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PRE-GREEK
The Pre-Greek loans in Greek

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To the memory of Edzard Johan Furnée

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A. INTRODUCTION

In 1956, Kuiper wrote a study on Greek substratum words which opened a new chapter in the study of the field. Furnée then wrote a dissertation on the subject (1972), in which he presented twenty years of research and which is up to now the handbook for the subject. As Kuiper was also my promotor, I knew the book from the beginning (see my review in Lingua 36, 1975). The short overview which follows here is based on Furnée’s material and on my own research, during thirty years.

Furnée’s book met with fierce criticism and was largely neglected. [An exception is R.A. Brown’s Pre-Greek Speech on Crete, 1985.] That was a major mistake. Pre-Greek words often show variations which are not found in inherited words. It is obvious to study these variations. That is what Furnée did. It appeared, as Kuiper had shown, that these variations show certain patterns, so that they can be used to recognize Pre-Greek elements. Two points of criticism on Furnée are possible. One is that he considered almost all variations as expressive, which is certainly wrong. It is evident that the variants are due to the adaptation of words of a foreign language to Greek. We shall see below that in this perspective many variations can be understood. The second objection to Furnée is that he suggested several etymological connections between Greek words, as variants of a Pre-Greek word. When several possible variants are used, many combinations become possible, and here Furnée has gone too far in a number of cases. Here he made some ingenious suggestions (e.g. δορυκνιον). We can hardly reproach the author in these cases, however, as he was exploring new ground: it is only to be expected that in such a situation one goes sometimes too far. Several scholars were baffled by these proposals and so rejected the whole book. The method, however, was correct; what we have to do, as always in the case of etymology, is to see which suggestions are probable and which are not. Of course, in many cases we cannot reach certainty, but this is no objection. On the whole, Furnée’s material is indeed Pre-Greek (a very few cases excepted), and so we have a large corpus of material. His index gives 4400 words; as many derivatives and variants are given (and a few Indo-European words that were discussed in the text), I guess that it contains some 1000 Pre-Greek etyma. Also, Furnée often adduces new material, which is (even now) not mentioned in the etymological dictionaries (mostly glosses from Hesychius).

I have in general given only a few names, and no material from outside Greece and Asia Minor. The comparison with Basque or Caucasian languages has not been considered as this is not my competence; I think it possible that there are such connections, but that must be left to others. My suggestions for reconstructions are not essential. One may ignore them and just consider the variations themselves. Often these variations are explained as incidental phenomena (assimilations, influence of other words, etc.), and such explanations may be correct in some cases. But if we know which variations frequently occur, we are warned to consider Pre-Greek origin if we find them. The existing etymological dictionaries often seem to ‘avoid’ the conclusion that a word is a substratum element. It is remarkable that Chantraine was quite aware
of the question in his *Formation*, but has very often withdrawn his - in my view correct -
evaluation in his dictionary. It seems as if substratum elements were not welcome.

A question that is a real problem, is that a word is often called a loan from an Anatolian
language, while it may be just as well be a word from the substratum in Greece. It is generally
accepted, on the basis of the place names, that the same language was once spoken in Greece and
in (western) Asia Minor. [A point for further study is to establish how far to the east such related
names are found. It is my impression that such forms are found in the south as far as Cilicia. See
F.] But it is mostly impossible to distinguish between substratum words and - (mostly) later -
loans from Asia Minor. A word may have been taken over through commerce etc., as happens
between two neighbouring countries, or since the time when Greeks settled in Asia Minor, which
happened probably as early as in the 14th century. I think that, from a methodological point, it is
better to consider such words as Pre-Greek, and only to take them as - normal - loan words when
there is reason to do so, but it is clear that here we may often make mistakes. A good example is
\( \tau \omicron \lambda \omicron \omicron \pi \eta \) ‘clew, ball of wool ready for spinning’. The word is clearly related with Luw., Hitt.
talupa/i- ‘lump, clod’. The Greek word is typical for Pre-Greek words: CaC-up- (with \( a = o \)
before \( u \)); there is no IE etymology (Melchert, *Orpheus* 8 (1998) 47-51 does not convince). So it
is Pre-Greek / Anatolian. Also, ‘clew...’ is not a word that you bring home from overseas; it is an
everyday word, which the Greeks took up at home. I completely agree with Furnée’s
interpretation (35 n. 33) that the word was brought to Greece by the settlers from Anatolia who
brought their language, which, from another perspective, we call Pre-Greek to Greece. So it is a
loan from an Anatolian language, but from the one that was also spoken in Greece before the
Indo-European speaking Greeks arrived there.

The essential point is that it should be recognized that substratum words are a frequent
phenomenon. One may regret this, for example because Indo-European words can be much
better explained, but this is irrelevant; it is simply a fact that has to be accepted. My approach is
rather that it is fascinating that in this way we can learn something about the old languages of
Anatolia, and of the role of Anatolia in early history. And, of course, it is part of the oldest
history of Greece.

As to ‘Pelagian’ and related theories which assume an Indo-European substratum in
Greece, these theories have failed, and I no longer mention them (in my etymological
dictionary). The theory has been extensively discussed by Furnée (37-68). ‘Pelagian’ has done
much harm, and it is time to definitely reject it. The latest attempt was Heubeck’s ‘Minoisch-
Mykenische’ (discussed by Furnée 55- 66), where the material was reduced to some ten words;
the theory has been tacitly abandoned, I think. (Another matter is the problem of \( \sigma \omicron \upsilon \zeta / \upsilon \zeta \) and
the \( \zeta \)-, for which Ruijgh assumes an Indo-European para-stratum. Here the evidence seems so
clear that an explanation of this kind may have to be assumed.)
B. PHONOLOGY
1. The phonemic system of Pre-Greek

The consonants.

The fact that voiced, voiceless and aspirated stops interchange shows that voice and aspiration
were not distinctive in Pre-Greek. On the other hand, the Mycenaean signs for $t\rho\alpha$, $t\rho\alpha$ and $t\rho\alpha$
show that palatalization probably was. This is confirmed by the sign $pte$ which will go back on
$p\varepsilon$. (In our material cf. $\theta\alpha\pi\tau\alpha$. I wonder whether $k\rho\sigma\sigma\sigma\sigma\sigma\sigma\sigma\varepsilon\theta\nu$ points to $p\varepsilon > pt$ but then realized
with aspiration.) Further, the signs $tw$, $tw$, $dw$, $dw$, $nw$, $sw$, $sw$, $swi$ point to labialization as a
distinctive feature, i.e.: $t^w$, $t^w$, $d^w$, $d^w$, $n^w$, $s^w$, $s^w$, $s^w$. Note that palatal and labial forms are
found with resonants and stops. The existence of labio-velars is confirmed by $q\alpha\sigma i\varepsilon u\beta\alpha\sigma i\lambda\varepsilon \upsilon\zeta$, etc. (See further Beekes, Glotta 73 (1995/6) 12f.) This results in a system:

\[
\begin{align*}
\text{p} & \quad \text{p}^y & \quad \text{p}^w \\
\text{t} & \quad \text{t}^y & \quad \text{t}^w \\
\text{k} & \quad \text{k}^y & \quad \text{k}^w \\
\text{s} & \quad \text{s}^y & \quad \text{s}^w \\
\text{r} & \quad \text{r}^y & \quad \text{r}^w \\
\text{l} & \quad \text{l}^y & \quad \text{l}^w \\
\text{m} & \quad \text{m}^y & \quad \text{m}^w \\
\text{n} & \quad \text{n}^y & \quad \text{n}^w
\end{align*}
\]

Of course, it is possible that one or more of the supposed phonemes did not occur (e.g. $m^y$: a
palatalized $m$ is a rare sound).

We can now use this insight in explaining forms. Thus, $\delta\alpha\varphi\eta$ - $\delta\alpha\chi\chi(\alpha)$- can now be
explained as $dak^w\eta$, in the first form giving a labial (this time aspirated), $\varphi$, in the other being
rendered by $-\nu\chi$- with anticipation of the labial feature, while the velar remains a velar. Then we
can understand $\alpha\nu\chi\eta$ - Lesb. $\alpha\mu\phi\eta$ from $*anw\varepsilon n$; the latter form is directly understandable
(with $\varphi$ from the labio-velar); the first went through $*anw\kappa\varepsilon n$ (or $*anw\kappa\varepsilon n$) giving $\alpha\nu\chi\eta$ (with
loss of the nasal, a development known from Armenian). Perhaps also possible is $*ak^w\varepsilon n >$
$\alpha\nu\chi\eta$ with prenasalized $*anw\varepsilon n > \alpha\mu\phi\eta$. Such interpretations may in individual cases be
wrong, but that is no reason not to try it. On the other hand strange variations become
understandable if we start from a limited set of assumptions.

