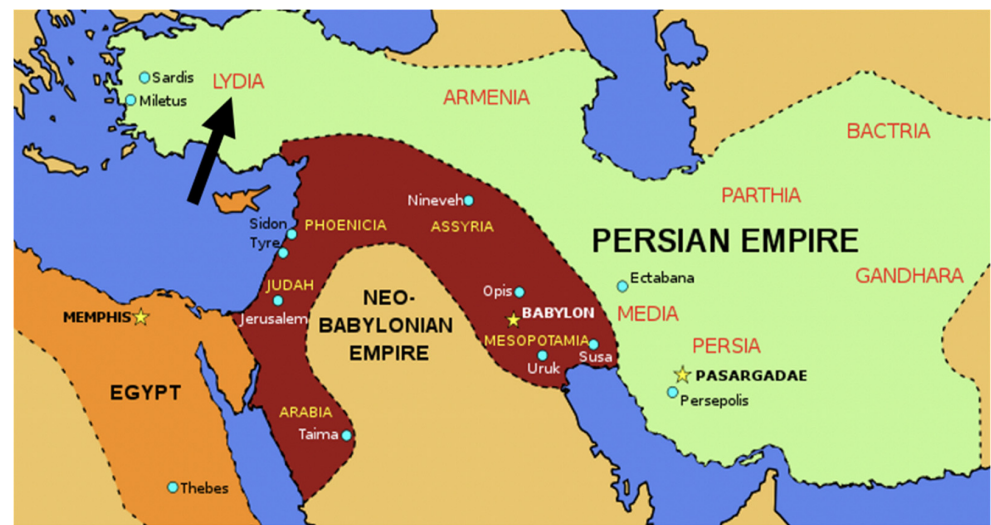

Figure 7. Map of the ancient Near East, 540 BC (Chriso 2008).

Besides references by Plato, other ancient writers also linked Sardinia to Lydia. The ancient-Roman historian Sallust's *Historiae*, written in the 1st century BCE (McGushin 1992), and ancient Roman Silius Italicus's Punic poem *Punica*, from the 1st century AD (Zucca 2016), both depict the ancestor of the Sardinian inhabitants to be Makeris, Libyan son of Hercules.

Upon arrival in Sardinia, Makeris was worshipped as the Nuragic mythological god of the Sardinians known as Sardus Pater and changed Sardinia's name from *Ichnusa* (Ancient Greek: Ἰχνοῦ(σ)σα) to his namesake, *Sardò* (Floris et al. 2007). The existence of Sardus Pater has been backed up by archaeological findings in the 9th century BCE, including the discovery of the Sardinian temple of *Antas*, as well as Roman coins that were uncovered in Sardinia (Figure 8).

Figure 8. Coin found depicting Sardus Pater ('Coin Sardus Pater Babai' by Shardan 2010/Wikimedia Commons is released under CC BY-SA 3.0).

New directions in the reconstruction of Etruscan origins via methods of genetic studies (Posth et al. 2021) could provide scholars with more information on the contact between the civilizations and shed light on the plausibility of this theory.

Alternatively, Borghi (2011, pp. 117–18) proposed an IE Paleo-Sardinian etymology: *Sărdōs* < Proto-Indo-European *$S\overset{r}{\llcorner}h_{1/3}$-$d^{fi}h_1$-$\ddot{o}$-$\breve{e}s$* 'those who do ($\sqrt{}$*$d^{fi}\breve{e}h_1$-*) movements with hostile ($\sqrt{}$*$s\breve{e}rh_{1/3}$-*)' (with reference to migrations similar to those of the later Sea Peoples).

4.1.2. Sardinian-Sumerian Theory (Non-IE)

Italian linguist Salvatore Dedola (2015, n.d.) stated, in response to Pittau's (1995, 2001) Lydian theory, that the attribution of *s(a)rd-* to Lydian *Sárdeis* is not well-substantiated. He claims that the focus on Lydia is unfounded and the theory that it is the originating source is merely an assumption. Dedola, instead, suggested that Sardō, the choronymic form of Sardinia, provides evidence that the name could be linked to the ancient Sumerian language. The archaic surname *Sard-us* would mean 'the man of *Sardō*' (Dedola n.d.).

Sumerian is a language spoken in ancient Mesopotamia (located in modern-day Iraq) from 3000 BCE to 100 AD. It is classified as a language isolate, with no clear evidence of links to other known languages. Dedola pointed out that the Sumerians referred to Sardinia as *Sardū* (formed by: sar ⌗◻ 'garden' + du₃ ▷ 'all'), which means 'a whole garden' (Dedola 2015). Dedola asserts that 'Sardinia' was referred to as such due to the abundance of greenery in Sardinia, relative to the desert environment of Mesopotamia.

