THE PRE-GREEK LINGUISTIC SUBSTRATUM
A Critical Assessment of Recent Theories *


Introduction

In a previous volume of LEC, I published a first article in which I gave an overview of the linguistic research into the Pre-Greek substratum of the last thirty years 1. While my approach there was mainly descriptive, the present article confronts and evaluates the theories presented there through a selection of etymological problems. For a great part, I shall comment on the research by R. S. P. Beekes, probably the most important linguist studying the Pre-Greek substratum at present.

In order to understand the evaluation of the selected etymologies, a brief summary of the main Pre-Greek theories should be given. A first theory, founded by V. I. Georgiev and A. J. Van Windekens, and in the 1980s and 1990s mainly represented by E. P. Hamp, regarded Pre-Greek as a hypothetical Indo-European language, dubbed ‘Pelagian’. A second group of scholars (viz. L. R. Palmer and Margalit Finkelberg) identified the substratum as Anatolian (more precisely Luwian). According to a third

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theory, which we may call ‘Aegean’, the substratum was non-IE and non-Semitic and extended over (a large part of) the Mediterranean. At present, the main proponent of this theory is R. S. P. Beekes, who has developed his ideas on Pre-Greek within the framework of ongoing substratum research in Leiden. Finally, at the end of the 1970s, a fourth theory was developed by E. J. Furnée (a former adherent of the ‘Aegean’ theory), viz. the Kartvelian theory. His main thesis was that the Pre-Greek substratum consisted of two important components: an East-Mediterranean substratum (as in the Aegean theory) and a genuine Kartvelian substratum (termed ‘Pelasgian’). Currently, the main advocate of this Kartvelian theory is the Georgian scholar R. Gordeziani. Having established this brief survey of the main theories, we can move on to the etymological case-studies, viz. πέλεκυς, τύμβος, σίγή/σίωπη, ἀγαθός and the suffix -νθος.

1. πέλεκυς

Tradtionally, πέλεκυς “(battle-)axe” (already attested in Homer) is less closely associated with the Pre-Greek substratum than the words that will be discussed in the next sections. Usually, it is traced back to PIE *peleku-: cf. OI paraśi- “axe” (epic párśu-), Osset. färät “id.” (Toch. A porat “id.”, B peret “id.” is an Iranian loanword).

In his doctoral thesis, E. J. Furnée mentioned the following Greek variants: πέλεκκον “axe-handle” (Il. 13, 612), ἡμίπέλεκκον “half-axe, one-edged axe”, βέλεκκος (Hsch.) 4, πέλεκρα (Hsch.) 5 and πέλυξ “a kind of axe”. According to him, πέλεκάν “pelican” too is related to this set of words. He supposed that πέλεκυς and paraśi- represent a pre-IE cultural term borrowed by both the Greeks and the Indo-Iranians. βέλεκκος was interpreted as a younger Pre-Greek loanword, showing the Pre-Greek variations π/β and κ/κκ. Hellenistic πέλυξ would be a later borrowing from Asia Minor.

In her review of E. J. Furnée’s work, Françoise Bader criticised the Dutch scholar for treating loanwords of various origin and Pre-Greek substratum words indiscriminately. For πέλεκυς, she considered a...
borrowing of PIE date, directly inherited by Greek and Indo-Iranian. A good candidate for a donor language would be Semitic. Thus, G. Takács connected πέλεκυς with Akk. pilakku “spindle”, a derivative of the Semitic root *plq- “split”. R. A. Brown (another proponent of the Aegean theory) too assumed πέλεκυς and paraśū to be Near Eastern loans.

R. S. P. Beekes, conversely, stressed that a word occurring in several IE languages could still be an early borrowing (although the Indo-Iranian group is usually excluded in such cases). In his etymological dictionary, he followed H. Frisk, who had rejected the connection with Akk. pilakku on semantic grounds, since the Semitic word does not mean “axe” but “spindle”. On other occasions too, R. S. P. Beekes stated that in doubtful cases, “it is better to consider such words as Pre-Greek, and to define them as loanwords [...] only when there is reason to do so”.

What those reasons may be, we are not told. This rather peculiar methodological principle illustrates R. S. P. Beekes’ attempt to keep his corpus of Pre-Greek words as large as possible.

Pace E. J. Furnée and R. S. P. Beekes, πέλεκυς is a less convincing example of Pre-Greek vocabulary (in R. S. P. Beekes’ use of the term, i.e. belonging to a non-IE, non-Semitic substratum). The parallel with the Semitic language family (despite the minor semantic change) makes an early loanword in PIE plausible, although Semitic might have borrowed it from PIE as well. Alternatively, it could be explained as a so-called Wanderwort. Nevertheless, a PIE reconstruction *peleku- remains plausible, even though the root structure is unusual for PIE. For the problematic form βέλεκκος, the safest option is to assume a secondary evolution (rather than a Pre-Greek variation), since this variant is only attested from Aristophanes onwards, whereas the ‘standard’ form is already used by Homer. Still, this development remains puzzling. Perhaps the β was influenced by the word βέλος “missile” (later used of any weapon). Of course, caution is advised with this type of argumentum ex silentio, given the fragmentary preservation of Greek literature: many words may be unattested by sheer coincidence. Thus, the later attestation of βέλεκκος

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does not mean that it did not exist yet in Homer’s time. That is exactly why the Hesychian glosses, despite their late attestation, are so important for E. J. Furnée and R. S. P. Beekes. It was precisely the lexicographers’ purpose to collect rare and perhaps even archaic forms of various origins. Nevertheless, nothing guarantees the Pre-Greek origin of such words. At best, they can point to a non-Greek (not necessarily Pre-Greek) origin. Moreover, since Hesychius is usually the only source for the word in question, the possibility of scribal errors cannot be excluded. Since it is not even certain when these words entered the Greek language, some glosses may well be Byzantine loanwords. Therefore, the examination of Pre-Greek features should primarily be based on (relatively) early attested words, whereas material from Hesychius should be treated more carefully. This does not imply that the latter material is useless, but such an approach is methodologically sounder.