The palatalized phonemes may explain other developments. Thus I wonder whether
$\lambda\lambda$ might continue $\ell$; we know that IE $*\ell y$ gave $\lambda\lambda$ in Greek. Thus in Achilleus. [Chantraine’s
treatment of this name is characteristically averting; and in the Addenda (CEG 4) this is not
corrected.] Note also that Achilleus with one $\lambda$ occurs only in Homer. This may show that earlier
the variation was greater; as is only to be expected. In a similar fashion $an^y$ may have given $\alpha\nu$, and
$ar^y \alpha\rho$, and also $\epsilon\upsilon$ (with colouring of the vowel; see on the suffix). This is confirmed by
the fact that double λ is very frequent (Fur. 387: "Dutzende von apellativische Beispiele"), whereas double ρ, ν and μ are much less frequent or rare. The idea is nicely confirmed if Hitt. Appaliunas is the forebear of Apollo (Beekes, JANER 2, 2003). Also we have -αρ-, -αν- but no *-αλ-. Thus ας may have given ασ, cf. κάβασος, which has a v.l. κάβασος. In rendering such a foreign word, the palatalization may one time have been represented, another time have been neglected. This is a phenomenon we often find. It was the main cause of the variations in Pre-Greek forms. The interpretation is further confirmed by the parallel development of labialized consonants. Thus I suppose that arʷ resulted in αρ (s. the suffix). In this way, we may understand κολαύρος (beside κολόρ-οβ-ον) as kalarʷ-op-. Another form which shows the remarkable interchange α/αι is áρασχάδες - αύρασχάς. Here one might assume *arʷask-at-. Note that the labial element would at the same time explain the same vowel. I think that this gives the solution for the hopeless etyion αλοξ, αύλαξ, ὀλαξ, εύλακ-α. I assume *alʷ-ak-. It gives αύλακ- through anticipation, ἀλοκ- through colouring; thus the first two forms, which are best attested, are directly clear. Further αω/εω/ω interchange frequently. Also ὀλοκ- is nowunproblematic: both α’s are coloured to [o] by the labio-velar. (Homer acc. ὀλκ-α is hopeless; it is the only form which has no vowel between λ and κ, and therefore may be due to some accident of the tradition; does it stand for *ὀλακ' (α), *ὀλακ' (α)? Or is it ὀλκ-< *ὀλακ- with syncop?)

I do not know whether in suffixes of the structure VC a diphthong is allowed. Cf. the forms in -αυφος. Otherwise one might think of -αυʷ-, or even -aw²-, but such sounds are rather rare in the languages of the world. Cf. Λακ-εδ-αιμ-ων, if it should be thus analysed (for -ες- cf. Τένεδος, Λέβεδος). An instance of -αι- due to a palatal consonant may be ἔξαιφνης - ἔξαιφνης - ἀφνω (a brilliant combination by Furnée 158 etc.), which may contain -ap²- (the palatalization was ignored in the last form). (Comparable to the development in the second word is κνών - κνωτετον, from kʰn-? with ν < i before υ in κνωντετος?)

There is evidence for an affricate, somewhat like [tʰ]; I shall note it with /cl/. See on the variations B 5.5 (esp. on the forms of Asklepios). We may suspect a series c, c', cʷ.

There may have been a sound like the Hittite ḫ. It may have been present in a cluster hs, which was represented by ξ. See B 5.5. But I do not see what it may have become in another position.

The language probably had a y and a w. Initial ya- will often have lost its y-, but it may sometimes be represented by ία- as in ίαμβος, ίασον (?, long a) [but ίασον (Ἀργος) from ἰωσο-], with long i]. The ending -υα may have been -υ-α (a Pre-Greek y may have had a different development from inherited y). In the same way, -αια < *-αυ-α? with a variant -εια (note that there is no -οια). Cf. Πηνελόπετα, Περσεφόνεια. Perhaps the y disappeared in some cases, giving γαια : γα (see on the suffix -αι-/εια-).

Initial *w may often have been lost (άναξ). But wa- may also have been rendered by αα-, as in ὤσος, Cret. ἀσος. Thus also Οἰλεύς (which has been considered as identical with the
root of "Iloς". We find ιο- (which became automatically ύο-) in άκινθος, Cret. άκινθος. [Furnée 377 assumes a prothetic ι- in the latter word, which seems improbable to me. See on §3 on prothetic vowels.] Thus perhaps also ιο/ελος. The differences will be due to the time when the loan was borrowed, and whether the Greek dialect still had a u at that time; many possibilities arise in this way. - Still another treatment we see in the word for 'truffle', for which we find ούτον, οιδνον (-tn-), οδνον (-tn-), or οιτον. I think that these are all renderings of *wit-. [Again Furnée 184 assumes a prothetic vowel, ιιτ/ ιιτ/, which does not seem to be the right solution. He further assumes a variation *wit / wut-, which seems also improbable to me, though the variation i/u is attested.] Rather ι- is a form of ωι-, with the -ο- changed under influence of the -ι-; cf. Lejeune, *Phonet* 174 with n. 2; note that Greek did not allow -ωι- before consonants; of course ωι became ι in Boeotian in the third century B.C.; variation ι/ω is found more often in Pre-Greek words. The case nicely shows that the variations in Pre-Greek words are tentative renderings of the sounds of a foreign language, and therefore have to be taken seriously.

**Initial aspiration** It seems as if there was no initial aspiration. Furnée has a few words with ι-, ε- (one or two with ι-; none with ο-, η-, ϑ-). Several are doubtful; best is αιμιμιά (αιμιά). One might conclude that the language had no h. This would agree with the fact that aspiration is not a distinctive feature in the stops. - The result is remarkable for ηρος, "Ελληνες and "Ηφαίστος (but note that Myc. apaitio does not have ha-). Of course aspiration can have been added secondarily in Greek. Cf. the variation in άφθα / άφθα and ελεδώνη / ελεδώνη which is a variant of δελεδώνη. But Prof. Ruigh points out to me that Mycenaean had place names (haratua) and personal names (hakumijo) with initial h-; it occurs also in inlaut (pihala, korihadana); cf. further emaa2 ('Hermahās' 'Hermes').

**The vowels.**

I think that this language had only three vowels, a, i, u. The Greek words have very often e and o, but this would not be surprising: the three vowels have a wide phonetic range, and the phoneme /a/, e.g., may often have sounded as [e] or [o]. What makes me think so is in the first place the fact that the suffix-system has a, i, u, but not e, o. E.g. we have αγ, ηγ; αγγ, ηγγ, υγγ; and αθ, υθ, υδ; αθθ, ηθθ, υθθ, but no forms with εγ(γ), ογ(γ) etc. (I saw Πήσκοινθος; and ολονθος, but as a variant of ολουνθος, and μηλολόνθη with a variant μηλ(ολ)άνθη.) This cannot be due to chance. The idea is confirmed by the fact that variations α/ε and α/ο are (both) very frequent (while ε/ο hardly occurs). It agrees with the fact that the prothetic vowel is only a- (B 3.). Essential is that the palatalized and labialized consonants coloured an adjacent α to ε and
respectively. On the effects of palatalized consonants see Beekes, FS Kortlandt. - Furnée (340) has a rule $\alpha > \omicron$ before $\omicron$, $\omicron$, $\upsilon$ (κάλυψος / κολυψος); this can now be understood as the $\omicron$-like realization of /a/ before high rounded vowels in the following syllable (see 15.3.2).

A fourth vowel? If I skip $\epsilon$ and $\omicron$, only few vowels remain. And though there are only few words with an $\epsilon$, this make me think that there was perhaps have existed another vowel (that can explain a number of apparent $\epsilon$'s). I start from the form ἐρομήνθη, where we find the following variants (Fur. 214, 255f): ἐρεσύβη, ἐρυθίβιος, ἐρεθίβιος, ἐρεθετικόζω, ἐρεθετιμ-, ἐρεθίμιος, ἐρεθιμίος, ἐρεθούμιος. The form with ἐρου- can be easily understood as influenced by IE ἐρο(θ) - 'red'. The variants with $\theta / \sigma$ and $\beta / \mu$ are typical for Pre-Greek, so there can be no doubt that the word is Pre-Greek. Remarkable in these forms is the sequence ἐρε-, which is so frequent that it can hardly be an incidental mistake. (The long $\omicron$ too points to a Pre-Greek word.) Also we have in this case twice an $\epsilon$. I suggest that the word had originally twice an ə. A vowel system with, beside a, i, u, an ə seems quite possible. I have considered the possibility that the r was originally vocalic, but in that case one would rather expect (α)ρα in Greek. Also an ə is mid-high, and could therefore well be rendered as an $\epsilon$.