Dedola's theories, however, have been deemed to be highly controversial by scholars and believed to be paretymological rather than comparative in nature, often based on criticized anti-Indo-European theories by the Italian linguist Giovanni Semerano (Semerano 1994).

4.2. Root *kar-

Another toponym whose origins appear to have yielded strongly divided opinions among scholars is the capital of Sardinia, Cagliari. Cagliari is located south of the island overlooking the center of *Golfo degli Angeli* ("Bay of Angels") and is situated atop seven hills. Scholars believe the city was built and established by the Phoenicians in the 8th or 7th century BCE. Latin poet Claudian wrote, in his 4th century AD work *De Bello Gildonico*, that Cagliari was 'founded by the powerful Phoenicians of Tyre' (Pittau 2018). After the First Punic War (c. 264–241 BCE), Cagliari was conquered by the Romans. Cagliari's Punic name was *Karaly* (Punic: ‏ⴀⵍ⥁‏) and Latin name was *Caralis* (Wagner 1950). However, scholars believe the name to be not Punic in origin, but likely to have existed even before the arrival of the Phoenicians.

4.2.1. Pre-IE Paleo-Sardinian Theory

Blasco Ferrer (2011) proposed that Paleo-Sardinian is a substratum of the language of Proto-Basque and the pre-IE language of the Iberian Peninsula. He defines a substratum as specific elements brought forward from an original native language to a second language in a particular community.

According to Blasco Ferrer (2010, p. 14), the origin of the toponym 'Cagliari' can be traced to the PIE root *kar-* (> *kar[r]a*) meaning 'stone/rock eroded by water', which is also hypothesized by scholars to be connected to other prehistoric Italian place names such as the toponyms in Liguria (Perono Cacciafoco 2015a) and Kalabria, ancient Salento and then present Calabria (Lopez 2021). In line with Blasco Ferrer's pre-IE theory of Paleo-Sardinian, multiple scholars believe *kar-* to be possibly pre-IE in nature. Blasco Ferrer also notes a clear hydro-geo-morphological match between the semantics of this IE root and the location of Cagliari, a land overlooking 'water', i.e., the gulf *Golfo degli Angeli* ('Bay of Angels').

4.2.2. IE Theory

Pittau (2018) noted that archaeological findings date the inhabitation of Cagliari back to the Eneolithic period and likely the Neolithic. He claims that it is, therefore, unlikely that the city's name was created much later in history, upon the arrival of the Phoenicians.

Analyzing Pittau's points, it is probable that the Phoenicians could have claimed ownership of the name to express their power and control over the city and in an attempt to 'erase' the prior history of and traditions of the Paleo-Sardinian speakers (who were possibly related to the Nuragic people). Pittau (2018) builds on Wagner's (1950) Paleo-Sardinian theory that 'Cagliari' originates from the Proto-Sardinian Karalis, suggesting that Karalis could mean 'the fortress' or 'the stronghold', with associations to the hill in its district of Castello. He added that this geo-morphological reference is not an isolate. The city Castel di Castro (modern name: Casteddu), synonymous with the hill of Cagliari, appears to be linked to the name as well.

An alternative theory put forth by Pittau (2018) is that the name could be connected to the Proto-Sardinian appellative cacarallái, crialléi, crièlle, chirièlle, ghirièlle, meaning 'wild (yellow) chrysanthemum', and linked to other related words, such as those shown in Table 2. He ultimately concluded that the island could have been named after the color 'yellow', from Paleo-Sardinian sources. He explained that the city was named in reference to the yellow tinge of the rock of the stronghold 'il Castello' and that the color was supposedly more visibly striking in the past compared to today.

Table 2. Words linked to 'Cagliari' (Pittau 2018).

Other Sardinian Toponyms	Garalè (Sorgono), Garula/e (Ottana), Ghiralèo (Olzai), Ghirali(Urzulei), Carallái (Sorradile), su Carule (Fonni)	
Etruscan words	*Garouleou* (phytonym)	Meaning: "Chrysanthemum"
Greek words	*Chlorós*	Meaning: "Yellow"

An alternative etymological reconstruction was provided with the assistance of Indo-European linguist Dr. Guido Borghi (2021b). The etymology he provided for Cagliari is as follows: *Cărălĭs* (*Cărălēs, -ĭŭm*) < Paleo-Sardinian **Kărălĭs* < Late Indo-European, $^{*}Kr̥[ə]ălĭ\text{-}s$ < Proto-Indo-European, $^{*}Kr̥h_a\text{-}ĕ\text{-}lĭ\text{-}s$ 'small cape' ← $^{*}kr̥r\text{-}ăh_a$ 'head'.