Finally, the form βέλεκκος invites a remark on E. J. Furnée and R. S. P. Beekes’ interpretation of the Pre-Greek stop variations. E. J. Furnée considered most of these cases expressive variants (cf. the expressive geminate in Iuppiter), a hypothesis which proves to be untenable, since most words showing Pre-Greek variations belonged to the technical rather than the expressive vocabulary. In the debate on E. J. Furnée’s work, several other explanations were suggested, the most popular one explaining these vacillations as resulting from the different nature of the Pre-Greek phonological system. According to R. S. P. Beekes, Pre-Greek lacked a phonological opposition between voiceless, voiced and aspirated stops. A possible explanation is that they were allophonic variants differing from one word to another. Yet in several cases (e.g. βόλβιτον/βολβίδιον/βόλβιθος “cow-dung”), these variations occur within almost identical words. The suggestion by A. Heubeck in his review of E. J. Furnée’s doctoral thesis, viz. that Pre-Greek had a phonological opposition between Fortes and lenes, is a reasonable explanation for the velars (where variation between voiced and aspirated stops is rare) but not for the labials and dentals. One could assume that there were two velar phonemes, whereas labials and dentals lacked this

17. The real phonological opposition, according to R. S. P. BEKEES (2010, p. xvi), is the opposition between plain, labialised and palatalised consonants.
18. A. HEUBECK (p. 276).
19. The variation γ ~ ι occurs only 5 times and the variation κ ~ γ ~ ι only 7 times, whereas κ ~ γ is attested 55 times and κ ~ ι 51 times. For the labials and dentals, by contrast, the following proportions are found: β ~ φ (28), π ~ β (53), π ~ φ (43), π ~ β ~ φ (11), δ ~ θ (16), τ ~ δ (27), τ ~ θ (26), and τ ~ δ ~ θ (6). See R. S. P. BEKEES - A. H. KUIPERS (1975, p. 72).
phonological contrast. Still, were aspiration and voicing attributed randomly in the borrowing process? A final possibility is that Pre-Greek had a voicing pattern different from that of Greek. J. Clackson, for example, mentioned with P. Ladefoged and I. Maddieson five types of voicing attested in the languages of the world: breathy voice, slack voice, modal voice, stiff voice and creaky voice. Pre-Greek might have had an unusual type of voice, which the Greeks sometimes perceived as voiced, sometimes as voiceless and sometimes as aspirated.

2. τύμβος

τύμβος “burial mound, grave” is one of the stock examples of the Pre-Greek substratum research. The pivotal question is whether it is related to τάφος “grave, tomb” and θάπτω “bury”, the latter two being derivatives of PIE *dʰemʰ- “dig”: cf. Arm. damban/dambaran “tomb, grave”, OPr. dambo “ground”, Goth. fœur-dammjan “dam up”, Rum. dimb “bank”, Av. daxma- “grave”. In his controversial book on the ‘Afro-Asiatic roots of classical civilisation’, M. Bernal rejected the PIE root *dʰemʰ-, assuming that τάφος and θάπτω are Egyptian loanwords, cf. tptt “hole, cavern”, an improbable hypothesis, given the parallels in other IE languages.

2.1. Genetic relationship between τύμβος and τάφος

According to V. I. Georgiev, τύμβος and τάφος are genetically related. The latter was interpreted as the regular Greek outcome of the PIE proto-form, whereas the former showed a ‘Pelasgian’ development characterised by the following sound laws: dissimilation *dʰ-bʰ > *d-bʰ, vocalisation *η > um, *d > t and *bʰ > b. In his re-examination of the Pelasgian theory, K. Strunk distinguished two evolutions of a nasal + *bʰ: a Greek evolution, viz. μφ (e.g. ὀμφί “around” < PIE *h₂mφʰí “around”: cf. Lat. amb- “around”, Ved. abhi “on both sides”, OHG umbi “around”) and a Pelasgian evolution, viz. μβ or φ (e.g. κόρυμβος “top of a

21. J. Clackson (1994, p. 120-121), however, interpreted damban and dambaran as loanwords, given the late attestation of these words (from the 10th century onwards). In the earliest Armenian, the words to designate a tomb or grave were gerezman and širim.
22. J. Pokorny (1969, p. 248-249) only accepted the Armenian words as derived from PIE *dʰemʰ-, explaining that OPr. dambo had to be corrected into daibo, a derivative of PIE *dʰeub- “deep”.
23. According to J. Clackson (1994, p. 121), Rum. dimb is a Dacian survival.
hill”, κορφή “top, summit, peak of a mountain”). The former group shows parallels in other IE languages, whereas the latter does not, thus implying a non-IE origin for this group. K. Strunk, furthermore, suspected that the β was of an allophonic nature rather than an independent phoneme.

I. Hajnal 27, by contrast, attempted an inner-Greek explanation for τόμβος. According to him, τόμβος and τάφος are etymologically related, though not through Pre-Greek sound laws. τάφος would derive from the zero-grade *ḏmḥb°-os, whereas τόμβος was explained as reflecting the full-grade *ḏṁmb°-os. In I. Hajnal’s view, PIE *ḏ developed into ū in accordance with Cowgill’s rule 28 (cf. νυξ “night” < PIE *nokʷt- “id.”), whereas the loss of the aspiration could be explained by Miller’s rule: in the combination of a nasal and a voiced aspirated stop, the stop lost its aspiration if the accent was on the previous syllable. As I. Hajnal himself acknowledged, the problem with this reconstruction is that the expected form would be ⠍ʔθυμβός. An early dissimilation of the aspirates is excluded, since Miller’s rule operated before Grassmann’s law 29. The only possible explanation was analogy, although I. Hajnal was not clear about its model.

2.2. No genetic relationship between τόμβος and τάφος

Other scholars have rejected the etymological relation between τόμβος and τάφος. In his complementary Greek etymological dictionary, A. J. Van Windekens 30, who had been a staunch defender of the Pelasgian theory in his previous work, suggested an inner-Greek explanation, a tendency also found in the rest of his dictionary. He explicitly rejected V. I. Georgiev’s analysis, claiming that τόμβος could not derive from PIE *ḏmḥb°-, since in that case, it would mean “what is dug out”. He also mentioned the variant τύμος (found in inscriptions from Corcyra and Eretria), which he connected with Lat. tumulus “hill, sepulchral mound” and tumēre “swell”, as had been proposed before him by H. Frisk 31. If the relation with these Latin words, which must derive from the PIE extended root *teu-m-“swell” (cf. OE dūma, OHG dūmo “thumb”), is accepted, the β in τόμβος becomes problematic. The ad hoc solution suggested by A. J. Van

29. According to I. Hajnal (2005, p. 197), the order is as follows: loss of the aspiration (Miller) > devoicing of the PIE voiced aspirated stops > dissimilation of the aspirates (Grassmann).
Windekens was that τύμβος resulted from a contamination of τύμος and κόρυμβος “top, summit, peak of a mountain”.

A Pre-Greek interpretation of the word-pair τύμος - τύμβος was proposed by E. J. Furnée, who analysed the fluctuation between μ and μβ as reflecting two Pre-Greek sound variations, viz. β/μ and β/μβ (‘nasalisation’ or, in R. S. P. Beekes’ terminology, ‘prenasalisation’). In this interpretation, a form with the single labial (*τύμβος) must be reconstructed, a variant of which is found in τόφος (Hsch.). E. J. Furnée associated τύμβος / τύμος not only with Lat. tumulus but also with MIr. tomun “little hill”, Arm. t’umb “bank” and OWN þūf “little hill”, assuming a pre-IE Wanderwort.