**Vowel length**

I have long doubted that there was phonemic length of cowels in Pre-Greek. Greek quite often has only a form with a long vowel, but this can be due to the fact that in Greek length is distinctive: a vowel must be long or short, interchange is (normally) not tolerated. Vacillation is found, as in θρίζεικα - θρίζεξ (see B 6.2). Cf. ὑβρίμος - βρίμος, βρίμη (though this could be explained differently). A quite different argument is the following. ὄχυρον and πίτυρον both mean 'chaff'; it is therefore probable that they contain the same suffix -υρον; but in the first word the $\omicron$ is short, in the second long.

This idea seemed confirmed by the fact that it explain would the φοινιξ-rule of Greek accentuation. Thenominatives in -ίξ, -νξ are properisomenon (if possible), though the suffix has a long vowel elsewhere, e.g. φοινικος. If there was no distinctive length, the phonetic length was determined by other factors, e.g. short before two consonants, long(er) before a single consonant (as we find also in the Germanic substratum words). It agrees with the fact that the suffixes -ικ, -ικ- were of Pre-Greek origin. (We don’t have it with -αξ, perhaps because $i$ and $u$ are shorter than $a$. Also we find hesitation between long and short vowel in Pre-Greek words more often with $i$ and $u$ than with other vowels; see 6.2.)

A difficulty may seem the names in -ω(ξ); they may continue *au (cf. Τλώς, Hitt. talawa-). I suggest that the diphthong was contracted early, whereby the $\upsilon / \upsilon$ disappeared. For -ευς (from *-ηςς) one would also posit *au. That /a/ was realized / heard as [e, ə] is no problem. [The length may come from prevocalic *au. The e-colour may partly come from a preceding palatalized consonant (‘Αχιλλέεύς, ‘Οδυσσεεύς?).] (Are we allowed to compare َا > Ion.-Att. η?) For the feminine in -Μυκ. -εια I agree with Ruijgh, Etudes $212$, that it is an independent Pre-Greek suffix, cf. Κυθέρεια, Πηνελόπεια. In the FS Kortlandt I proposed some ways to
explain the e-vocalism: by assuming a preceding palatal. cons, through which the following a became e; or by a suffix -ay-u- which became -ey-u- > -e(υ-υ-); or by a suffix -aw̩- which became -aw̩- > -e̩-. But these solutions cannot be demonstrated. It is better to abandon the view that Pre-Greek had only a, i, u (and no e, o). EWe have to accep a suffix -eu- in -e̩u̩.

Suffixes often have a long vowel (-e̩̩-, -e̩̩-, -ā̩̩ς(ς)-): they are often found in the pre-final syllable, standing before one consonant; were they stressed? I counted long a’s in Furnée’s index, which gave only 13 instances; anyhow this asks for an explanation. Note that an η often represents ā (γάθουλλίς / γηθ-), and as our knowledge of the relevant dialects is rather limited, we often simply do not know whether η is an old a or e. If we did not have σίδαρος, we would not know that it is an old a. Few people know that Αήμον represents Αύμον. Note Κρήτη. Note the suffixes -ηλ-, -ητ-. Well known words with η = ē: σπήλαιον. So it seems impossible to deny vowellength as a distinctive feature.

Diphthongs.
I assume two diphthongs, ai and au. If there were no e and o, other diphthongs are not to be expected. A diphthong eu is rare (Fur. 353 A5; I found some 12 instances in all of his material); it interchanges with αυ. Furnée (339 A2) calls ei "(in mehreren Fällen) nur eine Nebenform von αυ". οι is also rather rare; we find ου perhaps more often, but interchanging with other vowels (see the remark on the suffix -ουρ-). See on the variants of the vowels (B 6.1).

Accentuation.
I noted hesitation in: ἄβραμις / -μίς, αἴγαλος / -ιός, ἄχυρος / -ός, ἄχωρ / ἄχώρ, κόρυδος / κορυδός, κορύδαλος / κορυδαλλός, μέδιμνος / μεδιμνός, σίκνος / σικνός, ὑρίσχος / ὑρισσός. Note also near-identical forms like λυκαψός / λύκοψος. This may not mean that the language had no clear stress; it may just be that the Greeks who took a word over were not always sure about the stress. But the phenomenon may be important heuristically: inherited words only seldom show such variation.

2. Characteristic sound(group)s
In Pre-Greek words we find some sounds or clusters that are rare in PIE words. The words may be checked in Furnée. (In brackets I give variants.)

1. αυ
Of course, αυ occurs in PIE words, but only when it derives from *h2eu (mostly in initial position) or eh2u (which is rare).
Exx. βλαύδες, βραύκας, γραύκαλας, κάναυστρον, κασαύρα, τραυζάνα; Λαβραυνδός.
2. β
As is well known, *b was rare in PIE. In Pre-Gr. words it seems to occur relatively more often.
Exx. ἀβλαροί, ἄβλας, ἄβυρβηλος, ἀρβαλος, ἀρβόν, ἀρβύλη, ἀτάρβακτος, βάρβιλος, βυσσός, θόρυβος, κίβαλος.
It is often found word initially. - We know that β may also go back to a Pre-Greek 'labio-velar' (labialized velar): βασιλεύς < Myc. qasireu.

3. βδ
The cluster is possible in PIE words, but it is rare; see on β.
Exx. ἀβδελλον, ἀβδηρα, ἄβδης, ἣβδης, αὐτο-καβδαλος, κιβδηλος, κυβάδα, σίβια, τιβδαιον; Κομβδιλιπια. [But μόλυβδος continues -wd-; see now Melchert 20?? .]

4. γδ
Cf. Fur. 318 n. 5. There is nothing against PIE gd, but it is infrequent. Of course, the group is reminiscent of βδ.
Exx. ἀγδος, ἀμνυδάλη, γδουπεω (cf. κτυπεω), ἴγδη, κρίγδανον, λύγδη, μάγδαλος.

5. χν
Exx. ἵγνυς (ικνύς). - On χν, φν see on the suffixes.

6. δν
The sequence is rare in IE words, where it can only arise at a morpheme boundary.
Exx. ἀκινδός, ἀλαπανδός, ἀράχινα, λεπαδνός (λα-), σίπυνος. 'Ἀριάδνη.

7. κτ
The group is regular in PIE, but in Pre-Gr. it is found with variants; see B5.5.
Exx. ἀβίωκτον, βάκται, δίκτυ.

8. κχ
The group can hardly be of IE origin, but it is not frequent. I noted: βάκχαρ, λάκχα, σάκχαρ, σεκχάς; Βάκχος, Βρίακχος, Βύκχις. -κχ is the geminate of χ. Cf. on πφ, τθ.

9. μν
The group is quite possible in PIE words, but it is frequent in Pre-Greek.
Exx. ἀμφι-κέλεμνον, φεδμνος, ιαμνος, βασμνιατης, κρημνος (Beekes), κρυμνος, λάμνα, λωρυμνόν, μέρμνα, πρημνάς, ρόδαμνος, σίγυμνον, σίδρμνον; 'Ατύμνος, Καρτεμνίδες.
10. ου
The diphthong is of course perfectly IE (but not in suffixes), but it is found several times in Pre-Greek. I think Pre-Greek did not have a diphthong -ou-, but it may have arisen in -arʷ which (often) became [-ουρ-].
Exx. σενδούκη, σκίουρος, στρουθός, τάγχουρος, τούφος, φάνδουρος, φασίουλος (ο/ω), φούσκος, χλούνης.

11. πφ
The group can hardly be of PIE origin, but it is rare in Pre-Greek words too. Like κχ it is the geminate of φ.
Exx. ἀρχιζάπφης (?); Σαπφώ (Ψαπφώ).

12. ρδ
On a morpheme boundary the group is possible in PIE.
Exx. ἀγέρδα, καπαρδ-εύσαι, καρδαμάλη.

13. ρκν
A rare group. Perhaps there is no reason to speak of a group.
Exx. ἄβαρκνα, βερκνίς.

14. πν (ρδ, νδ)
Exx. κίσιρνις (-νδ-), ἀχέρδα (-να), σκαπέρδα. See on the suffixes.