It is evident that, similar to the Paleo-Sardinian theory, this particular toponymic reconstruction is also derived from the geomorphology of the region—a geotoponym. A cape is defined as a high point on some land that spreads narrowly into a body of water (National Geographic Society 2021). This would be a fairly accurate description of the landscape, as can be seen in Figure 9. 'Head' could be referring to the high points of the cape, the prominent hilltops.

Figure 9. Cagliari cityscape ('View of Cagliari from the sea' by Cristianocani 2004/Wikimedia Commons is released under CC BY 2.0).

4.3. Root *-ini (Barumini)

Barumini is a commune in the province of Medio Campidano in Sardinia. The village is famous for '*Su Nuraxi di Barumini*', one of the most famous Sardinian archaeological sites, containing some of the most prominent *nuraghi* structures. This historic location, the village of Barumini, has caught the attention of many scholars and the origins of the name 'Barumini' have been heavily debated. IE scholars, in particular, utilized the method of comparative analysis, and examined various attested and reconstructed roots to derive theories connected to Greek or PIE. This affix appears to be a common linguistic feature found in many toponyms in the southwestern region of Sardinia, including Barumini. Multiple sources have proposed that the proparoxytone feature of *-ini may be of non-IE (mainly African or Iberian) origins (Craddock 1969; Butler 1971; Blasco Ferrer 1984; Rohlfs 1952).

4.3.1. IE Theories (Greek Theory, Paleo-Sardinian Theory)

Pittau (2018) proposed that the name Barumini is linked to the Greek adjective *barúmēnis* ('angry/vindictive'). He noticed a perfect match of eight phonemes between the Greek and Sardinian forms and noted that this correspondence is unlikely to be of mere coincidence, proposing that the name is derived from the goddess of the *nuraghe* temple in the *Nuraxi of Barumini*.

Borghi (2022, p. 151) provides a probable IE interpretation of Barumini as a geoto-ponym: $*B^{fi}\,\underset{\cdot}{r}\,h_{1/2}\text{-}\ubreve{u}\text{-}h_{2(/4?)}m\ibreve{i}\text{-}n\text{-}\ibreve{i}h_a \pm$ 'river (Mannu, 500 m lower than the Giara of Gesturi?) of the fury' $\leftarrow *b^{fi}\,\underset{\cdot}{r}\,h_{1/2}\text{-}\ubreve{u}\text{-}s$ 'fury' ($\leftarrow *b^{fi}\ebreve{e}rh_{1/2}\text{-}$ 'to boil, move violently') $+ *h_{2(/4?)}m\ibreve{i}\text{-}n\text{-}$ (in Mignone < Minio $< *H_{2(/4?)}m\ibreve{i}\text{-}n\text{-}\underset{\cdot}{i}\bar{o}^n \leftarrow \sqrt{}*h_{2(/4?)}m\ebreve{i}\underset{\cdot}{i}$, 'to go'). Borghi's etymological reconstruction was formed based on the geomorphological features of the region, with 'Barumini' deriving from IE roots, meaning 'river in the gorge'.

4.3.2. Non-IE Theory

Blasco Ferrer (2010) proposed that the root *bar- in Barumini occurred in various Iberian inscriptions from the northeastern alphabet. Other examples of Sardinian words with a hypothesized link to the root *bar- are *gorri* ('red') and *Barumele* (Iberian *mele*). He also brought up the Greek word βάρις ('fortified center with tower'), which is semantically probable to be in relation to the *nuraghi* megalithic structures. This strengthens the theory that there was significant linguistic contact between the regions of the western and eastern Mediterranean, with Sardinia located in the middle.

4.4. Root *-ài/*-éi

The suffix *-ài/*-éi is a very unique feature of Paleo-Sardinian. This suffix could be categorized as pre-Roman and is found in various prominent place names in Sardinia, such as Baunéi, Oroséi, Urzuléi, Lanuséi, and Triéi. One such toponym is Baunéi, which has sparked some interest among Sardinian scholars. Baunéi is a mountainous municipality in the Nuoro province of Sardinia in Ogliastra. Wagner (1950, p. 259) suggests that *-ài/*-éi could be non-IE roots, as they are linked to known collective suffixes found in African and Iberian formations. Conversely, theories linking the roots to IE, which many scholars claim to be more plausible, will be outlined below.

