

THE PRE-GREEK LINGUISTIC SUBSTRATUM An Overview of Current Research *

Résumé. — La question de la langue préhellénique n'a cessé d'attirer l'attention des philologues et des linguistes depuis la fin du XIX^e s. La recherche actuelle se focalise sur l'étude des éléments du vocabulaire grec dont l'aspect extérieur ne se conforme pas aux lois phonétiques reconnues. Cet article a pour objectif de passer en revue les principales théories linguistiques défendues durant les trois dernières décennies. Nous commençons notre examen par les représentants de la vieille théorie pélasgique, qui reconstruisent le préhellénique comme une langue indo-européenne dotée de lois phonétiques particulières. Un deuxième courant de la recherche entend expliquer les éléments étrangers du vocabulaire grec comme des résidus d'un substrat anatolien-louvite. Une troisième théorie, que nous qualifions d'« égéenne », s'avère être la plus importante à l'heure actuelle ; selon ses adhérents, le préhellénique est une langue dont l'origine n'est ni indo-européenne, ni sémitique. Enfin, la théorie kartvélienne s'est élaborée plus récemment que les autres ; ses défenseurs identifient le préhellénique pour une large part comme une langue kartvélienne ou sud-caucasique. Cet aperçu se termine par l'examen de quelques problèmes centraux que rencontre la recherche linguistique du substrat préhellénique.

Introduction

The Indo-European migrants who arrived in Greece ca. 2000 BC, came into contact with a 'Pre-Greek' civilization. The language of this civilization left but scanty traces. However, research into the identity of this substratum is of great importance in understanding the influence of native elements in the formation of the Greeks' 'Greekness', as they must have absorbed a great deal from this Pre-Greek civilization. Not only did they adopt almost the entire pantheon (except for Zeus, Eos, Pan and Hades ¹) but also numerous place names and cultural words (i.e. names for plants, animals, artefacts and political and social structures). Since the end of the

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1. The origin of Poseidon is debated. See R. S. P. BEEKES (*GED*, Ποσειδῶν).

19th century, linguists have studied vocabulary items that can be interpreted as borrowings from this lost language. The results of this research and the many theories concerning the Pre-Greek substratum up until 1977 have often been summarized². A systematic overview of the publications and theories that have appeared since then, however, is still a desideratum. The purpose of this article is precisely to give a state of the art of linguistic research³ concerning this subject during the last three decades.

The following paragraph provides a brief overview of the theories that have circulated up until 1977. A first group of linguists regarded Pre-Greek as an Indo-European language. Among these was P. Kretschmer (1939, 1943), who believed that the Proto-Indo-European protolanguage (*'Protindogermanisch'*) was split into two branches: *'Urindogermanisch'* (which can be identified with what is today called 'Proto-Indo-European') and *'Raetotyrrenisch'* (comprising Rhetian, Tyrrhenian [i.e. Lemnian], Etruscan and 'Pelasgian'). This inspired V. I. Georgiev (1941-1945) to come up with his own 'Pelasgian' theory, according to which Pelasgian⁴ was an Indo-European language. Especially in Leuven, this theory was very influential with linguists such as A. J. Van Windekens and A. Carnoy. A. J. Van Windekens (1960) later distinguished between two Pelasgian dialects. O. Haas (1951) assumed that, next to V. I. Georgiev's Pelasgian, there had been a second Indo-European substratum in Greece, which was characterized by a shift of PIE initial **p* and **k* to *ps* and *ks* respectively. W. Merlingen (1963-1967) further elaborated the Pelasgian theory and discerned three entities: two superstratum languages ('Achaean' and 'Psi-Greek') and one substratum language (the '*nd*-language'). Given that various Greek place names have parallels in the Anatolian languages, several linguists identified the Pre-Greek language as Anatolian, either as Luwian (thus L. R. Palmer [1961] and G. L. Huxley [1961]) or as Lydian (thus A. Heubeck [1961], who referred to it as 'Minyan' and 'Minoan'). Finally, Pre-Greek was also associated with Illyrian (for instance, by F. Lochner von Hüttenbach [1960]).

A second group of linguists assumed that Pre-Greek was a non-Indo-European, 'Mediterranean' substratum. This Mediterranean theory was

2. See E. J. FURNÉE (1972, p. 29-98), G. NEUMANN (1975), R. KATIČIĆ (1976, p. 16-97) and M. B. SAKELLARIOU (1977, p. 23-77).

3. I confine myself to a state of the art of the *linguistic* research. The literature concerning the 'direct evidence' of Pre-Greek (i.e. Linear A, Cypro-Minoan, Eteocretan etc.) will not be discussed in this article. For a good introduction to this subject, see Y. DUHOUX (1998) and the contributions in *A History of Ancient Greek* (Y. DUHOUX [2007a]; Y. DUHOUX [2007b]; Émilie MASSON [2007]; O. MASSON [2007]).

4. This Pre-Greek language was called 'Pelasgian' because the ancient tradition frequently referred to the native population as Πελασγοί.

influential in the 1940s and 1950s with the Italian Romanist School (for instance, G. Alessio [1944] and G. Devoto [1943]) and was taken up by D. A. Hester (1957) and E. J. Furnée (1972). Finally M. B. Sakellariou (1977) attempted to reconcile the Indo-European and the non-Indo-European theory by presupposing two substrata: a Mediterranean and a 'Pre-Hellenic' (i.e. Indo-European) one.

1. The Pelasgian theory

1.1. V. I. Georgiev

The Pelasgian theory, founded by V. I. Georgiev (1941-1945), was one of the theories that survived after 1977. In 1981, this Bulgarian linguist published his *Introduction to the History of the Indo-European Languages* (which was in fact an English translation of a book that had already been published in Russian in 1958 and in Italian in 1966). Despite the fierce criticism his Pelasgian theory had attracted, a short chapter of this book was devoted to the Pelasgian language, to which the following sound laws⁵ were ascribed:

- (1) PIE **e* is preserved but before **nt(h)* (without stress) it changes into *i*
- (2) PIE **ō* > Pelasg. *ā*
- (3) Resonants: PIE **r*, **l*, **ŋ*, **m̥* > Pelasg. *ur/ru, ul/lu, un/nu, um/mu*⁶
- (4) The PIE stops underwent a consonant shift:
 - PIE **p*, **t*, **k* > Pelasg. *ph, th, kh*⁷
 - PIE **b*, **d*, **g* > Pelasg. *p, t, k*
 - PIE **b^h*, **d^h*, **g^h* > Pelasg. *b, d, g*
- (5) Satem-assibilation of the PIE palatals:
 - PIE **k̑* > Pelasg. *s, þ*
 - PIE **ǵ*, **ǵ^h* > Pelasg. *z, đ (d)*
- (6) Delabialization of the PIE labiovelars
- (7) PIE **s* is preserved (initially and intervocally)
- (8) Dissimilation of the aspirates
- (9) PIE **su-* > Pelasg. *s-*

1.2. E. P. Hamp and K. T. Witzak

In the 1980s and 1990s, the chief proponent of the Pelasgian theory was E. P. Hamp, whose main contributions were made in the journal *Živa Antika*. In his case studies, he generally accepted V. I. Georgiev's sound

5. V. I. GEORGIEV (1981, p. 100).

6. Pelasgian had no inherited *ō*, but Pelasg. *u* sometimes appeared as *o*. See V. I. GEORGIEV (1981, p. 100).

7. Examples such as ἄστυ "city" < PIE **uos-tu* "residence" (V. I. GEORGIEV [1981, p. 101]) imply that voiceless stops were preserved after *s*, a suggestion made more explicit in his earlier work (1941-1945).

laws, excepting a few details. The main difference between these two linguists is that according to E. P. Hamp, Pelasgian is a centum and not a satem language: the PIE palatals did not develop into sibilants but merged with the plain velars (e.g., πύργος “tower” < PIE **b^herǵh-* “hide”⁸).