15. An σ occurs both word-initially and between vowels, where is has disappeared in inherited words. (Of course, in a few cases Greek got a new σ.)
Init.: σάρυττα, σαγύριον, σάναστιν, σάνδαλον, σάνδυξ, σαρρυφθεῖν, σεκούα, σέλινον, σίμυνη, σίγωμον.
Intervoc.: ἀγασυλλίς, ἀγχουσα (ἔγχ-), ἀίθουσ(σ)α, αἴμασιά, αἴσακος, αἴσάλων, αἰσιμνάω (-υμ-), αἴσονες, αἰσυνητήρ, αἴσυλος, αἴσύφ(ί)ος, ἀλεισον, δρόσος, κάδουσα, κασσαλβαζ.
After resonant: ἀλσος, βάλσαμον, γελσόν, γένσιμος, μάρσυ/υππος.

16. σβ
The group is hardly known from inherited words (σβέννυμι is problematic).
Exx. ἄσβολος, θησβή, ἃσβετος. -σβ- may continue Pre-Gr. -sgʷ-: Myc. τιqajo may be /thisgʷaioι/ Θισβαίος.
17. σγ
Again this group is hardly known from IE words. It may sometimes continue -cg-, as in āmussagēlā, ‘Asgelataς (see 5.5).
Exx. ἀλισγέω, ὑσγίνη, φάσγανον, ἀμυσγέλā, ἀσγάνδης, πισγίς.

18. σκ, στ
These groups are well known from IE, but mostly in word initial position. See on B 5.5.
Exx. βέσκεροι, βύσταξ, κύστεροι, λασταγεῖ.

19. στλ
Though the cluster contains nothing that could not be IE, it occurs more often in substr. words (?).
Exx. ἀστλιγγες, στλεγγίς.

20. τθ
The group can hardly be of PIE origin. In Pre-Greek, it is a variant of ττ and σσ (see 5.5). It is sometimes clearly the geminate of θ: ’Ἀθίς : ’Ἀθήνη.
Exx. ἕθελα, κότθυμος. Πεθάλαι.

21. φθ
The cluster is possible in inherited words.
Exx. νάσκαφθον.

22. χμ, χν
Rather rare in IE; Fur. 110 assumes that the nasal caused the aspiration.
Exx. δαυχμός, δαυχμα-, σαυχμόν.

23. ω
The ω is of course perfectly IE, but occurrence of *ǭ was very restricted. Otherwise, it must represent vowel + laryngeal (eh₂, oH) which are only possible in certain circumstances.
Exx. ἀμακρῶτις, ἀμωτον, ἀνθρωπος, ἀνωνίς, ἀπωφόλιος, ἀρρωδέω, ἀσκαλώπας, ἀσκαμονία, ἀσκολία, ἀσκόλιας, ἀσμωλεῖν, βαλλωτή, κασσωρίς, κινώπετον, λαιμώρη, μετώπιον, λωρυμνόν, ὑσ(σ)οπος, φάγωρος, φασίωλος

24. geminates
See also B 5.8 on single / gemin.
Indo-European had no geminates. Of course, there arose geminates in Greek, but they are not very frequent. I doubt whether Pre-Greek had geminates, but several occur in Pre-Gr. words. (I
compare e.g. Brixhe, *Dialecte grec de Pamphylie*, 1976, 95, that there were no geminates in this language.)

As Pre-Greek had palatalized phonemes, I wonder whether $l'$ was (often) represented by $\lambda\lambda$ in Greek. And then perhaps also $n'$ as $vv$, $r'$ as $rr$. For $\sigma\sigma$ and $\tau\tau$ see B 5.5. Unclear $\delta\delta$, $\kappa\kappa$, $\pi\pi$, and $\mu\mu$ (palatal $m'$ is a rare sound).

I note some exx.

Stops $\delta\delta$: $\ddot{a}\ddot{d}\ddot{d}a\ddot{e}$, $\ddot{a}\ddot{d}\ddot{d}i\ddot{e}$, - $\kappa\kappa$: $\acute{\alpha}\kappa\kappa\alpha\lambda\rho\alpha\varsigma$, $\acute{\beta}\lambda\epsilon\kappa\kappa\kappa$, $\lambda\acute{\alpha}k\kappa\zeta(?)$ - $\pi\pi$: $\acute{\alpha}\gamma\rho\iota\pi\pi\omicron\varsigma$, $\lambda\upsilon\pi\iota\pi\iota\varsigma$ - $\tau\tau$: $\beta\iota\tau\tau\kappa\kappa\sigma$, $\lambda\acute{\alpha}t\alpha\alpha$, $\kappa\acute{\alpha}t\tau\kappa\kappa\sigma$, $\mu\acute{\alpha}t\tau\beta\tau\kappa\kappa\sigma$, $\miot\tau\kappa\kappa\sigma$; $\Pi\tau\tau\alpha\kappa\iota\sigma$. We must also recall the instances of $\kappa\chi$, $\pi\phi$, $\tau\theta$ (above).

Liquids $\lambda\lambda$: $\acute{\alpha}l\alpha\lambda \acute{\beta}i\varsigma$, $\acute{\alpha}l\alpha\lambda\pi\iota\iota\varsigma$, $\acute{\alpha}m\iota\lambda\lambda\kappa\kappa\kappa$, $\beta\alpha\lambda\omega\tau\varsigma$, $\beta\delta\epsilon\lambda\varsigma$, $\beta\iota\lambda\iota\iota\varsigma$, $\pi\acute{\alpha}t\tau\ell\iota\alpha$, - $\mu\mu$: $\kappa\acute{\lambda}m\nu\dot{\iota}\varsigma$, - $\nu\nu$: $\acute{\alpha}g\acute{\alpha}n\alpha$, $\acute{\beta}\lambda\nu\nu\varsigma$, $\gamma\iota\nu\nu\varsigma$, $\lambda\acute{\lambda}k\alpha\nu\nu\varsigma$; $\Delta\acute{\iota}k\tau\nu\nu\nu\varsigma$, - $\rho\rho$: $\acute{\alpha}r\acute{\lambda}b\acute{\alpha}k\kappa\kappa\alpha$, $\beta\acute{\iota}r\kappa\kappa$, $\beta\acute{\iota}r\rho\kappa\kappa\kappa$, $\kappa\acute{\alpha}r\kappa\kappa\kappa$

Sibilants $\sigma\sigma$: $\alpha\acute{\iota}h\theta\upsilon\upsilon\sigma(\varsigma)\alpha$, $\acute{\alpha}f\acute{r}i\sigma\varsigma\alpha$, $\gamma\acute{\iota}\varsigma\sigma$.

3. Prothetic vowel

The definition is ‘initial vowel that is present or absent in (nearly) identical forms’; for we cannot say whether the vowel disappeared or was added under certain circumstances. Still another possibility is that it represents a kind of laryngeal sound, that was sometimes heard as a vowel and and sometimes not. The vowel is in most cases an $\alpha$-. The numbers by Fur. 368ff. are as follows:

$\alpha \pm 90$, $\omicron \ 10$, $\epsilon \ 5$, $\iota \ 3$, $\upsilon \ 0$, $\eta \ 6$, $\alpha \ i \ 2$.

(For $\upsilon$ I have excluded $\acute{\upsilon}k\alpha\nu\theta\varsigma\varsigma$ and $\acute{\omicron}\sigma\sigma\sigma\sigma\sigma\sigma$, for $\alpha \ i$ I have excluded $\alpha\iota\lambda\nu\nu\varsigma$, which is a cry, and which may have has $^*ai\upsilon\beta\rho$.) Note that - in general - $\alpha$ varies with $\omicron$, $\epsilon$, $\alpha$. Indeed we have cases where proth. $\omicron$ varies with $\alpha$; also for $\epsilon$ ($\epsilon\iota\kappa\lambda\kappa\kappa\kappa$ - $\alpha\iota\kappa\lambda\kappa\kappa\kappa$, $\acute{\epsilon}\upsilon\iota\varsigma$ : $\acute{\alpha}\psi\iota\alpha$). The $\eta$ interchanges three times with $\alpha$. $\alpha\iota$ interchanges once with $\alpha$, once with $\omicron$. Though not all other cases can be removed, it is clear that the phenomenon regards, originally, $\alpha$ only - which agrees with my assumption that the language had no $\epsilon$ and $\omicron$.