4.4.1. IE Theory

Borghi's (2022, p. 152) reconstruction of Baunéi is as follows: 'Baunei in the High Ogliastra $< *B\bar{a}g\ŏn\bar{e}d\bar{\imath} <$ IE $*B^{fi}\bar{a}\hat{g}(\ăbreve)\ŏn\bar{e}d\bar{\imath} < *B^{fi}\ăbreve h_a\hat{g}(\ăbreve)h_a\text{-}([h_3])\ŏn\text{-}\bar{e}h_a\text{-}d\text{-}\ibreve{i}h_a$, 'beech forest/beech woods' $\leftarrow [\dots] >$ Germanic $*b\bar{o}k\bar{o}^n$ &c. f. > ancient High German *puacha, buohha* & c. f. 'beech tree' (Griepentrog 1995, pp. 59, 69–72, 75–76) + suffix $= \text{-}ei < \text{-}edi <$ IE $*\text{-}\bar{e}h_a\text{-}d\text{-}\ibreve{i}h_a$.

He stressed that the suffix -éi is by no means any contracted form of the Latin -ētum. Specific Italian dialects such as Piedmontese contain the form *-ei (i.e., *Par-ei*) instead of the Italian *-eto, although they both form phytonymic collectives. Specific Cisalpine varieties such as -ei and -eto are possible.

4.4.2. IE Paleo-Sardinian Theory

Pittau (2018) suggests that the name Baunéi is genetically related to the Greek word *baŭnos/baunós*, meaning 'furnace used for cooking lime or for metal melting and purification'. The village is known to be calcareous, with historical data and records showing that copper and iron mines existed in the nearby region until the 19th century. Pittau, however, acknowledges that **-éi*, an accented vowel combined with an attached paragogic vowel, is most likely a Proto-Sardinian relic form found in various Sardinian toponyms. The suffix appears to have resisted the Latinization of the Sardinian language that occurred upon Roman conquest. In short, Sardinian names ending with **-éi* are a combination of a Latin base root with a Paleo-Sardinian/Nuragic suffix form.

The suffix **-éi* also appears in other Sardinian terms related to geomorphological features. According to Pittau (2003, 2021), the Sardinian word *golléi* ('mountain/hills') corresponds to the Latin *collis* ('hill'). It is evident that there is a phonetic similarity between the two cognates, but **-éi* appears to be an unexplained suffix addition to the Sardinian term.

4.5. Roots Beginning with #[θ]-

Thìscali is the name of a mountain (oronym) located between the Supramonte of Oliena and the commune of Dorgali. It is also the namesake of an ancient Nuragic village and a famous archaeological site located within the mountain. The ancient village was inhabited around the 1st century BCE, but the first modern record and documentation were by Italian historian Ettore Pais in 1910 (Moravetti 1998). The village was built in a crater within the mountain and contained 40 ancient huts, some of which can still be seen today (Figure 10). Despite the steep and challenging 3- or 4-h hike required to reach the site, the area remains a popular Sardinian tourist destination.

Figure 10. Tiscali, Nuragic archaeological site in Sardinia ('Tiscali, nuragic archaeological site in Sardinia.' by Roberto Mura 2017/Wikimedia Commons is released under CC BY-SA 4.0).

The **th-/*#[θ]-* root consonant of the village has proven to be an enigma to scholars, attracting various convincing and probable views. Thìscali is not the only region with this prefix. Other Sardinian place names, such as Thìscali, Nuraghe *Thorcodossile* (in Oliena), *Thorra* (at Lodè), also contain this unique phonemic feature.

4.5.1. IE Theories

Indo-European scholars believe the three *#[θ]- toponyms to be unrelated to one another, with arbitrary etymologies. Borghi (2021a, p. 277; 2021b) has kindly provided his personal comment on the IE reconstruction of these toponyms.

1.　Thìscali (Oliena) < Paleo-Sardinian *$\theta\bar{\imath}sk\breve{a}l\bar{\imath}$ < PIE * *$D^{h}\breve{\imath}h_x$-s-$k\breve{g}_a$-$l\breve{\imath}h_a$ 'the little (mountain) in the set of the territories which are in plain sight'. This theory is probable, as the landscape of the region is filled with small and steep mountains leading into the Tiscali village (Figure 11).