In 1998, K. T. Witczak published a paper on three Cretan glosses of Pre-Greek origin attested in Hesychius’s lexicon (5th century). He supported E. P. Hamp’s centum view of Pelasgian and added the following Pre-Greek sound laws: PIE **d* > Pelasg. *l* (e.g., ἄχτυλα “nuts” < PIE **h₂knud-* “nut”), PIE **r̥* > Pelasg. *ri*⁹ (e.g., θρινία “grapevine” < PIE *(*s*)*tr̥-n* “be stiff”) and PIE **gh^w* > Pelasg. *b* (e.g., βήλα “wine” < PIE **gh^welā* “wine”)¹⁰.

1.3. A. J. Van Windekens and his ‘complementary etymological dictionary’

At the end of his career, A. J. Van Windekens (one of the icons of the Pelasgian theory) published his *Dictionnaire étymologique complémentaire de la langue grecque* (1986). This dictionary was intended as a supplement to P. Chantraine (1968) and H. Frisk (1972), especially for those words that these two dictionaries failed to properly or sufficiently explain. Without wholly rejecting the Pelasgian theory (he still suggested several Pelasgian etymologies, e.g., σοφός “skilled, clever” < PIE zero-grade **sup-* “sleep”, which was interpreted as “inspiré, averti par la divinité en songe”¹¹), he dissociated himself from it to some extent. He regarded the majority of the words as genuine Greek words that either had undergone aphaeresis, assimilation, dissimilation, haplology or metathesis, or had hitherto not been recognized as original compounds. The value of this work was, however, severely compromised by the many extravagant proposals contained in it¹².

1.4. The Pelasgian theory at the beginning of the 21st century

After E. P. Hamp’s last contributions, the Pelasgian theory temporarily faded into the background. In 2003, a collection of papers, read at a conference on substratum influence in prehistoric Europe, was published. In these papers, two of the contributors, K. Strunk and O. Panagl, re-examined the Pelasgian theory. The former assumed the existence of both non-

8. E. P. HAMP (1979, p. 209).

9. The development *r̥* > *ri* or *ir* had already been suggested by V. I. Georgiev in *Vorgriechische Sprachwissenschaft* (1941-1945), but was nowhere mentioned in *Introduction to the History of the Indo-European Languages* (1981).

10. K. T. WITCZAK (1998, p. 19).

11. A. J. VAN WINDEKENS (1986, p. 209).

12. See, for instance, the negative reviews by O. MASSON (1987), J.-L. PERPILLOU (1987), C. BRIXHE (1989) and A. CHRISTOL (1990).

IE substratum material and several IE substratum languages. In his view, the famous Pre-Greek suffixes $-\nu\theta\omicron-$ and $-\sigma\sigma\omicron-$ belong to a non-IE Aegean layer¹³, whereas other items would appear to be loans from an IE substratum language (e.g., $\sigma\hat{\omicron}\varsigma$ “swine” < PIE $*suH-s$ “id.”)¹⁴. However, K. Strunk stressed that this IE substratum need not necessarily be the Pelasgian substratum as reconstructed by V. I. Georgiev and his adherents.

O. Panagl conceived his own article as a footnote to that of the previous contributor. He focused on O. Haas’s view on Pre-Greek and deemed a few of this linguist’s etymologies worth reconsidering. Thus, $\xi\lambda\alpha\iota\omicron\nu$ “olive oil” might be a Pelasgian word developed from $*lo\check{i}-\mu\omicron-m$ (with a so-called prothetic $e-$), a derivative of the PIE root $*lej-$ “pour, smear”¹⁵.

2. The Anatolian theory

In the past, some linguists have argued that Pre-Greek was an Anatolian language. Both Luwian and Lydian were suggested as possible candidates but after 1977, only the Luwian theory continued to attract followers¹⁶. Nowadays, however, the Anatolian theory has lost much of its vigour.

2.1. L. R. Palmer

In 1980, L. R. Palmer published *The Greek Language* as a counterpart to his *The Latin Language* (1954). The first part of this book offers a historical sketch of the Greek language (from the prehistory up to the koine) and the second offers a comparative-historical grammar of Greek phonology and morphology.

The first chapter¹⁷ deals with the prehistory (viz. the Pre-Greek substratum and the arrival of the Greeks) and is the most controversial. L. R. Palmer’s chief argument for regarding the Pre-Greek substratum as Luwian concerns the Pre-Greek suffixes $-\nu\theta-$, $-\sigma\sigma-/-\tau\tau-$ and $-\nu\nu\alpha$. The first two can be identified with the Anatolian suffixes $-anda/-wanda$ and $-ašša$ respectively. As these suffixes are found in toponyms from the Luwian area (i.e. south, south-west and central Anatolia), the Luwians are favoured as the donors of these place names¹⁸. The suffix $-\nu\nu\alpha$ might also be of Luwian origin. Indeed, Common Anatolian had a suffix $*-uwan-$,

13. K. STRUNK (2004, p. 89).

14. K. STRUNK (2004, p. 90).

15. O. PANAGL (2004, p. 101-102).

16. For the identification of the language of Linear A, several Anatolian proposals have been made, viz. Hittite, Lycian and Luwian.

17. L. R. PALMER (1980, p. 3-26).

18. L. R. PALMER (1980, p. 11-12).

used to form ethnics. In Hittite, it appeared as *-uman-*, *-umna-*, *-umana-* and *-umma-* but in Luwian it was **-wanni-* (later contracted to *-unni-*)¹⁹.

Finally, L. R. Palmer mentioned a specific linguistic phenomenon linking Greek and Luwian. In Greek, stops are lost in final position and only *s*, *r* and *n* occur as word-final consonants. Similarly, in Luwian *s*, *n*, *r* and *l* are the only consonants appearing at the end of a word. The author ascribed this resemblance to a transformation of the Greek phonological structure under the influence of the Luwian substratum²⁰.

2.2. *Margalit Finkelberg*

After L. R. Palmer, the Anatolian theory lost its influence, until it was revived by Margalit Finkelberg in her book, *Greeks and Pre-Greeks* (2005). The author's approach is not only linguistic, but also archaeological, historical and ethnographic. She focuses on national identity in two periods, the Bronze and the Iron Age. Both the terms 'Achaean' (in the Bronze Age) and 'Hellenes' (in the Iron Age) are regarded as constructions created by the Greeks in the archaic period to bestow a common identity upon a heterogeneous population through myth and heroic tradition.

The third chapter²¹ of this book is devoted to the Pre-Greek substratum. The author proposes to reconsider P. Kretschmer's old theory on Proto-Indo-European, which postulated an additional language family, related to Indo-European and comprising Etruscan, Tyrrhenian (i.e. Lemnian), Rhetian and Pelasgian. Her chief argument is that the languages of Asia Minor were originally considered to be non-IE and related to Etruscan. After the discovery of the IE character of the Anatolian language family, however, Etruscan and Pre-Greek continued to be classified as non-IE, a view that according to Margalit Finkelberg can no longer be upheld²².

Like L. R. Palmer, Margalit Finkelberg connects the suffixes *-nth-* and *-ss-* in Greece with *-nd-* and *-ss-* in Asia Minor. On the basis of the distribution of these suffixes, she concludes that Western Asia, Greece and Crete were a linguistically homogeneous area until the arrival of the Greeks²³.

19. L. R. PALMER (1980, p. 13). On the basis of Greek place names with the suffix *-umna* (e.g., *Larymna*, *Methymna*, *Lepetymnos*, *Kalymna*), L. R. PALMER (1980, p. 16) concluded that various Anatolian dialects (including some pertaining to the northern branch) had been spoken in Greece.