R. S. P. Beekes considered the possibility that τύμβος derives from a nasalised variant of the PIE extended root *teyH-bʰ- “hump, bump, knag” (cf. τύφη “plant used for stuffing cushions and beds”), with loss of the aspiration after the nasal. Like A. J. Van Windekens, he rejected the connection with τάφος on semantic grounds: in his opinion, τάφος denotes the grave or pit, whereas τύμβος primarily indicates the hill, later more specifically the burial hill, and finally the grave.

2.3. Conclusion

It cannot be excluded that τύμβος and τάφος are related, although popular etymology may be involved. Some other word might have been remodelled to τύμβος under the influence of τάφος, an association that may have been stimulated by their semantic proximity. However, if τύμβος is related to Lat. tumulus, tumēre, OE duμa and OHG dūmo, the connection with PIE *dʰembʰ- is impossible, since the Latin and Germanic words cannot derive from this root. The pivotal question is whether this set of words continues a PIE root (viz. *tey-m- “swell”). By connecting τυμβος with the Latin and Germanic words and interpreting τύμβος as a Pre-Greek word, R. S. P. Beekes implied that the Latin and Germanic words are non-IE as well. K. Strunk, on the other hand, proposed viewing μβ as an allophone of μ (i.e. with a weakly pronounced β). If a Pre-Greek origin is assumed, one could reconstruct a phoneme *mʰ, although caution is advised, given the limited number of cases showing the variation μ/μβ.

33. τόφος: τάφος (Hsch.).
35. This was also suggested by P. Chantraine (1968, p. 1144).
Although σῆ -σῖς “silence” shows parallels in other IE languages, viz. OHG swīgen “be silent”, OSax. swígen “id.”, OE swīgian/sugian/suwin “id.”, an IE reconstruction for Greek is problematic, since the initial *s- should have developed into an aspiration in Greek 36. The proponents of the Pelasgian theory derived σῆ from the same PIE root as the Germanic words and considered it a Pelasgian loanword (i.e. a word belonging to a hypothetical IE substratum). They did not agree, however, on the exact reconstruction of the PIE root. V. I. Georgiev 37 posited a root *swih2-, with preservation of the initial s- and an evolution of PIE *g2 into Pelasg. K. Strunk 38 adjusted this into *swih2-, the long i resulting from the combination of *i with a laryngeal. E. P. Hamp 39, on the other hand, suggested a reconstruction *sweih2- with a Pelasgian development of *ei to i. Incidentally, V. I. Georgiev 40 suggested the same phonetic evolution for σῖτος “grain, food” but did not invoke this rule to explain the i of σῆ. The problem with V. I. Georgiev’s reconstruction is that the assumed PIE root is of an unusual shape.

R. S. P. Beekes 41 originally considered σῆ a ‘European’ substratum word (i.e. belonging to a prehistoric language that extended over Central Europe and left traces in several IE languages), thus explaining the similarity with the above-mentioned Germanic words. On the basis of ῥῆ (Hsch.) 42, probably a writing error for *φῖγα (by confusion of <φI> and <Π> in majuscule script 43), he concluded that the original Greek form must have been *sw- φ- can easily derive from *σφ- but σ- cannot. In his etymological dictionary, by contrast, R. S. P. Beekes 44 considered the etymology of σῆ unknown.

36. Because of this irregularity, M. Bernal (2006, p. 307) suspected that the Greek word is an Egyptian loanword, viz. sgr(i) “silence”, a seemingly rash conclusion.
42. ῥῆ (Hsch.).
A final explanation was suggested by G.-J. Pinault. This scholar derived σιγή from the interjection σιγα “hush”, based on an onomatopoeia /ss/, which was syllabified by the insertion of an /i/.

3.2. σιωπή

P. Chantraine assumed that the word-pair σιγή - σιωπή went back to an onomatopoeia and that σιωπή was an expressive variant. This expressive interpretation was rejected by G.-J. Pinault, who reconstructed the verb σιω-πάω (from which σιωπή would be derived) as a compound with *peh- “protect, keep” as its second member. Thus, he believed, the assumed Homeric meaning of σιωπάν, viz. “garder le silence” (as opposed to σιγάν “être silencieux”) could be explained. For the first element of the compound, he considered two explanations: an interjection /si/ “hush” or a reduced form of the imperative σιγά > σιω- (the loss of the intervocalic γ being explained on the basis of a similar evolution in ὀλίς < ὀλίγος “little, small”). The former explanation, however, fails to account for the ω, whereas the latter is implausible, since vocalic contraction and weakening of intervocalic γ are both relatively late developments, not yet operating in Homeric Greek, and since the variation of long and short i remains unexplained.

According to A. J. Van Windekens, the original form of σιωπάω/σιωπή was σωπάω/σωπή: cf. σεσωπομένον (Pind.) “kept silent”, διασωπάσομαι (Pind.) “I shall be silent”, σωπή (Call.) “silence”, εὐσωπέα (Hsch.). He explained this form as a Pelasgian loanword derived from the PIE lengthened grade *su̞p- “sleep” (cf. Lat. sōpiro “lull to sleep”), more specifically, he assumed a Pelasgian dialect showing the development PIE *su̞- > Pelasg. σ- but not the consonant shift PIE *p > Pelag. φ. The form σιωπάω, in his opinion, arose through contamination of σωπάω either with σιγάω (despite the contrast between i and í) or with an unattested Pelasgian word *sí-, deriving from the PIE zero-grade *ki- of the root *kei- “lie down” (cf. Gr. κεῖ-ται “he lies down”, OI sé-te “id.”) and showing the development of PIE *k into Pelag. σ.

52. εὐσωπέα: ἡσυχία (Hsch.).
Originally, R. S. P. Beekes also connected σιωπή with σιγή, the variation velar/labial, the ablaut i/i and the o indicating, in his view, a non-IE origin. He did not rule out the possibility of a loanword from a lost IE language, although, in his opinion, the variation labial/velar rather points to a ‘European’ (i.e. non-IE) borrowing. σιωπή would be derived from *swip-, which developed into *siwp/*iwp- through metathesis, then into *siop- (because Greek had no diphthong iu) and finally into *siop-, where the long δ arose through popular etymology under the influence of words in -ωπ-. This whole explanation seems somewhat far-fetched, however.