Figure 11. View of the mountainous regions surrounding Oliena ('Oliena-Nuoro-Orune'. by Rafael Brix 2006/Wikimedia Commons is released under CC BY-SA 3.0).

2.　Thorra < Proto-Indo-European *$d^{h}\breve{o}rs$-$\breve{a}h_a$ (f.) should correspond to the Old Indic $d^{\text{fi}}\breve{a}r\d{s}\breve{a}$- m. 'restraint', with reference to the position of the nuraghe, in control of the ford on the Torra river and of the entrance to the village (among other meanings, 'boldness', etc., Monier-Williams 1899, p. 513), from Proto-Indo-European *$d^{h}\breve{o}rs$-$\breve{o}$- ← √*$d^{h}\breve{e}rs$- (cf. Pokorny 1959, p. 259).

3.　Thorcodossile, -dossile could mean *de Ósile* 'from Osile' (Sassari); *Thorco* is a personal name (also *Forco*, e.g., the father of the legendary medieval Sardinian Medusa), maybe from Proto-Indo-European *$D^{h}\breve{o}rk$-$\bar{o}(\d{\imath})$, cf. Lithuanian *darka* m./f. 'careless; clown' (Kurschat 1968, p. 411) < Proto-Indo-European *$d^{h}\breve{o}rk$-$\breve{a}h_a$ ← √*$d^{h}\breve{e}r$-k- (cf. Pokorny 1959, p. 252).

4.5.2. Non-IE Theory

Paulis (1987) proposed, in his book '*I nomi di luogo della Sardegna*', that this root consonant could be Paleo-Sardinian and possibly pre-IE in nature. He noted the *#[θ]- prefix's incompatibility with IE historical phonetics, as well as the presence of rich archaeological findings in all three places.

4.6. Oristano

Oristano is a popular Sardinian tourist destination and a great medieval city. An abundance of *nuraghi* is scattered across the region, most notably the famed *Nuraghe Losa*, dated to c. 1500 BCE, around the period of the Middle Bronze Age and shaped like a tholos tomb (Andrews 2004; Christiani and Maric 2011). The Oristano region was well-populated in Nuragic times, but historical records of the region were mostly written by the Phoenician colonists from Tyre, who arrived in the late 8th century BCE, subsequently establishing the city of Tharros. Under the rule of the Phoenicians, the region flourished and Tharros established itself as western Sardinia's *de facto* capital (Christiani and Maric 2011). However, constant raids by Saracen tribes led to the subsequent abandonment of the city in 1070 AD.

The people decided to move inland, settling in a region they named '*Aristianis'*, the exact location of Oristano today (Christiani and Maric 2011).

IE Theories

The most prominent false etymology is linked to a popular Sardinian myth and legend (Sardinialinks 2020). The legend was set in Tharros, an ancient Phoenician city that pre-existed Oristano. King Joneto, the ruler of Tharros, captured Zulemma, the daughter of a raiding Saracen (a blanket term for Muslims during the Middle Ages). He fell in love with Zulemma but she would only accept the marriage on the condition that Joneto builds a city in place of the 'Golden Pond' located near Tharros. Facing this impossible task, Joneto ultimately sought the help of a devil named Luziferru and a contract was drawn up—the task would be performed in exchange for his own soul, as well as Zulemma's. The water was expelled and the city of Oristano was thus conceived, with the name deriving from *Stagno Dorato* 'Golden Pond', *Lo Stagno dell'Oro* 'The Pond of Gold': from *Ori* (=oro) 'gold' + *stano* (=stagno) 'pond'/'swamp'. The story concludes on a happy note, as Joneto manages to seek assistance from the Virgin of the sanctuary of the *Madonna del Rimedio*, who stole the contract away from the hands of the devil, thus voiding the agreement.

Though an intriguing story, according to '*La leggenda di Oristano: il patto tra Joneto e Luziferu per la sua costruzione*' (Sardinialinks 2020), the etymology has been largely proven to be historically improbable (on top of the fact that the content is largely mythical in nature). A more factually attested account is that Oristano was founded in the 11th century AD by Judge Orzoco from Tharros. He and some other men were looking for areas to be shielded from the Saracen attacks in the city. They ultimately took shelter at a place with ponds and swamps and settled there, naming the place Oristano in reference to the landscape filled with ponds.

The false etymology of 'golden pond' has been acknowledged on the official website (Figure 12) of the city of Oristano (Comune di Oristano 2021) and cited as a reason for the integration of a pond in the design of the Oristano municipal coat of arms (Comune di Oristano 2021).