20. L. R. PALMER (1980, p. 16).

21. Margalit FINKELBERG (2005, p. 43-64).

22. Margalit FINKELBERG (2005, p. 42-50).

23. Margalit FINKELBERG (2005, p. 52).

3. The Aegean theory²⁴

The Aegean theory has a precursor in the Mediterranean theory, according to which Pre-Greek was a non-IE, non-Semitic language, which extended over a large part of the Mediterranean²⁵. Although E. J. Furnée's 1972 doctoral thesis falls outside the chronological limits I have adopted here, it cannot be left unmentioned at this point, as it is undoubtedly a landmark in Pre-Greek substratum research, if only because it has been so controversial. Furthermore, it has become the main source of inspiration for R. S. P. Beekes, who probably made the most valuable contributions on our subject in recent years.

3.1. E. J. Furnée

Die wichtigsten konsonantischen Erscheinungen des Vorgriechischen (1972) is the dissertation that earned E. J. Furnée his doctor's degree at the University of Leiden. This voluminous book, on which he worked for twenty years, remains up to now the most extensive study of the Pre-Greek evidence. With over 4000 words, it supersedes everything that had previously been compiled. His corpus consists of the Greek vocabulary as it is stored in H. G. Liddell and R. Scott's dictionary, complemented with the lexicon of Hesychius.

The author used the following criteria to designate words as Pre-Greek: the occurrence of certain sound variations, the lack of a good IE etymology, the use of certain suffixes (although he did not discuss these systematically) and semantics (i.e. technical and affective words)²⁶. The next two sections will deal with the Pre-Greek sound variations recognized by E. J. Furnée and the interpretation of these variations.

3.1.1. Pre-Greek consonantal and vocalic variations

As the title of the work indicates, the author deals with the most important consonantal variations he has observed in his corpus:

24. The term 'Aegean' is a labelling of my own. Others speak of 'Mediterranean' or 'Neo-Mediterranean', although E. J. Furnée, R. A. Brown and R. S. P. Beekes hardly ever use these words. I prefer to dub this theory 'Aegean', the name which is also used by R. A. Brown (*Aegeo-Asiatic*). R. S. P. Beekes once uses the term 'Aegean substrate' (R. S. P. BEEKES [2004, p. 182]) and E. J. Furnée will later refer to the substratum as 'ägäisch' (see section 4.1.1). Moreover, this substratum seems to be situated mainly in the eastern part of the Mediterranean (and not the entire Mediterranean).

25. J. HUBSCHMID (1960, p. 13).

26. E. J. FURNÉE (1972, p. 80).

- (1) Variation between voiceless, voiced and aspirated stops.
- (2) Variation between labial stop and μ , between labial stop (or μ) and F , and between dental stop and $\sigma(\sigma)$, ζ (assibilation).
- (3) Consonantal insertion:
 - secondary nasal before stop (nasalization)
 - secondary σ before velar or dental stop (in inlaut)
 - insertion of λ or ρ before consonant
 - secondary dental after labial or velar stop
 - insertion of dental before velar or labial consonant
 - secondary σ after labial stop ($\pi/\beta/\phi \sim \psi$)
 - insertion of λ or ρ after stop (in inlaut).

A first appendix is dedicated to the Pre-Greek vowel variations: $\check{\alpha}/\bar{\alpha}/\eta \sim \check{\alpha}i/\bar{\alpha}i$, $\alpha \sim o$, $\alpha \sim \varepsilon$, $\varepsilon \sim \check{i}/\bar{i}$, $o \sim \check{u}/\bar{u}$, $\check{u}/\bar{u} \sim \check{i}/\bar{i}$, vowel prothesis (α , o , ε , i , u , η , αi) and anaptyxis/syncope (α , o , ε , i , u).

In his second appendix, E. J. Furnée mentions the following consonantal variations that have not been discussed thoroughly in his work:

- (1) Variation between single consonant and geminate.
- (2) Liquid variation ($\lambda \sim \rho$) and variation between dentals (including v) and liquids.
- (3) Variation between velars, labials (including μ) and dentals; $\mu \sim v$.
- (4) Doublets with and without initial σ before stop or μ (mobile s).
- (5) Doublets with and without initial κ/γ , $\tau/\theta/\delta$, v or λ before vowel.
- (6) Metathesis.

These variations do not only occur within the same word, but also in derivatives or compounds. Remarkably, the author does not only connect Greek words with each other, but also associates them with words in other languages (Basque, Proto-Hattic, Hurrian, Urartian, Caucasian languages, Burušaski, etc.), although he clearly states that he refrains from any attempt to determine the exact relationship between these languages and Pre-Greek²⁷. In his later publications, however, he will work out the relationship between Pre-Greek and the Kartvelian languages (see section 4.1).

3.1.2. *Interpretation*

The numerous phonetic variations were divided by E. J. Furnée into two categories, viz. expressive and non-expressive. He stated that the expressive variation²⁸ is the more important one. It is found in affective vocabulary, i.e. derogatory terms (for instance, words for physical defects, diseases, reprehensible things or negative qualities, insults and sexual terms) and laudatory terms (for instance, proper names, hypocoristic

27. E. J. FURNÉE (1972, p. 97).

28. E. J. FURNÉE (1972, p. 84-91).

diminutives and augmentatives), for which people experience the need to renew the expression. Strangely enough, such variation also occurs in technical terms (for instance, toponyms, names for animals and plants, provisions, utensils, clothing and social and religious terms). The author surmised that for the Pre-Greeks agriculture had a great affective value and that utensils had sexual symbolism (thus pertaining to the derogatory vocabulary). Furthermore, he conceived that it might be possible that certain kinds of variation were extended to non-expressive words through analogy²⁹.

The second category includes cases of non-expressive, conditioned sound variation³⁰, for the sake of euphony or for the ease of pronunciation (such as assimilation, dissimilation, syncope, anaptyxis and monophthongization).

E. J. Furnée mentioned a third possible explanation³¹: difficulty of rendering a phonological system different from Greek. He rejected this idea, because it rarely satisfies when checked on large scale. Moreover, the hypothesis that Pre-Greek did not have an opposition between voiceless, voiced and aspirated stops is an untenable simplification. Since the sound variations only pertain to a specific part of the vocabulary (expressive terms), he concluded that we cannot reconstruct the Pre-Greek phonology based on these expressive variants. Several critics, however, did try to explain the variations by assuming non-Greek phonemes³². Moreover, the possibility of dialectal or diachronic differences within Pre-Greek cannot be ruled out but there is too little evidence to establish this for Pre-Greek³³.

3.2. R. A. Brown

For a long time, E. J. Furnée's work and method were not adopted by others. An important exception, however, is R. A. Brown, whose doctoral dissertation, *Evidence for Pre-Greek Speech on Crete from Greek Alphabetic Sources*, was published in 1985. In this book, the author first

29. E. J. FURNÉE (1972, p. 89).

30. E. J. FURNÉE (1972, p. 91-92).

31. E. J. FURNÉE (1972, p. 92-94).

32. G. NEUMANN (1974, p. 435) explained the variation $\sigma\sigma \sim \tau$ as a rendering of the letter 'sampi'. Given that the variation voiced/aspirated rarely occurs, A. HEUBECK (1974, p. 276) suggested that Pre-Greek had a phonological opposition between *fortes* and *lenes*. He also speculated on the existence of Pre-Greek labiovelars and interdental. Finally, R. S. P. Beekes (R. S. P. BEEKES - A. H. KUIPERS [1975, p. 73-74]) assumed that Pre-Greek had an opposition between plain, labialized and palatalized consonants (see section 3.3.2).

33. Another possible explanation is that Pre-Greek words were borrowed into several Greek dialects or through several intermediary languages, in which they developed separately.

examined the lemmas that were glossed as Cretan by Hesychius³⁴, followed by the Cretan toponyms and finally the Eteocretan³⁵ texts.