Exx. $\acute{\alpha}g\alpha\sigma\upsilon\lambda\lambda\iota\iota\iota\iota\iota\iota$: $\gamma\theta\upsilon\upsilon\lambda\lambda\iota\iota\iota\iota\iota$, $\acute{\alpha}k\iota\iota\iota\iota\iota\iota$: $k\iota\iota\iota\iota\iota\iota$, $\acute{\alpha}k\alpha\nu\nu\iota\iota\iota\iota\iota$: $k\omicron\nu\nu\iota\iota\iota\iota\iota$, $\acute{\alpha}x\rho\alpha\theta\alpha\dot{\iota}k\iota\iota\iota\iota\iota$, $\acute{\alpha}n\alpha\rho\iota\iota\iota\iota\iota$: $\nu\nu\iota\iota\iota\iota$, $\acute{\alpha}x\kappa\alpha\lambda\beta\kappa\kappa\kappa\kappa\kappa\kappa$: ($\sigma$)$\kappa\alpha\lambda\beta\kappa\kappa\kappa\kappa\kappa$, $\acute{\alpha}x\acute{\upsilon}n\omega$: $\kappa\upsilon\nu\nu\iota\iota\iota\iota$.

4. s mobile

A large number of words shows an initial $s$- before consonant, which is absent in nearly identical forms. It occurs before stop or $m$ (so not before $r$, $l$, $n$); the stop is mostly voiceless, sometimes aspirated. Fur. 390ff.

Exx. $\acute{\gamma}\ell\epsilon\nu\nu\varsigma$ / $\acute{\sigma}\chi\ell\iota\nu\nu\varsigma$, ($\sigma$)$\kappa\dot{\iota}d\acute{\alpha}\phi\iota\iota\iota$, $\kappa\dot{\iota}r\kappa\kappa\kappa$: $\sigma\kappa\iota\kappa\kappa$, ($\sigma$)$\kappa\rho\dot{\iota}\nu\lo\nu$: ($\upsilon$); $\beta\acute{\alpha}t\alpha\kappa\kappa\kappa$: $\sigma\pi\pi$; $\pi\ell\epsilon\lambda\theta\kappa\kappa\kappa$: $\sigma\pi\pi$; $\acute{\theta}\rho\alpha\tau\gamma\dot{\iota}\iota\iota\iota$: $\sigma\pi\pi$; $\theta\rho\iota\kappa\kappa\kappa$ ($\tau\gamma\chi\kappa\kappa$): $\sigma\tau\gamma\chi\kappa\kappa\kappa$; $\tau\theta\pi\iota\epsilon\iota\nu$: $\sigma\tau\theta\pi\iota\epsilon\iota\nu$: $\sigma\tau\mu\pi\pi\iota\epsilon\iota\nu$: $\sigma\mu\nu\rho\iota\nu\nu\iota\nu$.
(Uncertain is: σκυρίττω : ἀγκυρίττει.)

5. Variations: consonants

5.1. Voiceless/voiced/aspirated stop

This is the most frequent phenomenon. Furnée devotes a hundred pages to it (101-200). Examples: βύστακ- / βύσταγ; γέρσυμον / κέρσυμον; κτύπος / γδουπέω; ἀχάρνος / ἀκάρναξ; ἵσκλαι / ἱσχαλάω; κίχλη / κίγκλος; κρέμυς / χρέμυς; βλέν(υ)α / πλέννα; βροκός / πρόκον; καλαύροπ- / κολλόροβον; κυπάτης / κυβάλης; ἄγριππος / ἄγριφος; κύπρος / κύφερον; ὀμπνη / ὀμφύνειν; βασκός / φασκάς; κιναβεύσθαι / κιναφεύειν; σκολύβρα / σκολύφρα; ἀτράφαξυς / ἀδράφαξυς; καιάτας / καιάδας; κοντό / κονδός; βρθάκες / βρυτιγγοι; θρόνα / τρόνα; θρυγνώμα / τρυγνώμα; γέλγιθ- / γέλγιδ-; κόρυθος / κόρυδος; σπύραθος / σφυράθ-.

5.2. Prenasalization

Before a stop a nasal may appear. This 'prenasalization' is one of the most typical phenomena of Pre-Greek, and it is found very frequently.

Exx. Fur. 267-291. ἀχύνων / ἀγχύνων; γίγλυμος / γίγγλυμος; γοῦρος / ἄγγουρος; κάχρυς / κάγχρυς; κύχρομος (i) / κιγκράμας; ύσπληξ / ύσπληγξ; φάραγξ -γγος / (ἄ)σφάραγος; κολύβδαινα / κολύμβαινο; κορυφή / κόρυμβος; σαλάμβη / σαλάβη; τράφηξ / τράμπις; ἀτράφαξυς / ἀνθράφαξυς; κίδαφος / κινδάφη.

Often the nasal is followed by the voiced variant of the stop (Fur. 271 n. 16), but an aspirate is also often found (cf. -ινθοῶς). [Prof. Melchert notes that in western Anatolian voiceless stop became voiced after nasal, which could be due to substratum influence.] This was the reason that a sound law aspirate > voiced after nasal was assumed for (inherited) words in Greek (Schwyzer 333), which is incorrect.

A prothetic vowel (above B 3.) and reduplication (section C 1.) create the possibility for prenasalization; examples are given at the places indicated.

5.3. Nasalization

Nasalization is called the process whereby a stop is replaced by the nasal of its series, i.e. a dental by n, a labial by m. In the case of the velars, there is the problem that Greek had no sign for a velar nasal; the Greek spelling in this case could not distinguish between nasalization and prenasalization. The case of the labials (π/μ etc.) is discussed in the next section. The phenomenon is less frequent than prenasalization.

Examples for the dentals are (Kuiper 216; Furnée does not discuss the phenomenon): κίδαφος (κινδάφη) / κινδάδος; κιδαφεύειν / κιναφεύειν; κλάδος / κλάων (κλάωναξ); κάθος /
5.4. Labials, m and y

There are three interchanges: labial stop /μ/, labial stop /f/ and μ/f.

Labial stop /μ/. The variation is a case of nasalization discussed above (5.3). Fur. 203-227. The stop is mostly β.

Exx. ἀρβύλη / ἀρμύλα (n. pl.); βάρβιτος / βάρμιτος; βουρρός / μύρσος; κυβερνήτης / κυμερνήτης; κύμνις / κυμίνις; λυκάμας / λυκάμας; μάσκη/ βάσκα; μύσταξ / βύσταξ; σκόλυμος / σκόλυβος; στίμις / στίβις; φάρμακον / φόρβαντα; ἀπήν/ ἀμανάν (acc. sg.); σπάρος / σμαρίς; σφώραγος / σμάραγος.


Exx. τέθηπα, θάπος / θαύμα; κόβαλος / κοναλός; κασσαβάς / κασαύρα; κράμβος / κραῦρος; λέπας / λαῖς (?); σίβδα / σίδη.

The variation μ/f. Fur. 242-247. A difficulty here is, of course, that Greek mostly did not preserve a /f/, so that we often just find zero and the /f/ must be reconstructed, which gives uncertainties. - In this case we must perhaps reckon with a development μ > b. (On μόλυβδος, Myc. moriwodo see above).

Exx. βασμιν-άτης / βασμον-ιας; κρίμον / κρίνον; μέδιμνος / μεδιμνος; σίγυνος / σιγύνος. The evidence comprises 8 or 9 words in -μος. It is found six times word initially: μῆλον / ήλον; μονοβυλεύω / ονοβυλεύω; note μέροψ / ἀέροψ (είροψ), where the latter forms could continue *ά-φεροψ, *έ-φεροψ. Note further κύμος / κύμηχα < *κυμ-αμ-, *κωμ-ηκ-. A few other instances are less clear.

5.5 Stops varying with σ(σ) or stop + σ, τ

This kind of variation is quite complicated. I distinguished no less than 11 (or even 16) different types. They may be presented as follows (C = consonant):

<table>
<thead>
<tr>
<th>a. labials</th>
<th>b. velars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. C/Ct</td>
<td>π/πτ</td>
</tr>
<tr>
<td>2. C/Cs</td>
<td>π/ψ</td>
</tr>
<tr>
<td>3. C/sC</td>
<td>(π/σπ)</td>
</tr>
<tr>
<td>4. Ct/Cs</td>
<td>πτ/ψ</td>
</tr>
<tr>
<td>5. Ct/sC</td>
<td>κτ/σκ</td>
</tr>
<tr>
<td>6. Cs/sC</td>
<td>(ψ/σπ)</td>
</tr>
<tr>
<td>7. Cs/ss</td>
<td>ξ/σσ</td>
</tr>
<tr>
<td>8. sC/ss</td>
<td>σκ/σσ</td>
</tr>
<tr>
<td>8c. C/ss</td>
<td>κ/σσ</td>
</tr>
</tbody>
</table>
dentals

9. t/ss   τ/σσ
10. t/st   τ/στ
11. ss/st  σσ/στ

Interpretation. We are not concerned with stops simply extended with an s or t, as this would (mostly) not have led to variants; also extension with an s or a t, in further identical forms, would be linguistically quite strange. Also the fact that mostly exactly an s or a t is involved is a fact that must be explained.