Figure 12. Oristano coat of arms.

Besides the 'golden pond' theories, other scholars provide different ideas.

Pittau (2018) hypothesized that *Aristianes* could have been pronounced, according to Byzantine pronunciation, as *Aristeanes*. He believes that this is proof of clear compatibility with the name Aristaeus. According to Diodorus (Diodorus and Green 2006), Aristaeus is

an Ancient Greek mythical character with multiple sections of his story and his cults set in Sardinia. According to Pittau, therefore, *Aristianēs límnē*, "Oristano's pond/swamp", or *Aristianēs limēn*, "Oristano's harbor", could be connected to a Latin form villa *Aristaeiana*, "Aristaeus' village". However, many scholars believe that these links proposed by Pittau are largely unsubstantiated.

Borghi (2021b) provides a personal comment with a differing analysis of the toponym, reconstructed on a phonetic basis. Oristano (Sardinian *Aristànis*) looks like the Latin name for the estate of the *gēns Ărĭstĭă*, but it could be a pre-Roman place name, possibly a locative plural form of the corresponding 'superlative' $^*H_4 ăr\text{-}ĭsth_2\text{-}ăh_ană\text{-}m$ 'place of the noblest men' to $^*H_4 ăr\text{-}i̯\text{ -}ăh_ană\text{-}m > {}^1Īrān$ (cfr. Ariano Irpino [Avellino]), or the plural of the compound $^*Ărĭ\text{-}stānĭs <$ Proto-Indo-European $^*H_a ărĭ\text{-}st^{(h)}ăh_2\text{-}n\text{-}ĭ\text{-}s$ 'having attached/faithful places (strongholds, fortresses)' (cf. Old Indic $^1 ărí\text{-}$ 'attached to, faithful' (Monier-Williams 1899, p. 87), $st^h ănă\text{-}$ 'place, position, locality; stronghold, fortress, etc.' (Monier-Williams 1899, p. 1263) and Latin $ĭn\text{-}ĕrm\text{-}ĭ\text{-}s$ 'without weapons' $\leftarrow$ $ărmă$ 'weapons' for possessive $\text{-}ĭ\text{-}$ (the 'attached or faithful fortresses' should be the nuraghes near Oristano).

The theory focuses largely on phonetic reconstructions. Though some show plausible links to the hydro-geo-morphology of the specific region, reconstructions such as the one for Oristano above, 'having attached/faithful places (strongholds, fortresses)', appear to be somewhat arbitrary as long as they postulate a dominant relationship between prehistoric Oristano and the nuraghes nearby.

Archaeological findings from Tharros suggest that the city dates from the 9th to 8th century BCE and was abandoned in the late 11th century AD when the people from Tharros moved to Oristano instead. There is a 2000-year difference between the conception of Tharros versus that of Oristano. The possible names of any settlements pre-existing in the vicinity of Oristano are presumed to have been lost. As such, 'Oristano' remains the key toponym that scholars can linguistically analyze. Its etymology is most likely to be relatively recent, probably dating back to the Italian Middle Ages, and therefore unlikely to be of pre-IE or non-IE origin.

5. Conclusions

In conclusion, the case study of Sardinian toponyms, *s(a)rd-, kar-, -ini, -ài/-éi, #[θ]-* and Oristano, for the purposes of this article, give us a glimpse into the different languages that may have left a linguistic 'mark' on the island's toponyms. Without additional findings providing linguistic insights on the proto-language of the Sardinians, prior to the arrival of the Phoenicians, we may never be able to fully decipher the etymologies of most of these enigmatic names. However, it is insightful to analyze the theories and thought processes of scholars who have attempted to figure out the true origins, despite the limited amount of data at hand. Most scholars tend to have strong allegiances to PIE versus pre-IE/non-IE theories. This article attempts to provide a balanced view of the differing opinions and to derive the merits and shortfalls of some of these hypotheses. All in all, even though IE theories may have been supported by documented material, such as in Roman literary works, there are many Sardinian toponyms, likely pre-Roman, that cannot be explained through IE. There is little doubt that there was a thriving society and most likely a language of communication during this time, likely influencing the linguistically unique Sardinian language varieties still spoken today. The different linguistic substratum of Sardinia since the Bronze Age or earlier, could have possibly been 'fossilized' in these Sardinian place names. Future attempts at Sardinian toponymic reconstruction should take these factors into account to provide etymologies of greater historical and linguistic accuracy.

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