Later, R. S. P. Beekes withdrew his aforementioned interpretation, abandoning the etymological relation between σιωπή and σιγή and explaining the former as a genuine Pre-Greek substratum word that can be reconstructed as *siup- with a palatalised sibilant *sˈ. This palatal element was normally rendered with ι, but in some cases, it was completely ignored, which would explain the above-mentioned variants without ι. Note, however, that these forms are poetic variants, which may derive from a secondary synizesis. In any case, in this new interpretation by R. S. P. Beekes, the variation labial/velar, one of the main reasons for explaining σιγή as a ‘European’ loanword, was dropped. Note, moreover, that this scholar neglected to explain the development of *u into δ in *sˈup- > σιωπή, for which he could not assume an original form *sˈo-δ-, since, in his opinion, Pre-Greek originally only had the vowels a, i and u. Recently, R. S. P. Beekes has revised his system of the Pre-Greek vowels, now assuming a system consisting of five vowels.

3.3. Pre-Greek labiovelars

Even though R. S. P. Beekes now rejects an alternation between velar and labial for σιγή-σιωπή, this pair invites a comment on the vacillation between labial, velar and dental stops (cf., for instance, γέφυρα, Boeot. βέφυρα, Lacon. δέφυρα “[Hom.] dam; [later] bridge”), for which he usually reconstructs a Pre-Greek labiovelar, the existence of which is attested, for instance, by Myc. qasireu /g*asileus/. Apparently, this

55. One explanation could be to assume analogical influence of words in -ωπ-, as R. S. P. Beekes suggested in his former reconstruction.
56. See R. S. P. BEEEKES (2010, p. xix-xx). Incidentally, R. GORDEZIANI (2008, p. 33) suggested that i and u were vocalic allophones of ɨ and ɨ respectively.
The PIE labiovelars developed differently from the PIE labiovelars⁵⁸, which is only plausible if the Greeks borrowed the substratum word after the evolution of the PIE labiovelars to labials or dentals, since the Linear B tablets show that Mycenaean Greek still knew the labiovelars. This implies that in Pre-Greek words that were borrowed into early Greek, the Pre-Greek labiovelars must have developed in the same way as the IE ones. Accordingly, words showing the variation labial/velar/dental, are not likely to have previously been borrowed in Mycenaean Greek. An enigmatic case is ξίφος “sword”, attested in Mycenaean in the dual form qisispee, which unmistakably shows a labiovelar. R. S. P. Beekes⁵⁹ assumed that the cluster *kw’s normally developed into ψ (e.g. Μόψος < Myc. Moqoso/Mokw sos/), which implies, of course, that qisispee is read as /kwisipheit/ (i.e. with a dummy i) and not as /kwisipheit/ (as R. S. P. Beekes suggested in his etymological dictionary⁶⁰), unless a (Pre-Greek?) syncope is assumed. According to R. S. P. Beekes, the labial element was lost through dissimilation against the following φ. Alternatively, the initial consonantal cluster may have been reduced to ks for articulatory reasons.

4. ἀγαθός

The etymology of ἀγαθός is highly controversial. The etymological explanations largely fall into two categories: one assumes the word to be of non-IE origin, whereas a second regards it as a compound based on IE elements. The following section explores both tendencies.

4.1. Non-IE interpretation

4.1.1. Aegean substratum word

In his dissertation, E. J. Furnée⁶¹ mentioned several Greek variants of later date, viz. ἀκαθός (Hsch.)⁶², ἀκητόν (Hsch.)⁶³, *ἀκατός (Ἀκατίς) and ἀγεός (Cypriot inscription⁶⁴). In these variants, he recognised the following Pre-Greek sound variations: γ/κ⁶⁵, θ/τ and α/ε.

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⁵⁸. The PIE labiovelars developed in Greek into labials (*kw > π, *gw > β, *gwθ > φ), except before front vowels, in which case they developed into dentals (*kw > τ, *gw > δ, *gwθ > θ). In contact with u or w, they were delabialised at an early stage. For the Pre-Greek labiovelars, these restrictions are lacking.
⁶². ἀκαθόν· ἀγαθόν (Hsch.).
⁶³. ἀκητόν· κράτιστον (Hsch.).
⁶⁴. H. van Herwerden (1910, p. 9).
⁶⁵. E. J. Furnée (1972, p. 106) interpreted this variation as an assimilation of γ-θ to κ-θ.
In his review of this work, R. S. P. Beekes 66 added the gloss χάσιες (Hsch.) 67, which shows the variations γ/χ and θ/σ. The latter variation, however, is more likely to have resulted from Greek assimilation of the dental before τ rather than from a Pre-Greek consonantal variation.

4.1.2. European substratum word

άγαθος resembles words of similar meaning in other IE languages, viz. Germ. *gōda- “good, fitting” (Goth. gods “good”, OHG guot “id.”, MLG goden “fit”), OCS godbn “pleasant”, Russ. gōdnyj “useful”, which point to an underlying root *gʰadʰ- “fit”. According to R. S. P. Beekes 68, this reconstruction presents us with two problems. First, *gʰadʰ- cannot develop into άγαθος through regular Greek sound laws, since the expected outcome would be †κόθος < *χόθος (in accordance with Grassmann’s law). Second, this root contains the supposedly non-IE phoneme /a/. In the aprioristic conception by the Leiden IE School of the phoneme /a/, a Greek α can only go back to a PIE laryngeal or vocalised liquid. Although few words require the reconstruction of a PIE phoneme /a/, this does not mean that the phoneme did not exist at all. R. S. P. Beekes was right, however, to point out other irregularities in the Greek forms, viz. variation of the stops (γ/κ, θ/τ, γ/χ), variation of /a/ and the prothetic vowel. Since these variations are ‘typical’ of the ‘European’ substratum 69, he traced άγαθος with its IE parallels back to a European substratum word with the root *(a)gʰadʰ-/*(a)gʰădʰ- “good”. He justified the consonantal alternation by assuming that the ‘European’ aspirated stops were of a different quality than the PIE stops. In his etymological dictionary 70, by contrast, he was more cautious about the origin of άγαθος, acknowledging that it can be either of IE origin or a substratum word.

4.1.3. Kartvelian substratum word

In his later work, E. J. Furnée 71 identified άγαθος (and its variants άχαθος and άχεθος) as a ‘Pelasgian’ substratum word, i.e. a substratum word of Proto-Kartvelian origin. More precisely, he reconstructed the Pre-Greek word as *aɾat-/⁎aɾet-, analysing it as a combination of the Kartvelian prefix *aɾ- “upwards” and an adverbial formation in -ad-/‑at-. This reconstruction seems rather random, however. While E. J. Furnée

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67. χάσιες - αγαθός, χρησίες (Hsch.).
supposed that the basic form was an adverb derived from a prefix, all other scholars have attempted to connect it with a (predominantly verbal) root.