The most complicated instance is 5., where we find κτ/σκ. As one might expect, the most complicated phenomenon gives the most information and can be best solved. One expects in this case a cluster with k, i.e. a consonant before or after the k; one of the two resulting clusters will then have had metathesis. As Greek had metathesis τκ > κτ (and no metathesis of σκ or ξ), we may assume that this worked here too. Thus we reconstruct for an earlier stage an interchange σκ/τκ. And this interchange can be easily explained by assuming a consonant, probably unknown to Greek, which resulted either in σ or in τ. This is of course a palatalized dental, i.e. a sound like [f]. E.g. ἀμυσγέλα / ἀμυγγάλη will have been *amul'gala, represented in the first instance as *amusgala or *amudgala, the latter giving *amudala. Thus Asklepios was called Ἄ(ι)σκλαπιός or Ἄ(ι)γλαπιός. I propose that he name was *At'klap-, giving *A(i)sklap- or *A(i)dglap-; in the latter form metathesis did not operate because *Agdlap- was not tolerated in Greek. Of course, often we will find only one variant. The strange feature or phoneme may also be dismissed altogether, as in δίκεῖν beside δίσκος and δίκτυον.

Now one might suppose that all variants in this group are due to a palatalize dental, but this seems less probable to me, as consonant clusters are rather rare, and notably as there are no suffixes beginning with a consonant (except n, r etc.). Of course, we may not be able to identify in each case what happened exactly. I will shortly review the 11 (16) types (I call the labials 1a etc., the velars 1b etc.).

1a. πτ may represent a single phoneme p′, as we saw in B 1.
Exx. (Fur. 315ff): γνυπ- / γνυπτ- (γνυπετ-); κολύμβαινα / κολύμβδαινα; κίβαλος / κίβδης; λύπη / λύπτα; without variants note κρόσσοφθον, σαρρυφθεῖν. (We saw that μόλυβος / μόλυβδος is irrelevant.)

1b. κτ is most probably explained like 5b, discussed above (so 1b is a part of 5b).
Exx. (Fur. 319ff): ἀρακις / ἀράκτην; μογέω / μοχθέω; πελεκάν / σπέλεκτος; ἄκακια / κάκτος.

2a. ψ may result from *ρτ. (It is remarkable that there is no 2b. κ/ξ, as ξ is unproblematic in Greek.)
Exx. (Fur. 324ff): βίττακος / ψίττακος (σίττακος); δέφω / δέψω(?); καβύιον / καψής; πῶρος / ψωρίτης.
3a, b. (π/σπ, κ/σκ) Both can come from *t'p, t'k.
(Fur. 295ff.): βέκος / βέσκερος; ίχλα / ίσκλαι; μάκελλα / μάσκη (βάσκη); μύκος / μύσκος; φάκελον / φάσκωλος.

4a, b. πτ/ψ and κτ/ζ can continue *pt', kt' and belong together with 2a, b.
(Fur. 263 A3): μόροχος / μόροξος.

5b was discussed above. Note that it is no surprise that there is no *πτ (5a.), as there is no regular metathesis *tp > pt in Greek; from *tp the t may have been simply lost. [However, a metathesis tp > pt may have operated in πτόλις.]

6a, b. (ψ/σπ, ξ/σκ). Furnée (393) simply considered the interchange as due to metathesis, which is of course possible. *sp, *sk can represent *t'p, t'k.
Exx. (Fur. 393): ἀσπινθον / ἀψινθον; ὄσφυς / ψύα.
Exx. (Fur. 393): ἵσχιον / ἵξυς; φούσκος / φοξός.

7b. ξ/σ. If ξ represents *kt', the k may have disappeared in other cases (which did not give ξ) after which *t' became σσ.
Exx. (Fur. 130 n. 59): κριξός / κρισσός; (Fur. 317): σίβδα / ξίμβα; (Fur. 286 n. 72): τραύξανα, τρώξανον / τραύισανον; ίξάλη / ίσκάλη (ισσέλα, ιτθέλα); Οὐλίξης / Όδυσσεύς.

8b. σκ/σσ can be explained parallel to 7b: *t'k > σκ, or with loss of the k, *t' > σσ.
I added 8c. for δάλαρχαν = θάλασσα. We have δάλαχ- (with prenasal.) / θάλασσ-, and I suppose that it had a *t'.

9. τ/σσ. This is the well-known element that gave σσ/ττ. Furnée does not discuss it under that heading, because his system is to discuss one phoneme ('letter') and its variants; thus he discusses σκ/κτ under κ/κτ. Also the situation is different as here we have a distribution among the Greek dialects. This is the only time, I think, where we can attribute the different renderings of these loan words to Greek dialects. But the fact that a foreign element was rendered in different ways is the same as with all other phenomena we discussed. Furnée has the heading (253) τ, δ, Θ / σ(σ), ζ; I think it can better be stated as τ (δ, Θ), ττ (τθ) / σ (ζ), σσ, i.e. τ with its usual variants δ, Θ; or the geminated ττ (with its expected variant τθ, which is the Greek form of geminated θθ) interchanging with σ or σσ; if the ζ was [sd] it does not fit in well. As to its interpretation, it could represent single *t', which was rendered ττ or σσ, or single σ, τ (the variant ζ would then fit in, but one would also expect a variant ττ). [Here again, however, it is difficult to decide between *c ?? or *κ' or *κ.']
10. $\tau/\sigma\tau$ may be from $*t\acute{t}$ giving $\sigma\tau$, or with loss of the $t$, $*t\acute{t} > \sigma\sigma$.
Exx. (Fur. 301ff): βαλλώτη / βαλλαύστιον [does this point to a $c\hat{\mu}$?]; μάτρυλλος / μάστρυλλος; μύτις / μύσταξ; πατίλη / παστίλη.

11. $\sigma\sigma(\tau\tau)/\sigma\tau$ can be $*t\acute{t} > \sigma t$, or with loss of the $t$, $*t\acute{t} > \sigma\sigma$.

As we saw it is very difficult in each case to indicate exactly what happened; on the other hand it is clear that with few assumptions probably all variations can be understood.

5.6 Velar/labial/dental: labio-velars
There is limited evidence for variation velar and labial, velar and dental, and between labial and dental; and between all three classes (Fur. 388ff.). We find:

\[
\begin{array}{cccc}
\kappa/\pi/\beta & \kappa/\tau/\delta & \pi/\tau \\
\gamma/\beta & \gamma/\delta & \beta/\delta & \gamma/\beta/\delta \\
\chi/\phi & \phi/\theta & \chi/\phi/\theta
\end{array}
\]

It is remarkable that mostly the variants agree in voice/aspiration (this shows that there is a large degree of regularity in these variations).

Exx. $\kappa/\pi$: κλάνιον / πλανίς; $\gamma/\beta$: βράκαλον / ρόπαλον; γλέ πω / βλέ πω; χάλις / φαλικρόν.
$\kappa/\tau$: άσκάνδης / άστανδης; $\gamma/\delta$: γάλατμον / αδαλότμον.
$\pi/\tau$: βαπαίνει / βαταινεί; $\beta/\delta$: σάμβαλον / σάνδαλον; $\phi/\theta$: γυμφαί / γυνύθος.
$\gamma/\beta/\delta$: γέφυρα / βέφυρα / δέφυρα;

It is tempting to assume labio-velars in these cases, but some cases may have a different origin (βράκαλον / ρόπαλον could be just dissimilation in the first word). On the existence of labio-velars see above on the phonemic system.

5.7 Dentals / liquids
There are some instances of variation between dentals (including $n$) and liquids ($l$, $r$), and between liquids. These variations are incidental. We find:

1. $\delta$, $\tau$, $\theta$, $w/\lambda$; 2. $\delta$, $v/\rho$ and also 3. $\lambda/\rho$

[δ/λ and the fact that Mycenaean has signs for $la$, $le$, $li$ etc., which Lejeune explained by assuming a specific, unusual sound $d$, might point to a dental fricative, $l$.]
$\theta/\lambda$: θάπτα / λάττα; $w/\lambda$: νίτρον / λίτρον.
2. $\delta/\rho$: σίβδα / ξιμβρα. $v/\rho$: βλῆχνον / βλῆχρον.
3. $\lambda/\rho$: ἀζηρίς / ἀζηλίς, κρίβανος / κλίβανος, κρώμαξ / κλώμαξ.
5.8 Simple / geminate

Beside a few isolated cases we find this interchange in w/wv but notably in λ/λλ. On τ/ττ and σ/σσ see above 5.5. Fur. 386f.