As Pre-Greek shares some elements with the substrata of the Anatolian group and of Armenian, the author concluded that “at some period in prehistory a complex of related dialects must have been spread through Anatolia, the Aegean islands and seaboard, Crete, mainland Greece and, possibly, into the Balkan area during a period of diffused contact and widespread cultural unity”³⁶. Eteocretan, according to him, was a Pre-Greek language that survived in the periphery after the Hellenization of Crete³⁷.

3.2.1. *Pre-Greek phonology*

Contrary to E. J. Furnée, R. A. Brown did attempt to reconstruct Pre-Greek phonology³⁸. He believed that the Pre-Greek vocalic system consisted of five vowels (*a, e, i, o, u*), each with a long and a short variant. Concerning the diphthongs, the Pre-Greek evidence shows falling diphthongs (*ai, oi, au, eu*), whereas rising diphthongs are unattested³⁹. The semivowels *ɥ* and *ɨ* are considered to be allophonic variants of the vowels *u* and *i* respectively⁴⁰.

Based on the Pre-Greek variation between voiceless, voiced and aspirated stops and on the fact that the Cypriot syllabary and Linear B made no distinction between these three possible realisations of the stops, the author assumed that the Pre-Greeks knew only one phoneme for each plosive series (labial, velar and dental), an idea explicitly rejected by E. J. Furnée (see section 3.1.2). He also deemed it possible that the structuring of allophonic variation in the Pre-Greek language differed from Greek, thus causing consonantal alternations due to this confusion. Another possible

34. R. A. BROWN (1985, p. 93) concluded that less than a quarter of the 224 lemmas are of Pre-Greek origin.

35. One of the very few directly attested pieces of evidence for the Pre-Greek language is provided by the Eteocretan texts (dated from ca. 650 BC up to the 3rd or 2nd century BC). These comprise several inscriptions found on Crete, written in the Greek alphabet, though not transliterating Greek (or any other known language). As the title indicates, R. A. Brown only examined the *alphabetic* sources. Therefore, he did not discuss the much older Pre-Greek inscriptions in non-alphabetic scripts (i.e. the Cretan Hieroglyphs, Linear A and the Cypro-Minoan texts), nor the Eteocypriot texts (written in the so-called Cypriot syllabary). In one of his appendices, he also discussed the famous Lemnos stele (6th century BC).

36. R. A. BROWN (1985, p. 5).

37. R. A. BROWN (1985, p. 212).

38. R. A. BROWN (1985, p. 241-256).

39. R. A. BROWN (1985, p. 244).

40. R. A. BROWN (1985, p. 238-239).

explanation is dialectal variation within Pre-Greek⁴¹. Finally, R. A. Brown conceded that Pre-Greek might have known a phonological opposition between plain, palatalized and labialized consonants (e.g., *t*, *tʰ* and *tʷ*), although no evidence for this reconstruction can be found in the Eteocretan texts⁴². Concerning the Pre-Greek sibilants, R. A. Brown assumed that Pre-Greek had two phonemes: the voiceless *s* and a labialized voiceless dental affricate *tʰʷ*, which may be the cause of the spelling τϜσ as attested in two Eteocretan inscriptions⁴³. Furthermore, the liquids *r*, *l*, *m* and *n* belonged to the Pre-Greek phonological inventory as well. In Eteocretan, these liquids could also be realized as vowels. This phenomenon was most likely an innovation in comparison with the original Pre-Greek ‘Minoan’ language⁴⁴.

A peculiar feature is the so-called ‘mobile *s*’, sometimes occurring along with a prothetic vowel (e.g., κκαλαβώτης/σκαλαβώτης/ἀσκαλαβώτης ‘gecko’). R. A. Brown surmised that in certain Pre-Greek dialects, *s* changed into *h*, which subsequently disappeared, occasionally generating a prothetic vowel⁴⁵.

3.2.2. Pre-Greek morphology

R. A. Brown extracted various Pre-Greek suffixes from his material: -αμο-, -ᾱνος, -ᾱτος, -ήν, -ῑσος, -μν-, -νθος, -ρν-, -υρος, -ως⁴⁶. He considered the pre-Hittite suffix *-anda* to be a prenasalized⁴⁷ variant of -ᾱτος. -νθος would thus match the suffix *-nda* in Asia Minor. This claim was also made by the proponents of the Anatolian theory (see section 2). -ῑσος is probably related to -ῑσ(σ)α, a suffix which may be a derivative of a Pre-Greek genitive-adjective. The Luwian suffix *-assas*, R. A. Brown assumed, was a merger of the IE genitive suffix *-s* and a substratum genitive-adjective on *-assa*. In his review of this work, A. Heubeck⁴⁸, however, claimed that the Anatolian suffixes *-ss-*, *-nt-* and *-want-* belonged to the genuine Hittite-Luwian morphology, and therefore could not provide a valid connection with pre-Anatolian languages. He disregarded the

41. R. A. BROWN (1985, p. 244-248).

42. R. A. BROWN (1985, p. 244).

43. R. A. BROWN (1985, p. 238; p. 249).

44. R. A. BROWN (1985, p. 250).

45. R. A. BROWN (1985, p. 253).

46. R. A. BROWN (1985, p. 256-260).

47. The insertion of a nasal before a stop was called ‘nasalization’ (*Nasalisierung*) by E. J. Furnée. R. A. Brown and R. S. P. Beekes, however (following F. B. J. Kuiper), called it ‘prenasalization’. These scholars reserved the term ‘nasalization’ for the variation between stop and nasal (i.e. π, β, φ ~ μ and τ, δ, θ ~ ν).

48. A. HEUBECK (1986, p. 103-104).

question whether or not the suffixes $-\sigma-$ and $-\nu\theta-$ were related to the Anatolian ones. Finally, R. A. Brown identified three more suffixes in Eteocretan, namely $-\eta\alpha$ (an optative suffix), $-\mu\iota\tau-$ and $-\sigma\kappa\lambda\epsilon\varsigma/-\sigma\upsilon\kappa\lambda\epsilon\varsigma$ ⁴⁹.

3.3. R. S. P. Beekes

R. S. P. Beekes is currently the most productive scholar on the Pre-Greek substratum. His research, as explicitly claimed, continues in the line of E. J. Furnée (1972). Already in his doctoral thesis on the development of the PIE laryngeals in Greek (1969)⁵⁰, he occasionally commented on Pre-Greek. Ever since R. S. P. Beekes began his composition of a new etymological dictionary of Greek, he has done extensive research into the Pre-Greek vocabulary. This research is situated in the larger framework of the substratum research in Leiden, initiated by F. B. J. Kuiper.

3.3.1. *Substratum research in Leiden*

The study of substratum influence in the IE languages at Leiden University was stimulated by an article by F. B. J. Kuiper (1995). Since this publication, three substrata have been distinguished within the prehistoric languages of Europe. The first substratum is ‘Old European’⁵¹, which has left traces in European river names (except in Greece) and is labelled A3 by F. B. J. Kuiper (1995). According to T. Vennemann (2004), this substratum is related to Basque.

The second substratum is ‘Pre-Germanic’. This substratum, named A2 by F. B. J. Kuiper (1995), can be situated in the western and northern parts of central Europe. Though also attested in Italo-Celtic and Balto-Slavic, traces of this substratum can be found chiefly in the Germanic languages.

The third substratum knew a larger distribution over (central) Europe. It was termed ‘Atlantic’ by T. Vennemann (2004) and A1 by F. B. J. Kuiper (1995). R. S. P. Beekes referred to it as ‘Central European’⁵² and later on simply as ‘European’⁵³.

To these three substrata identified by F. B. J. Kuiper, a fourth can be added: the substratum language that left traces in Greek. F. B. J. Kuiper alluded to this substratum when mentioning a ‘Mediterranean’ word⁵⁴.

49. R. A. BROWN (1985, p. 260).

50. His view on Pre-Greek was influenced by a 1956 article by his supervisor, F. B. J. Kuiper (who would later become the supervisor of E. J. Furnée’s dissertation).