A Kartvelian hypothesis was also advocated by R. Gordeziani 72, who connected ḥγαθός with Geo.-Zan ket “good, kind”. The irregularity in this reconstruction is that Kartv. κ usually corresponds to Pelasg. κ 73, unless some secondary development κ > γ is assumed (although in Greek, the form in κ appears to be secondary, given its late attestation). A second problem is that R. Gordeziani did not explain the origin of the initial ḥ-. Vowel prothesis, in the system of E. J. Furnée 74, on which R. Gordeziani’s relied, was a feature typical of Aegean (i.e. the non-IE, non-Kartvelian substratum layer in the eastern part of the Mediterranean).

4.2. IE interpretation

4.2.1. Haploglysis: *aga-gadh-o-

M. Harari 75 explained ḥγαθός as developed from *ḥγα-κοθος through haploglysis. The first element, the intensifying prefix *ḥγα-, is also found in such words as ḥγα-κλεις, ḥγα-κλειτός, ḥγα-κλυτός “very famous”, ḥγά-θεος, Dor. ḥγά-θεος “most holy”, ḥγά-νυφος “much snowed on”, ḥγά-ροσ “strong-flowing”, etc. The second element developed through regular Greek sound laws from the PIE root *gadha “seize”. Apart from the above-mentioned Germanic and Slavic words, M. Harari also connected this root with OI ḥadhya “which has to be held on to”, ḥ-adhitah “seized”, OSax. ḥigado “one’s equal”, Latv. ḥads “supply”, OCS godo “right time”, u-goditi “please”. Thus, the meaning of *ḥκοθος evolved from “tangible” to “useful” and finally “good”. M. Harari interpreted these semantic shifts on the basis of the primitive hunter-gatherer culture. R. S. P. Beekes 76, however, found this reconstruction “most improbable” and rejected the connection between the Old Indic words (meaning “seize”) 77 and the Germanic and Slavic words (meaning “fit”).

4.2.2. Dissimilation: *sm-gadh-o- or *ŋ-gadh-o-

In his article on Grassmann’s law, A. Pârvulescu 78 also interpreted ḥγαθ-ός as a derivative of the verbal root *gadha “fit”. The first element was not explained as an intensifying prefix *ḥγα- but as derived from PIE

73. E. J. Furnée (1979, p. 56).
74. E. J. Furnée (1979, p. 15; p. 32).
77. According to M. Mayrhofer (1993, p. 461), the Old Indic words (related to Lat. prehendo “seize” and praeda “booty”) derive from PIE *gēe(n)d-.
*sm- “with” or *η- “together with”, the combination of both elements resulting in *sm-gʰadʰ- or *η-gʰadʰ- “fitting together”. That γ in ᾱγαθός should go back to PIE *gʰ is confirmed, in his view, by the variants χαςτος (with PIE *gʰ > Gr. χ) and ᾱκαθός (with PIE *gʰ > Gr. χ > κ according to Grassmann’s law), both of which show the expected outcome. Consequently, A. Pârvulescu had to assume a dissimilation of the aspirates that already operated in PIE before Grassmann’s law, a phenomenon which apparently only left traces in Greek. R. S. P. Beekes 79 rightfully thought it unlikely that this early, ‘Pre-Grassmannian’ dissimilation would only have operated in Greek and not in Germanic. Moreover, there are practically no other instances of such a sound law in Greek 80.

4.2.3. γηθέω: *sm-gʰ₂dʰ-o-

In his complementary etymological dictionary, A. J. Van Windekens 81 also regarded ᾱγαθός as a derivative with the prefix *sm- (with intensifying value). The second element, however, he connected with γηθέω, Dor. γαθέω “rejoice” (which he derived from PIE *geh₂dʰ-; cf. Toch. AB kātk- “be happy”), assuming -γαθ- to be derived from the zero-grade *gʰ₂dʰ-.

*sm-gʰ₂dʰ-,, he explained, developed into *ḡαθός and then into ᾱγαθός through dissimilation of the aspirates. The original meaning was thus “about which one rejoices”. Contrary to most of A. J. Van Windekens’ proposals, this reconstruction was applauded by M. E. Huld, one of Van Windekens’ critics 82. Note that it implies that the Germanic words are not related to ᾱγαθός, since in Germanic, PIE *g developed into k in accordance with Grimm’s law.

4.2.4. *h₂gadʰ-o-

Like A. J. Van Windekens, Rosemarie Lühr 83 also connected ᾱγαθός with Toch. AB kātk-. The PIE root was reconstructed as *h₂gadʰ-, however, probably in order to explain the so-called prothetic vowel in

80. A. PÂRVULESCU (1993, p. 65) saw parallels for this phenomenon in φεῦγω “flee” < PIE *bʰeugʰ-, θυγάττρ “daughter” < PIE *dʰugʰ₂h₂tēr and θιγέν “touch” < PIE *dʰigʰ-. R. S. P. BEEEKES (2010, p. 561; p. 1564-1565), however, reconstructed the first two words as *bʰeug- and *dʰugh₂-tēr- respectively (i.e. without a second aspirated stop). θιγέν probably took the γ from the present tense θιγγάνειν, where *gʰ might have lost the aspiration after a nasal: see R. S. P. Beekes (2010, p. 549).
Greek. Contrary to A. J. Van Windekens, she did not mention a connection with \( \gamma \eta \theta \varepsilon \omega \).

4.2.5. \( \mu \dot{e} \gamma \alpha \zeta \): \(*m\dot{g}h_2{-d\acute{o}}\)-

G.-J. Pinault explained \( \acute{o} \gamma \alpha \theta \dot{\omicron} \zeta \) as a combination of the zero-grade of \( \mu \dot{e} \gamma \alpha \zeta \) “big” and a Caland suffix \(*{-d\acute{o}}\)-. Apart from this suffix, he found PIE \( *m\dot{e}gh_2- \) also connected with the following suffixes belonging to the Caland system: \(*{-i}\) (Hitt. \( \text{mekki} \) “big” < PIE \( *m\dot{e}gh_2{-i} \)), \(*{-es}\) (Ved. \( \text{m\dot{a}h\dot{a}h} \) “size” < PIE \( *m\dot{e}gh_2{-es} \)) and \(*{-ent}\) (Ved. \( \text{mah\dot{a}nt} \) “big” < PIE \( *m\dot{e}gh_2{-ent} \), Gr. \( \acute{o} \gamma \alpha \nu \) “too much” < PIE \( *m\dot{e}gh_2{-nt} \), Lat. \( \text{ing\dot{e}ns} \) “enormous” < PIE \( *m\dot{e}gh_2{-nt} \)).