Exx. w/wv: ἀνῆθον (τ) / ἀννηθον (τ), τμενίς / τηβεννα. Note the suffix -υνν-. 
λ/λλ: βαλ(λ)ήν, θυλίς / θυλλίς, σπέλθεσ / σπέλληξι (dat. pl.), μακέλη / μάκελλα (so this will be -αφα-).

Note γείσ(σ)ον, σάρίσσα / σάρισσα.

Note the case of (‵Αθήνη) - ′Ατθίς - ′Αττικός.

5.9 σ- / zero

We discussed σ / zero before consonant, under ′s mobile′, above section B 4.

An -s- from Pre-Greek is normally maintained. The only instance where it may have disappeared I know of is (Fur. 241) σύρχος, σύρισσος / ύριχός (-ισκός, -ισχός, -ισσός); συβάλλας / ύβάλλης; σαγήνη / Κυρρ. ἀγάνα; σιπή / ἵπυα. Perhaps ′Ελλάς beside Σελλοί belongs here. Another instance seems ἀπιον, which is cognate with Lat. pirum which points to -pis-. [Prof. Ruijgh points to Λίγυ-επ < *Λιγυς-ες, cf. Λιγυστικός.]

5.10 K-, T- / zero

There are instances where a velar or a dental may be absent in initial position (Fur. 391, and 131 n. 59). Dentals may also be absent in inlaut.


γ / zero: γίνος / ἰννός but this form may be a late development).

As an explanation one could think here of a uvular, q.

τ / zero: τάχγραφος / ἀγχραφος, τήγανον / ἢγανον, τίφυν / ἵφυν (with ἵ);

δ / zero: δελεδώνη / ἐλεδώνη (ἐ-).

Loss of the dental in inlaut: νέτωπον / νίωπον, ἵθουλίς / ἰουλίς, ἀσίδαρος / ἀσίαρος. (This is reminiscent of Dutch neder > neer etc, which was a normal sound law.)

5.11 ν-, λ- / zero

ν- and λ- can also be absent (Fur. 391f):

νάφθα / ἀφθα (ἀ-).

λαιψηρός / εἰ ψηρός, λαμπήνη / ἀπήνη, λατμενεία / ἄτμην.

Of a different type is γνάμπτω / κάμπτω

Perhaps it concerns palatal n, f, which are pronounced very ′light′.

5.12. Metathesis, aspiration shift

There are instances of metathesis. It mostly concerns ρ, sometimes λ. The consonant changes to
the other side of the vowel or the consonant:
κιρσόζ / κρισόζ, κριξόζ, τέρμινθος / τρέμιθος. Cf. Τερμίλαι / Τρεμίλαι.
ἀρπίξ / ἀπρίξ, κέδροπα / κέρδοπα, νάθραξ / νάρθηξ.
It is mostly unknown what the original configuration was. (In a case like ἐρβως / εὐρως, where 
β may stand for - or continue - ἕ, I would think that the ἕ was anticipated. It may concern an
original ἕν.)

The cases of σ/ψ and σκ/ξ are discussed in 5.5. above.

Aspiration shift is sometimes found: θριγκόζ / τριγχός, ἀθραχένη / ἀνθράχνη. In the
case of φάτνη / πάθνη the metathesis seems to have occurred late in the history of Greek
(Beekes in Bammeberger-Venneman, Languages in Prehist. Europe).

5.13 Secondary phonetic developments

1. We may assume secondary phonetic developments, either in Greek or perhaps already
in the original language. One might consider:
βδ > βρ: βδέλλιον, βρέλλιον (Fur. 308)
βδ > βλ: βδαροί, ἀβλαροι. For this case cf. 5.7b δ/λ.
γδ- > δ-: γδούπος, δούπος
δν > γν: δνόφος, γνόφος
κμ- > μ-: κμέλεθρον / μέλαθρον,
ψ- > σπ-? ψενδυλ-? / σπονδύλη. See 5. above.
ψ- > σ-: ψέφας / σεῖφα, ψίττακος / σίττακος; cf. Ψαπφώ, Σαπφώ

2. α > o before following υ. The a was clearly pronounced a little higher before the u,
which resulted in [á], which was written ο.
ἀξουγγία > ὀξύγγιον, καλύβη > κόλυβος; *σκαραβ- (κάραβος) > σκορόβυλος;
δορύκιον for *δ(α)ρυκν-.

5.14 Other variations.

There are a few instances with - isolated - puzzling variations. I mention just one, the
word for 'night', where we have ψέφας, κνέφας, δνόφος, ζόφος. I think that in some of these
cases the solution may be found in a cluster. E.g. Carian allows an initial cluster kbd-. Such
clusters would have been simplified in Greek. (In IE we have the parallel of Lat. pecten, Gr.
κτείς, supposed to continue *pkt-.) If we assume in our example a cluster *kdn-, it may have
been reduced to kn- or, with loss of the first consonant, to dn-. (The process is of course the same
as the reduction γδ- > δ-, above 5.13.) Such variant simplifications are typical of loan words. In
this way we could connect two of the words; but I see no way to connect the other two.
6. Variations: vowels

6.1 Single vowels (timbre)

The vowels show many variations. I will discuss them in the following order: first a, then e and o; and within each of these groups first the short vowel, then the diphthongs, then the long vowel (and the long diphthongs, but these hardly occur). Note that a variation x/y is not repeated under y.

1. the vowel α.
1a. α/e has 80 occurrences in Furnée’s material (347).
Exx. ἀγχουσα / εγχουσα, ἀρυσος / ερυσος, γάλινθοι / γέλινθοι, ζακελτίς / ζεκελτίς, καϊατα / καιέτας, κάμπος / κέμπορ, κάχρος / κέγχρος, σάνδυξ / σενδούκη
1b. α/o. These vary also very often. Fur. 339 mentions that he found 80 instances.
1c. α/αι Fur. 336ff. ἀκραυφής / ἀκραυφής, ἀσύφηλος / ἀσύψιφος, λάγματα / λαίγματα.
The i here indicates the following palat. consonant
1d. α/αυ. Fur. 302 n.37. καναύστρον / κάναστρον, μνάσιον / μναύσιον; ἄλοξ / αύλαξ. In the last example the u is due to the following labialized i: ἰα
1e. α/ω κλάδος / κλανάξ.
The ει is due to teh following palat. cons.
1g. αυ/ευ. Fur. 353 A5. λαυκανίη / λευκανίη, πέταυρον / πέτευρον; αύλαξ / εύλάκα.
1h. αυ/ω, o. Fur. 301 n. 32. κασώραδες / κασωρίς, θαύμα / θώμα, σαύσαξ / σώσικες, βαύκαλον / βοίκος, καλαῦρον / κολλάροβον.
1i. αι/α Fur. 338. λήθαργος / λαίθαργος, ληκάω / λαικάζω, πήγανον / φαίκανον.
1j. α/α: λάδος (λήδιον) / λάδος (λήδιον)

2. the vowel ε.
2a. ε/α see under α.
2b. ε/ι Fur. 355ff. βλίτες / βλέτες, εβίςκος / ιβίςκος, δέπας / Μυς. dīpα, ἐντυβον / ἦντυβος, κελλόν / κελλίξ, κελλίβας / κελλίβας, κύτες / κύτισος, λέψος / λίσπος (φ). The ε was not phonemically distinguished fom i, and they were phonetically close.
2c. ε/ι/ο. Fur. 354 n. 55. κεφράμος / κίχραμος (κιγκράμας) / κύχραμος.
2d. ε/ευ Fur. 115. ἀργετος / ἀρκευθος
2e. ει/αι see αι.
2g. ει/ε see ε/ευ.
2h. ευ/ευ see αυ.
2i. ε/η Fur. 358 n. 42. ἐνυστρον / ἦνυστρον, μέρμερος / μέρμηρα, ψάκελον / βάκηλον,
μήδεα / μέδεα (μέξεα); Πηλαγόνες / Πελαγόνες.