51. The name ‘Old European’ was introduced by H. KRAHE (1949).

52. R. S. P. BEEKES (1969) and R. S. P. BEEKES (1971).

53. R. S. P. BEEKES (1996) and R. S. P. BEEKES (2000).

54. F. B. J. KUIPER (1995, p. 72).

R. S. P. Beekes originally called it ‘Helladic’⁵⁵, but nowadays he seems to prefer the term ‘Pre-Greek’. In his earlier articles, R. S. P. Beekes took a more cautious position as to the unity of Pre-Greek. More recently, however, he has claimed with more confidence that we are in fact dealing with one language or a group of closely related languages. Nevertheless, R. S. P. Beekes does not exclude the existence of other languages (even IE ones) in Greece. His exact stance towards the theory of the three substrata as presented by F. B. J. Kuiper is not always very clear. Initially (1996), he mentioned only two substrata apart from the less important Old European, namely ‘Helladic’ and ‘European’. In a later publication (2000), he also referred to the ‘Germanic substratum’ (besides Old European and European)⁵⁶.

The relation between these four substrata is unclear. Given that in some cases non-IE words can be ascribed to more than one substratum, they may belong to the same family. R. S. P. Beekes⁵⁷ himself confirmed that a few European words had already penetrated into Pre-Greek.

3.3.2. *Pre-Greek phonology*

In the vein of R. A. Brown, R. S. P. Beekes, too, has attempted to reconstruct the Pre-Greek phonological system. From the variation between voiceless, voiced and aspirated stops, he infers that these features were by no means distinctive in Pre-Greek. Like R. A. Brown (following L. R. Palmer⁵⁸), he assumes that Pre-Greek had a phonological opposition between plain, palatalized and labialized consonants. The basic assumption that palatalization and labialization were distinctive features is based on the existence of Mycenaean signs for the syllables *rjo*, *rja*, *pja*, *sja*, *tja* and *two*, *twe*, *dwo*, *dwe*, *nwa*, *swa*, *swi* respectively, thus producing the following system⁵⁹:

p	p ^y	p ^w
t	t ^y	t ^w
k	k ^y	k ^w
s	s ^y	s ^w
r	r ^y	r ^w
l	l ^y	l ^w

55. R. S. P. BEEKES (1996) and R. S. P. BEEKES (1998b).

56. As the Germanic substratum is limited to the Germanic languages and R. S. P. Beekes was only interested in the European substratum words in *Greek*, this Germanic (or rather Pre-Germanic) substratum is not dealt with in further detail in the rest of the 2000 article.

57. R. S. P. BEEKES (2010, p. xlii).

58. L. R. PALMER (1963, p. 39).

59. R. S. P. BEEKES (2010, p. xvi-xvii).

m	m ^y	m ^w
n	n ^y	n ^w

Moreover, R. S. P. Beekes has reconstructed an affricate⁶⁰ for Pre-Greek, viz. *t^s* (with palatalized and labialized phonemes *t^{sy}* and *t^{sw}*). This idea was already formulated by R. A. Brown (see section 3.2.1), although the latter only assumed the existence of the labialized affricate. Pre-Greek most likely also knew a sound like Hittite *ḫ* (which was often rendered with κ in Greek)⁶¹. Aspiration, on the other hand, did not exist in his opinion⁶². Contrary to R. A. Brown, R. S. P. Beekes does not believe the semivowels *u* and *i* were mere allophones of the respective vowels.

In Pre-Greek, as R. S. P. Beekes has stated, initial σ- is preserved, a feature on which the proponents of the Pelasgian theory agreed as well (see section 1.1), although in some words σ- has been known to disappear (e.g., σύριχος/ύριχός “wicker basket”)⁶³. Furthermore, R. S. P. Beekes mentions a few other secondary phonetic developments: βδ- > βρ-, βδ- > βλ-, γδ- > δ-, δν- > γν-, κμ- > μ-, ψ- > σπ-, ψ- > σ-⁶⁴.

Contrary to E. J. Furnée, R. S. P. Beekes has studied the Pre-Greek vowel variations in close detail. Originally, he thought that Pre-Greek had only three vowels: *a*, *i* and *u*. The main argument to assume the absence of *e* and *o*⁶⁵ was the fact that in the Pre-Greek suffix system, only the vowels *a*, *i* and *u* appeared, but never *e* or *o* (e.g., -αγ-, -ιγ- and -υγ-, but not *-εγ- or *-ογ-).

In his opinion, *e* and *o* were allophones of *a*, influenced by an adjacent palatalized or labialized consonant⁶⁶. Recently, however, he has assumed a system with the usual five vowels, because there seems to be a distinction between two variations α/ε and α/ο, on the one hand, and a stable, not interchanging α, on the other hand⁶⁷. Furthermore, he claims vowel length to be distinctive, although η and ω rarely occur and although several forms exist where vowel length varies freely (e.g., θρινάκη/θρίναξ “trident”)⁶⁸. He only assumed two original diphthongs: *ai* and *au* (ευ, ει, οι and ου

60. R. S. P. BEEKES (2004b, p. 467) and R. S. P. BEEKES (2007a, p. 6).

61. R. S. P. BEEKES (2004b, p. 467) and R. S. P. BEEKES (2007a, p. 6).

62. R. S. P. BEEKES (2010, p. xix).

63. R. S. P. BEEKES (2010, p. xxviii).

64. R. S. P. BEEKES (2010, p. xxix).

65. R. S. P. BEEKES (2010, p. xix).

66. R. S. P. BEEKES (2010, p. xx) adds that *a* was realized as *o* before high rounded vowels in the following syllable (e.g., καλυβός “chamber” ~ κόλυβος· ἔπαυλις [Hsch.]). Furthermore, α also alternated with ο, when it was close to a labial: see R. S. P. BEEKES (2004b, p. 472) and R. S. P. BEEKES (2008, p. 48).

67. R. S. P. BEEKES (2010, p. xx).

68. R. S. P. BEEKES (2010, p. xx, p. xxii).

being allophonic variants)⁶⁹. Unlike R. A. Brown, R. S. P. Beekes takes the possible existence of rising diphthongs (εα, ια, ιυ, υα, υε) into consideration, even though these may represent two syllables instead of one⁷⁰. Finally, accent fluctuation (e.g., σίκυος/σικυός “cucumber”) is, according to him, due to uncertainty and inconsistency on the part of the Greeks, rather than a variation within Pre-Greek itself⁷¹.

3.3.3. *Pre-Greek morphology*

(1) Reduplication. — A few Pre-Greek words seem to show reduplication⁷². In most cases it concerns a partial reduplication of the first consonant followed by ι or ε (e.g., Μεμβλίαρος < **Me-mliaros*, an island also called Βλίαρος < **Mliaros*).

(2) Suffixes. — Already in his review of E. J. Furnée’s dissertation, R. S. P. Beekes brought together the Pre-Greek suffixes found in this work. These data have now been expanded: he has arrived at 132 suffixes, roughly divisible into three types. The most frequent form is α, ι, υ + consonant, which can be prenasalized if the consonant is a stop (e.g., -αθ-, -ιθ-, -υθ-, -αυθ-, -ιυθ-, -υυθ-). The second type consists of a consonant + υ (+ vowel), the most important suffixes being -μυ- and -ρυ-. A third type of suffix shows σ followed by a dental⁷³.

3.3.4. *Interpretation*

Contrary to E. J. Furnée, R. S. P. Beekes does not consider the Pre-Greek sound alternations to reflect expressive variation. He believes them to have originated from the difficulty of rendering a phonological system different from Greek. Thus, the variation δ/λ goes back to a dental fricative λ⁷⁴. Initial semivowel *w-* could be realized in different ways: **w-* was often lost, but **wa-* could be rendered as ὄα- or ὕα-. This distinction is accounted for by the different moments of borrowing and whether or not the Greek dialect still knew the *f*⁷⁵. The most important explanation, however, concerns the Pre-Greek palatalized and labialized consonants.