4.2.6. \( \mu \dot{e} \gamma \alpha \zeta \): \(*m\dot{g}h_2{-d\acute{h}_1{-\acute{o}}}\)-

Like G.-J. Pinault, several other scholars have also identified the first element as the prefix \(*\acute{o}\gamma\alpha\zeta\) (interpreted as the zero-grade \(*m\dot{g}h_2\) “big”), though now taking the second part as the zero-grade of the verbal root \( *d\acute{e}h_1{-} \) “put, do” 86. J. W. Poultney 87 was the first to propose this reconstruction in a short article read at the Bopp-Symposium of 1992. According to C. J. Ruijgh 88, a similar compound is found in Latin, viz. \( \text{magnificus} < *\text{magnno-fak-o-s} \) (with \(*\text{fak}\) derived from PIE \( *d\acute{e}h_1{-k} \), cf. Gr. \( \acute{e}-\theta\eta\kappa\zeta \) “I put”). Among the scholars who adopted this reconstruction, there has been discussion concerning the meaning of the compound, however. According to J. W. Poultney, C. J. Ruijgh, S. Scarlata and P. Ragot, \( \acute{o} \gamma \alpha \theta \dot{\omicron} \zeta \) originally had an active sense, viz. “große Taten wirkend” 89, “Großes leistend” 90, “qui accomplit de grands actes” 91, “dont les actes sont grands” < “qui s’applique à des actes de grande allure” 92. O. Panagl and S. Neri, by contrast, assumed that it had a passive sense, viz. “hochgestellt”, “groß gemacht” 93. For both interpretations, reference was made to Homer’s use of \( \acute{o} \gamma \alpha \theta \dot{\omicron} \zeta \), in which the word is

84. Recently, O. HACKSTEIN (2002, p. 8) explained \( \gamma \eta \theta \varepsilon \omega \) and Toch. AB \( \text{k\acute{a}t} \) as compounds of \( *\text{geh} \) “brilliance” and \( *d\acute{e}h_1{-} \) “put”, thus, originally meaning “in Glanz versetzen”. According to R. VIREDAZ (2003, p. 115), however, an active compound in \( *d\acute{e}h_1{-} \) is incompatible with the intransitive meaning of the verbs.
86. The laryngeal \( \acute{h}_1 \) was lost between consonant and vowel.
applied to noble heroes. According to O. Panagl, the word in Homer is still felt as a compound, since there are no compounds with ἀγαθο- yet in the Homeric epics. C. J. Ruijgh, on the other hand, claimed that already at an early stage, ἀγαθός was no longer recognised as a compound: ἀγα- was no longer identified as the zero-grade of μεγα- and -θό- was no longer associated with the verb τί-θη-μι “I put”. As proof of this hypothesis, C. J. Ruijgh argued that already in Homer, compounds were made with μεγα- (e.g. μεγά-θομος “great-hearted”).

4.2.7. ἀγω: *ἀγὴ-ἵνα

R. Anttila 94, finally, accepted the reconstruction of the second element as the verbal root *ἀγὴ- “put, do” but derived the prefix ἀγα- from the PIE root *h₂eǵ- “drive” instead of the zero-grade *μήgh₂- “big” 95. In his opinion, the ἀγα were games or contests (cf. ἀγόν “contest”), so that an adjective such as ἀγακλυτός “very famous” originally meant “famous with respect to the ἀγα, the games”. In the derived superlative meaning, the prefix was also combined with words that were not connected the games (e.g. ἀγάνυφος “much snowed on”). In ἀγαθός, R. Anttila explained, the first element goes back to *ἀγὴ- “drove, herd”, an agrarian term which, he believed, was applied to people at a certain time (cf. the similar use of ποίμνη, ἀγέλη, πῶς “herd”). Consequently, the original meaning of the compound *ἀγὴ-ἵνα-ἵνα- “supporting the ἀγα, upholding the (social) unit”. Like J. W. Poulteney, C. J. Ruijgh, S. Scarlata and P. Ragot, R. Anttila interpreted the verbal root in an active sense. The ἀγαθοί were the drivers or leaders of society, doing what was useful and therefore good for society. Thus, ἀγαθός originally had a primarily social meaning. Via this social meaning, R. Anttila made the connection with the games (ἀγα): the contester did not act as an individual but represented his group or family.

4.3. Conclusion

A. Pârvulescu’s reconstruction (viz. an early dissimilation that only worked in Greek and that chronologically precedes Grassmann’s law) is the least convincing of all proposals, since it relies on controversial sound laws. Occasionally, the variants ἀκοθός, ἀκεθός and χάσιος are adduced (viz. by E. J. Furnée, R. S. P. Beekes and A. Pârvulescu). Other linguists, however, ignored these forms and based their reconstructions solely on

95. R. Bracchi (1999, p. 89) accepted the reconstruction of the second element as PIE *dēh₁- but hesitated between *μήgh₂- and *h₂eǵ- for the reconstruction of the first element.
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¢gaqÒj itself (e.g. M. Harari, A. J. Van Windekens, O. Panagl and R. Anttila). Indeed, the question arises whether these words are all related. Especially in the case of χάσιος, this claim seems doubtful. This word, which probably developed from *χάθιος (with assimilation of the dental before i) may be derived from PIE *gʰadʰ- “to fit”, an interpretation which would enable a connection with the Germanic and Slavic words. If the root is reconstructed as *gʰeh₂dʰ- (in an attempt to avoid reconstructing a phoneme /a/, as the Leiden researchers are eager to do), the Slavic words cannot be related for phonological reasons 96. ¢gaqÒj itself is most likely a compound (*mGh₂dʰh₁-ó-s or *aGh₂dʰh₁-o-s), with *mGh₂dʰh₁-ó-s (either meaning “made great” or “doing great things”) as the most likely reconstruction from a semantic point of view. The variant ¢geqÒj is probably a secondary form, arisen by (epichoric) dissimilation of the vowels. ¢καqÒj, finally, might be a contamination of ¢gaqÒj and an unattested form *καθός (which, like χάσιος, might continue PIE *gʰadʰ-). This last suggestion should be treated cautiously, of course, given the great risk involved in working with unattested forms.

Although R. S. P. Beekes’ hypothesis of a ‘European’ substratum word showing several variants is often a reasonable suggestion, we should be careful not to label words as substratum words too easily. Indeed, E. J. Furnée’s dissertation was often criticised for listing several words that could be alternatively explained within Greek or PIE. In fact, the reconstruction *mGh₂dʰh₁-ó-s appears to be the common opinion on ¢gaqÒj in comparative linguistic research 97.