(1) Palatalized consonants. — These could be realized in various ways. Firstly, palatalization could simply be ignored (e.g., Myc. *kuparo* /*kuparos*/ versus *kuparo*₂ /*kuparyos*/ “galingale”). Secondly, it could influence an adjacent *a*: either this vowel was coloured to [ä] = ε (e.g.,

69. R. S. P. BEEKES (2010, p. xx).

70. R. S. P. BEEKES (2010, p. xxxii).

71. R. S. P. BEEKES (2010, p. xx).

72. R. S. P. BEEKES (2010, p. xxxiii).

73. R. S. P. BEEKES (2010, p. xxxiii - xxxiv).

74. R. S. P. BEEKES (2010, p. xxviii).

75. R. S. P. BEEKES (2010, p. xix).

Ion. κύπερος) or the palatal element was anticipated in this vowel, resulting in *αι* (e.g., Dor. κύπαιρος) or *ει* (e.g., κύπειρος)⁷⁶. Thirdly, a palatalized consonant could also result in a geminate, especially with *lʷ* (e.g., Ἰαχίλλεύς next to Ἰαχίλεύς)⁷⁷. R. S. P. Beekes speculates that the variation *v-*, *λ-/zero* could reflect a palatalized *nʷ* and *lʷ*, which were pronounced ‘lightly’⁷⁸. Fourthly, a palatalized consonant could also be rendered as consonant + *ι* (e.g., ἐξαπίνης/ἐξαιφνης/ἄφνω/ἄφαρ “suddenly” < **apʷ*)⁷⁹. Finally, palatalized consonants themselves could be realized in the following ways⁸⁰:

**pʷ* > π/πτ **tʷ* > τ(τ)/σ(σ) **kʷ* > κ/σσ, τ/σσ, ξ⁸¹
 **bʷ* > β/βδ **dʷ* > δ/ζ

Other variations are explained by means of reconstructing Pre-Greek consonant clusters⁸²:

**tʷk* σκ/κτ⁸³
 **ptʷ* π/ψ πτ/ψ
 **tʷp* π/σπ
 **ktʷ* κτ/ξ ξ/σσ
 **tʷk* κ/κτ κ/σκ σκ/σσ κτ/σκ
 **tʷt* τ/στ σσ(ττ)/στ

Note that in some cases, not only the palatal element, but also the entire consonant is lost (e.g., **ptʷ* > π/ψ).

(2) Labialized consonants. — Similar to palatalized consonants, labialized consonants, too, could influence an adjacent *a*. The vowel could be coloured to [ã] = *ο* (e.g., ἄλοξ, Dor. ὠλαξ “plough”) or the labial element could be anticipated in the previous vowel (e.g., ἀὐλαξ)⁸⁴. Finally, R. S. P. Beekes explains the variation between velar, labial and dental stops (e.g., γέφυρα, Boeot. βέφυρα, Cret. δέφυρα “bridge”) by assuming

76. R. S. P. BEEKES (2004b, p. 470) and R. S. P. BEEKES (2008, p. 47).

77. R. S. P. BEEKES (2003, p. 4; p. 9; p. 14) and R. S. P. BEEKES (2008, p. 48-51).

78. R. S. P. BEEKES (2010, p. xxix).

79. R. S. P. BEEKES (2008, p. 47; p. 51).

80. R. S. P. BEEKES (2008, p. 52). Note that, seeing as voicing was not distinctive, it is somewhat odd that R. S. P. Beekes distinguishes between a voiceless and a voiced palatalized stop, which he does not do in R. S. P. BEEKES (2009, p. 193).

81. R. S. P. Beekes’ explanation of the origin of ξ in Ὀδυσσεύς/Οἰλίξης is somewhat inconsistent. On the one hand, he explains it as a rendering of the cluster **ktʷ* (R. S. P. BEEKES [2010, p. xxvi]), on the other hand it is reconstructed as **kʷ* (R. S. P. BEEKES [2009, p. 195], [2010, p. xxvii]).

82. R. S. P. BEEKES (2010, p. xxiv-xxvii).

83. κτ is explained as the result of metathesis and loss of the palatal element. See R. S. P. BEEKES (2010, p. xxv).

84. R. S. P. BEEKES (2010, p. xviii).

a Pre-Greek labiovelar⁸⁵. The existence of labiovelars is established by the occurrence of certain words in Linear B (e.g., *qasireu* /g^wasileus/). Remarkably, Pre-Greek labiovelars developed differently from their PIE counterparts.

4. The Kartvelian theory

A final theory connects Pre-Greek with the Kartvelian (i.e. South Caucasian) languages⁸⁶. For a long time, resemblances between the Kartvelian and IE (as well as Semitic) languages have been pointed out. Most linguists assumed those words to be IE loanwords in Kartvelian. The proponents of the Kartvelian theory, however, considered Kartvelian to be the donor language.

4.1. E. J. Furnée

The Kartvelian substratum theory is relatively recent (and therefore not mentioned in the important summaries of Pre-Greek substratum research). It was E. J. Furnée, who, inspired by an article by R. Gordeziani (1969), founded this theory. He developed it in response to A. H. Kuipers's criticism of the way in which the Caucasian material was selected, presented and exploited in his 1972 dissertation⁸⁷. His three main publications were *Vorgriechisch-Kartvelisches* (1979), *Beiträge zur georgischen Etymologie* (1982) and *Paläokartvelisch-pelasgische Einflüsse in den indogermanischen Sprachen* (1986). Each of these works were reviewed by K. H. Schmidt (1979, 1983, 1987). K. H. Schmidt was very critical of E. J. Furnée's results and methodology, given that our knowledge of the diachrony of the Kartvelian languages (especially the modern ones) is still very limited. Unsurprisingly, E. J. Furnée's rather revolutionary reconstructions of Proto-Kartvelian forms in his last two works (based on quite regular sound correspondences between Greek and Kartvelian words with similar meaning and shape, e.g., δαύω "sleep" ~ Georg. *dev*-/*dv*-/*d*- "lay, lie"), met with strong scepticism on his part.

85. R. S. P. BEEKES (1995/1996, p. 12-13), R. S. P. BEEKES (2002, p. 17) and R. S. P. BEEKES (2010, p. xxvii-xxviii).

86. The Kartvelian language family comprises the following modern languages: Georgian, Svan, Mingrelian and Laz (these last two forming together Zan). Of these languages Georgian is the only one having a historical tradition (attested from the 4th century AD onwards). Their relation to the Northwest and Northeast Caucasian languages is still heavily debated. The latter two language families are therefore hardly ever involved in the Pre-Greek substratum research.

87. R. S. P. BEEKES - A. H. KUIPERS (1975, p. 82-85).

4.1.1. *The theory of the two substrata*

E. J. Furnée's main thesis was the existence of two Pre-Greek layers: a Mediterranean (or rather East Mediterranean) and a Kartvelian one. Both Greek and Kartvelian preserved traces of this East Mediterranean substratum⁸⁸. In Greek, E. J. Furnée called these traces 'Aegean', whereas in Kartvelian, they were called 'Transcaucasian'. It is important to stress that no genetic relationship exists between East Mediterranean and Kartvelian. However, as the East Mediterranean elements were borrowed more frequently in Kartvelian than in Greek, the author assumed that the East Mediterranean phonemes were closer to those of Kartvelian than to those of Greek. In his *Beiträge zur georgischen Etymologie* (1982), he attempted to reconstruct the original East Mediterranean form of the words under scrutiny, relying on the Georgian phonological system. K. H. Schmidt objected to this approach, given that no genetic kinship was assumed between East Mediterranean and Kartvelian⁸⁹. Nevertheless, with this attempt, E. J. Furnée went far beyond his 1972 dissertation, where he had not endeavoured to reconstruct the Pre-Greek phonology. Still, the author regularly relied on expressiveness to explain certain sound variations.