5. The suffix -νθος

A final case-study concerns the recent theories about the suffix -νθος, which was used to form both place names (e.g. Κόρινθος, Ζάκυνθος, Ἐρύμαινθος) and appellatives (e.g. ἑρέβινθος “chick pea”, κολόκυνθος “gourd, pumpkin”). From the beginning of the substratum research, it was considered a Pre-Greek suffix, since it could not be derived from PIE through regular Greek sound laws. An important question is whether words in -νθος form one homogeneous group and whether the suffix is related to the Anatolian suffix -nda (-νδα), with which it is often connected.

96. In Balto-Slavic, a laryngeal is never vocalised between consonants; eh₂ would give å. Therefore, in OCS godbn “pleasant” and Russ. гоdnýj “useful” a laryngeal is excluded. See R. S. P. BEEKES (1996, p. 228).
5.1. Identity between -νθος and -nda

A first group of scholars identified the suffixes -νθος and -nda with each other but disagreed on their origin. L. R. Palmer 98 and Margalit Finkelberg 99 assumed these suffixes to be of Anatolian origin, considering Luwian as the most probable donor language for appellatives and place names. Y. Duhoux 100, though sceptical of any hypothetical Pre-Greek language, thought of one or more Anatolian (i.e. not necessarily Luwian) languages. According to him, -nda could be connected with PIE *-nt-, like -νθος (with aspiration of the dental), although he neglected to explain the origin of the aspiration. In her monograph on the suffix -νθος, Adriana Quattordio Moreschini 101 also concluded it to be of Anatolian origin. More specifically, she assumed the suffix -νθ- to be derived from two different Anatolian suffixes, viz. -(a)nt- (used to build plurals and collectives) and -(a)nda/-(a)nta (a place name suffix). Because the singular morpheme -ος was added, the Greeks were no longer aware of the original collective meaning in appellatives. Thus, ἐρέβην νθος, for instance, should originally have denoted a collective of chick peas or the plant name in general and only later a single chick pea, an interpretation that seems needlessly complicated. Adriana Quattordio Moreschini, moreover, failed to explain the discrepancy between Anatolian d and Greek θ. Should we assume that the Greeks perceived the Anatolian voiceless dental in -ant- as an aspirate?

V. I. Georgiev 102 accepted the IE origin of both -νθος and -nda but considered the former suffix to be of Pelasgian instead of Anatolian origin. He added that the suffixes -ανθος, -ινθος and -υνθος derived from different PIE forms, viz. -ανθ-ος < PIE *-ont- (with PIE *o > Pelasg. α and PIE *r > Pelasg. θ), -ινθ-ος < PIE *-ent- (with PIE *e > Pelasg. ι before nt without stress) and -υνθ-ος < PIE *-nt- (with PIE *n > Pelasg. υν), whereas in Anatolian, all these variants developed into -ant/-and-. This last remark cannot apply to PIE *-ent-, however, since in Hittite, PIE *e developed into e/i (not a).

The proponents of the Aegean theory associated -νθος and -nda as well but assumed both of these suffixes (i.e. also Anatolian -nda) to be of non-IE origin 103. Thus, R. A. Brown 104 considered -νθος to be a prenasalised

100. Y. DUHOUX (2007, p. 228).
variant of the Pre-Greek suffix -\(\tilde{\alpha}t\)o\(\tilde{\sigma}\). R. S. P. Beekes 105 elaborated on this theory and connected -νθος with a set of other non prenasalised suffixes. Thus, he connected -τνθ-/-ινθ-/-υνθ- and -αντ/-/υντ. 106 with -αθ/-ιθ/-υθ-, -αδ/-ιδ/-υδ- and -ατ/-ιτ/-υτ-. In other words, the basic suffix had the form VC, which could be prenasalised and could show the Pre-Greek variation τ/θ/δ.

The proponents of the Kartvelian theory also accepted the association of the suffixes -νθος and -nda. According to E. J. Furnée 107, these suffixes were of East Mediterranean origin (i.e. belonging to a non-IE, non-Kartvelian substratum that left traces in both Greek and Kartvelian). More specifically, he connected -νθ- with Georgian -nd- and supposed a secondary, ‘Aegean’ aspiration. Later, he considered the East Mediterranean -int- a secondary, ‘nasalised’ variant of -it-, corresponding to Kartvelian -et/-*etj- 108, whereas Anatolian -ind- was explained as assimilated from *-int-. A. Uruschadse 109, on the other hand, connected the suffixes -nth-, -nd- and -nt- with Georgian -ian-ta, -an-ta and -ta (without the nasal element), which are used to build plurals and to express possession.

5.2. -νθος and -nda: two different suffixes

Other scholars have kept -νθος and -nda etymologically separated, most of them agreeing on the genuine Anatolian nature of the suffix -nda (derived from PIE *-nt- and *-yent-). Anna Morpurgo Davies 110 doubted that -νθος could be a reflex of this Anatolian suffix, since the expected outcome would be -ντ- and -νδ- (not -νθ-). C. Renfrew 111 too kept the two suffixes separated, explaining -nda as an Anatolian suffix and -νθος as a Pre-Greek and Pre-Anatolian but not Pre-IE word. F. Lochner von Hüttenbach 112 considered the suffixes -wanda, -anda and -assa to be of IE origin, but since there are no traces of a Hittite-Luwian migration to Greece, he preferred to keep -νθος separated from the similarly sounding suffixes in Asia Minor. In his contribution to Der neue Pauly, J. L. García-Ramón 113 considered three possibilities: these suffixes could derive from a common pre-IE substratum, go back to an extension of (IE or non-

106. The suffix *-\(\tilde{\alpha}n\)t- is not attested.
110. Anna Morpurgo Davies (1986, p. 120).
In contrast to the previous scholars, who frequently did not go beyond a negative conclusion (viz. that the Greek and Anatolian suffix could not be related), Françoise Bader in her review of Adriana Quattordio Moreschini’s work suggested a positive etymological explanation of the suffix -\(\nu\theta\circ\)ς. She believed that it derives from an inherited combination of a nasal and an aspirated dental (parallel complex suffixes being *-\(nt\)- and *-\(nd\)-). The dental could be connected not only with a nasal but also with *-\(i\)- (e.g. ὄρν-ι-θ- “bird”) or *-\(u\)- (e.g. κόρ-υ-θ- “helmet”). Consequently, Anatolian -\(nd\)- shows a different, though parallel, combination of a nasal with a dental. Another explanation of the suffix was proposed by M. Bernal in his controversial *Black Athena*, where the suffix was assumed to have various origins. First, it would go back to “simple introduction of a nasal before a dental” (i.e. [pre]nasalisation), an explanation which, as J. H. Jasanoff and A. J. Nussbaum argued in their review of the linguistic evidence in *Black Athena*, cannot be invoked as a regular Greek sound change without further justification. Second, M. Bernal assumed that some instances of -\(\nu\theta\circ\)ς were renderings of Eg. -\(ntr\) “holy”, which, in his view, was also borrowed as νιτρον “sodium carbonate”, ἄνθος “flower” (with vowel prothesis and loss of final \(\mathfrak{r}\)), ξάνθος “yellow” (< \(\mathfrak{snt}\) “make holy”, with a causative \(s\)- and transcription of an ‘uncertain’ Egyptian sibilant as ξ), κάνθαρος “dung-beetle” (< *\(k\)̱\(\mathfrak{j}\)\(\mathfrak{nr}\) “holy spirit”) and σάτυρος “satyr” (< \(\mathfrak{snt}\), where the \(n\) was dropped). This second explanation does not seem likely either, since no traces of the so-called original meaning of -\(\nu\theta\circ\)ς are preserved in the Pre-Greek toponyms and appellatives.