The Mediterranean substratum also had a western branch⁹⁰ that left traces in Latin and the Romance languages (in which case the substratum was called 'Tyrrhenian') and in other IE languages, especially Germanic (in which case he used the term 'Palaeo-European'⁹¹). The presence of this substratum was explained by the Mediterranean drift that took place in the course of the 3rd millennium BC, a hypothesis to which R. A. Brown and R. S. P. Beekes also adhered in their inquiries into the origin of the Pre-Greeks⁹².

The genuine Kartvelian component that left traces in Greek was called 'Pelasgian', a language which, according to E. J. Furnée, is closer to Proto-Kartvelian than Common Kartvelian is⁹³. It should be stressed that both Pelasgian and Proto-Kartvelian are hypothetical languages, which rely on each other for their reconstruction, whereas Common Kartvelian is the directly reconstructed ancestor of the modern Kartvelian languages. Elsewhere in the IE area (especially in Germanic, Latin and Celtic)

88. E. J. FURNÉE (1979, p. 11-13).

89. K. H. SCHMIDT (1983, p. 178).

90. E. J. FURNÉE (1982, p. 16-17).

91. The term 'Palaeo-European' was introduced by P. Fouché at the First International Congress for Toponymy in Paris (1938). See E. J. FURNÉE (1972, p. 78).

92. R. A. BROWN (1986, p. 88-89) and R. S. P. BEEKES (2004b, p. 476).

93. E. J. FURNÉE (1979, 13-17).

E. J. Furnée also found genuine Kartvelian words, which he dubbed 'Palaeo-Kartvelian'⁹⁴. Moreover, E. J. Furnée reckoned with the possibility that Pelasgian terms were transmitted to Greek through Aegean, which explains the occurrence of Aegean sound features (such as prothetic $\acute{\alpha}$ -, λ -reduplication, prenasalization and σ -prothesis) and suffixes (such as $-\alpha\kappa$ -, $-\upsilon\pi$ -, $-\omicron\pi$ -) in certain Pelasgian words⁹⁵.

Although Greek is connected with Georgian through two substrata (viz. the East Mediterranean and Proto-Kartvelian substratum), only in the case of the latter can a Kartvelian origin be assumed. A Kartvelian origin becomes improbable, when Georgian is the only Kartvelian language showing a cognate form. When related forms do exist in other Kartvelian languages, genuine Kartvelisms can still be excluded because of phonological, morphological or semantic difficulties⁹⁶. K. H. Schmidt⁹⁷, however, rightly pointed out that, given the diachronic 'gap' between Old Georgian and the modern Kartvelian languages, it is not unlikely that these languages lost the cognate forms over the centuries. Indeed, E. J. Furnée⁹⁸, too, labelled several words that are only attested in Georgian as Pelasgian (i.e. Kartvelian) and explained this decision by assuming that the other Kartvelian languages lost the cognate forms.

4.2. R. Gordeziani

The Kartvelian hypothesis had but little following in the West, with the exception of R. Schmitt-Brandt, who has connected Kartvelian with the Minoan language of the Linear A tablets and with Hattic. In Georgia (Tbilisi), on the other hand, E. J. Furnée found followers in A. Uruschadse and, more importantly, in R. Gordeziani.

In 1980, R. Gordeziani, Professor of Classical Philology at the University of Tbilisi, published his book *Etruskuli da Kartveluri* (= *Etruscan and Kartvelian*), and in 1985, *Winaberdznuli da Kartveluri* (= *Pre-Greek and Kartvelian*). To these works he added an article in German in the journal *Georgica* (1985) on the correspondences between Etruscan, Pre-Greek and Kartvelian. In 2008, he published his *Mediterranea-Kartvelica*, a voluminous compilation of his views on the relationship between Kartvelian and Mediterranean. The first volume is devoted to Kartvelian encounters with Sumerian, Hattic and Indo-European; the second to the kinship between Kartvelian and Pre-Greek; in the third

94. E. J. FURNÉE (1982, p. 17).

95. E. J. FURNÉE (1979, p. 15-16).

96. E. J. FURNÉE (1979, p. 11-12).

97. K. H. SCHMIDT (1979, p. 94).

98. E. J. FURNÉE (1979, p. 31-36).

volume, he examines the correspondences between Etruscan and Kartvelian.

The treatment of Pre-Greek is very diverse. R. Gordeziani studies the Pre-Greek phonology and morphology (cf. R. S. P. Beekes) as well as the lexicon (both appellatives and place names) but also makes observations on Linear A texts, Eteocretan texts and the Lemnos stele (cf. R. A. Brown), which has led him to the conclusion that they all represent a Kartvelian language.

4.2.1. *Pre-Greek phonology*⁹⁹

Like R. S. P. Beekes, R. Gordeziani assumes only three original vowels for the proto-language from which Pre-Greek descended. The difference is that he regards the vowels **a*, **e* and **o* as original, whereas R. S. P. Beekes takes **a*, **i* and **u* to be original and *e* and *o* to be allophonic variants of **a* (see section 3.3.2). According to R. Gordeziani, *i* and *u* were allophones of **i̇* and **u̇* respectively. A similar idea was formulated by R. A. Brown, who considered *i̇* and *u̇* to be allophones of **i* and **u* respectively (see section 3.2.1). R. Gordeziani agrees with R. S. P. Beekes that vowel length was distinctive. This results in six vocalic phonemes in the proto-language (*ā*, *ā̄*, *ē*, *ē̄*, *ō*, *ō̄*) and ten vowels in the Pre-Greek dialects which he has dubbed ‘Pelasgian-Minoan’ (*ā*, *ā̄*, *ē*, *ē̄*, *ō*, *ō̄*, *ĩ*, *ĩ̄*, *ũ*, *ũ̄*).

With regard to the consonant system, R. Gordeziani relies on the views of E. J. Furnée with minor adjustments¹⁰⁰:

1. stops: b, d, g, p, t, k, *ṗ*, *ṫ*, *k̇*
2. affricates: dz/ʒ, dz₁/ʒ₁, c₁, ç, ç₁, c, ç
3. fricatives: z, z₁, s, s₁, š, γ, x, q, q̇
4. resonants: r, l, m, n, (lateral) ʎ

The most important fact is that he agrees with E. J. Furnée in reconstructing Proto-Kartvelian middle sibilants and affricates (rendered with an index), a matter that is heavily debated among Kartvelian scholars (for instance, K. H. Schmidt).

Finally, he states that the phonological variations typical of Pre-Greek (*a/o*, *e/i*, *o/u*, *o/i*, anaptyxis, syncope, prothetic vowel, voiceless/voiced/aspirated, *b-p-ph/m*, *b-p-ph/w*, *m/w*, assibilation of the dentals, metathesis) are likewise typical of Kartvelian.

99. R. GORDEZIANI (2008, p. 33).

100. I render the sounds with the signs that are used by E. J. Furnée. Thus, the diacritic point (*ṗ*, *ṫ*, *k̇*) denotes a glottal consonant. Consonants without this sign are realized as aspirates.

4.2.2. *Pre-Greek morphology*¹⁰¹

The reconstruction of the Pre-Greek morphology is based on E. J. Furnée and R. S. P. Beekes's material, complemented with hypothetical Minoan affixes that can be extracted from Linear A texts.