### 5.3. Conclusion

Most scholars agreed on the Pre-Greek origin of -\(\nu\theta\circ\)ς, except for M. Bernal and Françoise Bader. As the Anatolian suffix -\(nda\) can be explained on a PIE basis, it seems safer to keep both suffixes separated when discussing their etymology. If one wants to associate them, Françoise Bader’s explanation (i.e. IE origin for both suffixes, although the formations are not completely identical) seems the most likely suggestion. The strongest objection against the identification of both suffixes is the fact

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that in toponyms, they are never attested with the same root (for instance, we do not find Anatolian *Korinda besides Κόρινθος) 118.

6. General conclusion

A first conclusion to be drawn is that the Anatolian theory has proven to be the least influential. Its main proponents concentrated on the suffixes -νθ- and -σσ-. The other three theories (Pelasgian, Aegean and Kartvelian) had a wider scope, examining more data.

Second, several words not only have competing Pre-Greek interpretations (as presented in my first article) but have also received explanations within PIE or Greek (e.g. τύμβος, σίγη and ἁγαθός). For other words (e.g. πέλεκυς), an alternative borrowing could be considered (e.g. from Semitic) rather than substratum influence.

Third, the Pelasgian theory, though influential in the past, failed to explain a large part of the data collected by E. J. Furnée. For most of the terms discussed in the present article, a Pelasgian suggestion could be made, but this is far from true for the rest of E. J. Furnée’s corpus (e.g. γέφυρα - βέφυρο - δέφυρο).

A fourth conclusion concerns the Kartvelian theory, an innovation in the substratum research. The proponents of this approach pointed to a few more or less systematic sound correspondences between Pre-Greek and Kartvelian, although the question of the original donor language often cannot be resolved. Moreover, not every Pre-Greek word can be explained as a Kartvelian substratum word, as becomes evident from the elements examined: there are no Kartvelian parallels for πέλεκυς, τύμβος and σίγη. Therefore, E. J. Furnée did not abandon the Aegean theory but incorporated it into his theory of Pre-Greek as consisting of two substrata, viz. a non-Kartvelian and a Kartvelian one. Still, the great chronological gap between ‘Pelasgian’ (which, according to E. J. Furnée 119, goes back to the third millennium BC) and the historically attested Kartvelian languages (with Georgian, attested from the fourth century BC onwards, as the only Kartvelian language with a historical tradition) invites us to be cautious. Unsurprisingly, K. H. Schmidt 120 was sceptical of the extent to which the Proto-Kartvelian material could still be reconstructed on the basis of the Kartvelian languages.

Research on the basis of the Aegean theory (as currently practised by R. S. P. Beekes) seems the most fruitful approach. For several instances, it

118. A possible exception may be the pair Labraunda - Λαβραονθος.
120. K. H. Schmidt (1979, p. 96).
can be supplemented with the Kartvelian theory. Still, a few critical remarks are in order, first concerning the criteria used by the linguists of Leiden in the identification of substratum elements\textsuperscript{121}, which are the following:

1. Absence of a good IE etymology
2. Limited geographical distribution: the word in question only occurs in one language (group)
3. Unusual word formation: suffixes unknown in PIE
4. Meaning: loanwords for certain local phenomena
5. Phonological irregularity: ablaut patterns impossible in PIE

Objections can be made to each of these criteria. First, the limited geographical distribution of a certain word does not necessarily point to a non-IE origin, since it may have been lost in other languages. This might be the case for \textit{πέλεκυς}, which is only attested in Greek and Old Indic, although these languages may have borrowed the word separately from Semitic. Second, certain phonological irregularities can be explained by assuming assimilation, dissimilation, onomatopoeia, taboo or contamination. An onomatopoetic value may be present in \textit{σιγη}, whereas contamination and dissimilation may have given rise to \textit{ἀκαθός} and \textit{ἀγεθός} respectively (two variants of \textit{ἄγαθός}). Third, a so-called non-IE suffix may be a complex IE suffix cluster, for instance in the case for \textit{-νθος} (as Françoise Bader suggested), although most scholars agreed on its Pre-Greek nature. Fourth, the semantic argument is not sufficient to label a certain word as non-IE either, since our knowledge of the Indo-European culture is still fairly limited. Finally, the presence of the so-called non-IE phoneme *\textit{a} is also a debatable issue. It is one of the main reasons for R. S. P. Beekes to assume that \textit{ἀγαθός} is of non-IE origin. Most modern scholars, however, do accept the existence of this phoneme in PIE. Although each of these criteria can thus be challenged, a non-IE origin is usually made plausible not by simply one of these criteria but by the combination of these features, as P. C. H. Schrijver\textsuperscript{122} argued.

Another problem is that R. S. P. Beekes’ methodology can often be questioned. He adduced many Hesychian glosses as so-called proof of the Pre-Greek sound variations, although nothing guarantees the antiquity of these glosses: some of them may even be recent (perhaps Byzantine) loanwords. Furthermore, many borrowings that presumably came from a different source (e.g. Semitic) are subsumed under the Pre-Greek


\textsuperscript{122} P. C. H. Schrijver (1997, p. 296).
vocabulary. Therefore, as a suggestion for future research, a stricter methodology seems in order, in which a distinction should be made at least between early attested Pre-Greek words, Hesychian glosses and loanwords that may be of a different origin.

One last crux is the unity of Pre-Greek, which was assumed by R. S. P. Beekes. The wide geographical distribution of the Aegean substratum, however, makes a linguistically diverse continuum (perhaps even comprising IE elements) more plausible. Moreover, given the chronological gap between the various attested words, diachronic variation too remains possible. Finally, dialectal differentiation within Pre-Greek cannot be a priori excluded. Any speaker of a natural language will agree that the dialects of his language can show extreme differences. Retrieving these Pre-Greek dialects, however, may forever be beyond our grasp.

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