Firstly, Pre-Greek had many prefixes, a matter that is largely left aside by R. S. P. Beekes, who only mentions reduplication apart from suffixes as morphological formatives (see section 3.3.3). The prefixes *la-*, *le-*, *si-* correspond with the Kartvelian prefixes **la-*, **le-*, **ti-*. Like E. J. Furnée in his later publications, R. Gordeziani regards the prothetic vowels *a-*, *e-* and *i-* as prefixal elements, originally with a middle sibilant (*s₁a-*, *s₁e-*, *s₁i-*). Also, prefixes with a phoneme *n* occur both in Pre-Greek and in Kartvelian. Finally, the Kartvelian prefix *aγ-* corresponds to the Pre-Greek element *αγ-* (e.g., ἄγαν “too much”).

Secondly, the Pre-Greek suffixes are taken into account. For this matter, R. Gordeziani builds on R. S. P. Beekes's findings. These suffixes can be arranged according to their key phoneme: *b*, *g*, *d*, *th*, *k*, *l*, *m*, *n*, *p*, *r*, *t*, *c*, *ai-/ei-*, *mb*, *mn*, *-andr*, *thr-*, *s(s)*, *nth/nt/nd*. According to R. Gordeziani, the entire Pre-Greek system of suffixal derivation is parallel to that of Kartvelian and can be reconstructed on the Common Kartvelian level. E. J. Furnée, however, also took non-Kartvelian, East Mediterranean suffixes into account in the Kartvelian languages and in Pre-Greek (e.g., *-vθ-* en *-ισ(σ)-*).

5. Conclusion

Over the last thirty years, Pre-Greek has been interpreted in various ways. Of the old substratum research, only the Anatolian, Pelasgian and Mediterranean theory survived. The Anatolian theory proved to be the least influential. Indeed, L. R. Palmer and Margalit Finkelberg confined themselves to a few traditional Pre-Greek suffixes (the most important ones being *-vθ-* and *-σσ-*).

Despite fierce criticism, the Pelasgian theory lived on until the end of the 1990s. V. I. Georgiev summarized his views in 1981, whereas A. J. Van Windekens (1986) mainly tried to find explanations within Greek itself for etymologically obscure words. E. P. Hamp tried to apply the Pelasgian sound laws to new words but could not prevent the waning of this theory: nowadays, only a few Pelasgian etyma are accepted by such linguists as K. Strunk and O. Panagl.

101. See R. GORDEZIANI (2008, p. 34-35).

Finally, the Aegean theory (the successor of the Mediterranean theory) took a while to break through. The new approach was inspired by an article by F. B. J. Kuiper (1956), ironically perhaps in the *Gedenkschrift* for P. Kretschmer, who adhered to a completely different theory. F. B. J. Kuiper had been the director of both E. J. Furnée's and R. S. P. Beekes's dissertations. R. S. P. Beekes made several remarks on Pre-Greek in his well-known study of the development of the PIE laryngeals in Greek; E. J. Furnée dedicated his entire work to this subject. This work received many negative reviews¹⁰² but some critics recognized its value (the most surprisingly positive critic being A. Heubeck [1974], a former defender of the Anatolian theory). Still, few scholars followed in E. J. Furnée's footsteps. R. A. Brown, however, frequently referred to E. J. Furnée's Pre-Greek sound variations, when treating the alphabetic sources (especially the glosses and place names) of Pre-Greek speech on Crete. R. S. P. Beekes was familiar with E. J. Furnée's work from the beginning. Yet it was only from 1996 onwards that he studied the Pre-Greek substratum on a larger scale. The stimulus came when he began to work on a new Greek etymological dictionary, in the framework of the 'IEED-project' at Leiden (initiated in 1991 and developed under the direction of A. Lubotsky and R. S. P. Beekes himself). In connection with this project, much attention in Leiden is given to substratum influences in the IE languages. Inspired by an article by F. B. J. Kuiper (1995), the Leiden linguists developed the theory of the four substrata.

Entirely new in the Pre-Greek substratum research is the Kartvelian theory. Prompted by a paper written by R. Gordeziani (1969), E. J. Furnée (one of the most important proponents of the Aegean theory and main source of inspiration for R. S. P. Beekes) published three books on this subject, introducing his thesis of the two substrata: an East Mediterranean layer (Aegean) and a genuine Kartvelian layer (Pelagian). In the course of his publications, the genuine Kartvelian component became increasingly more important¹⁰³. The same tendency can be observed in R. Gordeziani's work.

102. See, for instance, the reviews by V. I. GEORGIEV (1972) and R. BOSTEELS (1973).

103. In *Vorgriechisch-Kartvelisches* (1979), half of the lemmas are devoted to the East Mediterranean substratum (being one third of the entire book). In *Beiträge zur georgischen Etymologie* (1982), this amounts to 75 %. In *Paläokartvelisch-pelagische Einflüsse in den indogermanischen Sprachen* (1986), a work mainly devoted to the genuine Kartvelian elements in Greek and the other IE languages, the East Mediterranean part is reduced to 10 %. See E. J. FURNÉE (1986, p. 8).

In the last part of this conclusion, I shall discuss a few important issues concerning the Pre-Greek substratum, viz. (1) the problem of Pre-Greek words showing parallels in other IE languages, (2) the Pre-Greek phonology and (3) morphology, (4) the interpretation of E. J. Furnée's sound variations and (5) the unity of Pre-Greek.

A first issue I want to touch upon is the fact that certain Pre-Greek words have parallels in other IE languages. This was the strongest base for the Pelasgian theory, which attempted to reconstruct a lost IE language. R. S. P. Beekes, however, developed the concept of a 'European' substratum that left traces in several IE languages of (Central) Europe. E. J. Furnée named it 'Palaeo-European' and also speculated on connections with the Kartvelian languages, thus positing a 'Palaeo-Kartvelian' substratum layer.

The second issue concerns the controversial matter of Pre-Greek phonology. The Pelasgian scholars (the most important being V. I. Georgiev and E. P. Hamp) proposed their own sound laws. Initially, E. J. Furnée adopted a merely descriptive approach and refrained from reconstructing a phonological system for Pre-Greek. R. A. Brown and R. S. P. Beekes, however, did look for Pre-Greek phonemes. The most important assumption was the existence of labialized and palatalized consonants. In his later publications, E. J. Furnée endeavoured to reconstruct the Pre-Greek phonology on the basis of the Kartvelian sound system. Most notably, he assumed the presence of three sets of sibilants and affricates, viz. front, middle and back. This reconstruction was adopted by R. Gordeziani.

Thirdly, Pre-Greek morphology was also treated by various scholars. The proponents of the Anatolian theory claimed the suffixes $-v\theta-$ and $-\sigma\sigma-$ to be of genuine Anatolian origin, thus proving the Anatolian character of Pre-Greek. The adherents of the Aegean theory, however, assumed that these so-called Anatolian suffixes were in fact Pre-Anatolian, thus making a non-IE origin of Pre-Greek more plausible. As E. J. Furnée largely neglected the matter of Pre-Greek morphology, R. A. Brown and R. S. P. Beekes attempted to fill in this 'gap'. Later on, E. J. Furnée identified certain suffixes as 'Aegean' but it was R. Gordeziani who studied them in a more systematic way from a Kartvelian point of view.

Fourthly, the sound variations listed by E. J. Furnée received different interpretations. E. J. Furnée originally thought that they were (mainly) expressive variants. This theory, however, proved untenable, since most words showing these variations were actually technical terms. Other scholars, therefore, looked for Pre-Greek phonemes to explain certain

awkward variations. Of course, other explanations also have to be taken into account, such as dialectal variation and diachronic evolution.

Finally, the unity of Pre-Greek remains a *uexata quaestio*. Many scholars assumed that we are dealing with one single language (for instance, V. I. Georgiev, E. J. Furnée in his doctoral thesis, R. A. Brown and R. S. P. Beekes); others distinguished between two substrata (E. J. Furnée in his later publications, R. Gordeziani and A. J. Van Windekens, who assumed the existence of two Pelasgian dialects). It is only seldom, however, that both IE and non-IE elements are reconstructed for the Pre-Greek substratum.

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