3. the vowel o.
3a. o/α see α.
3c. o/υ. Fur. 358ff. ολονθός / ολυνθός, σκολοβρέω / σκολυβρός, σκύτη -κόττα, κυδώνιον / κοδώνεα, κυρσέις / κορσίς, πρύτανις / πρότανις, τοπείον / στυπείον. ο and υ were phonetically very close and phonemically not distinguished (cf. έ: η).
3d. o/ου: Fur. 359 βρόκος / βρούκος, κολοτέα / κολούτεα (λυ, λω).
3e. o/ω. Fur. 279 γνοτέρα / γνωτέρα, κολλόροβον / κολλόροβον, φασίωλος / φασίλος (ούλος), ὄρυγγες / ὄρυξ -γος, ὠσχοί / ὠσχή.
3g. ο/ου. Fur. 358 + n. 65. κολοτία / κολοτία (κολοτέα), ψούδιον / ψοϊθής?
3h. o/υ Fur. 120 n. 29. κτύπος / γθουπέω, κρούναι / γρύνος.
3j. ο/η, θραναξ / ἄνθρηνη.
3k. ω/υ. Fur. 302 n. 35 ζψηγος / ζψυγος, ώσσωπος / ίσσωπος, λοβεύω / λυβάζειν.
3l. ο/ε. γοργυρα / γεργυρα.

4. ι/υ. There is some variation between ι and υ. I do not know how to interpret this.
[Prof. Melchert points out to me that an interchange i/u is sometimes found in Anatolian; as in kiklu/ipa- ’steel’, isqaru/ih); see his Anat. Hist. Phon. 178.]

5. υ/ε. γυργαθός / γεργαθός

The behaviour of the diphthongs may be summarized as follows:
αι - ει and (vice versa) ει - αι
αυ - ευ, ω ευ - αυ
further οι - υ, ου ου - υ, οι, ω

All these variations are perfectly understandable in terms of adaptation from a three-vowel system.
6.2. Long/short

I doubted whether Pre-Greek had a distinction of long and short vowels (see B 1). We do find η and ω, but not often, and the latter has several variants. On the other hand, the variations ω/ο and η/ε are not very frequent (in this case also the difference in timbre may have been important, depending on the Greek dialect). Variation between long en short ι and υ is frequent, especially in suffixes: γήθεον / γάθσιν, κύβεσις / κύβεσις, θίβης / θίβις, κρίμινον / κρίμινον, θρίναξ / θρινάκη, ψημύσιον / ψημύθιον, σπονδύλη / σπονδύλιον. Cf. κάραμβος / καράμβιος (cf. κηραφίς), φενάκιζω / πηνηκίζω 'deceive'; Ωγην(-)/ Όγεν(-). γνοτέρα / γνωτέρα.

There is some evidence for short + CC : long + C: μῦκος / μύσκος; Λάρισα / Λάρισσα; and see B 1 on -ις, -ιζ.

6.3. Single vowel / diphthong

There are several instances where a diphthong varies with a single vowel. They can be found above (6.1). Most frequent is α/αι, but here we see the effect of a following palat. cons. We further find α/αι, ε/ει, and ου/υ and οι/ι. In two cases we find diphthong / long vowel: α/αί, ει/η. Examples were given above.

6.4. Rising diphthongs?

Relatively frequent are sequences of a more closed vowel followed by a more open one, sequences that are not found in IE. They would be rising diphthongs if they formed one syllable, but in fact we may have to do with two syllables:

εαι: σεάιγάν (στι-, συ-)

ιαί: βατιάκη, θίασος, θριάμβος, σίαλος, φιάλη, φιαρός. Note σιάγαν (σε-, συ-).

ιοι: ιογή

υαί: βρυαλίζων, γύαλον (γυε-), κύαμος, πύαλος, πύανον, συαγρίς,

υε: γαέλιον (γύαλον), πύελος (πυε-)

Remarkable is also the sequende -ου-:

ουι: πούν(γι)ζ, μούς?

6.5. Secondary vowels (or elision)

Sometimes words show a vowel which is absent in near identical forms. It mostly concerns vowels between a stop and a resonant. It is often not clear whether the vowel is secondary, or its absence.

C. MORPHOLOGY

1. Reduplication

Some forms seem to have reduplication (often we cannot demonstrate that it is reduplication). Most frequent is partial reduplication, where only the first consonant + a vowel is repeated. The vowel is mostly e or i.

Exx. βέβραξ, βέ(μ)βρος, γάγγαμον, γαγγλίον, γαγγράίνα, γίγαρτον, γιγγλυμος, κί-κυβος, σέ-συφ-ος / Σίσυφ-ος (cf. ἀ-σύφ-ήλος); με-μαικύλον (μι-); νενίλης; σέσελι(ζ); σίσφα (-υνα); μεμβράξ?; perhaps κίκυμος, κίκραμος (κε-, κυ-, κιγ-); δενδρύω. Cf. Κέκρος; Πεπάρηθος, Τιταρήσιος; here also Λέ-λεγες? With prenasal. τενθρη-ων, τενθρήν-η cf. Ανθρηδών, Θρόναξ. Other vowels in: λάλαμις (cf. λαλαψ); κο-κρύς; also γηγήλιξ?. Reduplication of a syllable in: μόρμορος (μορμουρία), μαρμαρυγή. More difficult are: γέλιγις: ἀγλίτις (< ἀγ-γλ- : ἀ-γλ-?), κέρκα: ἀκρίς (< ἀκρ- : ἀ-κρ-?). Also Μεμβλίαρος: Βλίαρος (cf. μεμβράς)2; Μεμβλίς = Μέλος, also Μιμαλίς.

A completely different type perhaps in ἀμ-ἀμαξος, cf. ἀμαξίς; also ἀμαμιθάδες?

2. Suffixes

Introduction

It seems to me that most suffixes have the same structure. They contain a consonant; if this is a stop, it can be prenasalized, i.e. β - μβ, θ - νθ, etc. The stop, of course, has its usual variants, β/π/φ etc., though mostly one of these is dominant. Then the group is preceded by one of the three vowels of the language, i.e. α, ι, υ. In this way we find e.g. αγγ - γγγ - υγγ, ανθ - νθ - υνθ etc.

A different structure have the suffixes with ν (+ vowel) following a consonant: e.g. κύνος, πισάκνα, μόλυχνον, φενακνίς, σαταρνίς. In this way the groups ρν, δν, κν, μν will have arisen. With μν we find again the three vowels: -αμν-, -ιμν-, -υμν-, so this is almost certainly αι/υμ-ν. The well known groups -μμ- and -ρμ- then can be explained in this way as essential elements of this language. (See also on the suffix -ρν-) These groups are very important as they are found in Etruscan, which further shows little agreement with our language; mn is found as far as Cappadocian (Beekes BiOr 2002, 441f.). Did the groups ανν, 1νν, ωνν also arise in this way? Also other sounds are found in this position: -ρ-, -δ-, -γ-, -λ- (rarely): ψυδρός, κυρίθρα, παναγρίς, φάλακρος; σκαπέρδα; λάθαργος; ὄνυγλιν. (Note μόλυβδος, which seems to continue moliw-, Beekes).

Probably the character of the consonant can be seen. Thus -ανν- could render -αρν-, while αλτ seems to have resulted in αλλ (or -ελλ- with colouring). Thus ειρ could come from αρν, air becoming eir. A nice confirmation could be αυρ, if this represents αρν (cf. αύροσχάδες beside ἀρασχάδες, if this form had *αρ-). Cf. B 1.

Another type of suffix has σ followed by a dental: κάνασθον (-στρον), λαιστόν or another stop ἐνθρυσκόν, αύροσχάς, κανναβίσκα; these forms may have been partly adapted to
Greek suffixes (-τον). See below on the suffix -στ-.

A form like -ευτ- is deviating; we do not often find a diphthong before the consonant. Does it stand for *-aut- from -atw? Cf. -aiυ- in ἕλαιον, where we may suspect ayw or awv (but it may be part of the root). See on B 1.

Not seldom we find long and short vowel with a suffix (= consonant), e.g. ιθ - Ἧθ, οκ - ὅκ. In the case of ὅρ one might think again of ur’ > uir, though r is a rare phoneme (like m').

**SURVEY of the suffixes**

In principle we find the three vowels + a consonant, and a (pre)nasalized consonant:

- α, i, u + P, T, K
- + nas + P, T, K

The groups actually found are in Greek letters (in brackets rare/less often):

1. 2. 3. 4. 5. 6. 7. 8. 9.
   - aNP ομβ (αιντ) ονδ ονθ ογγ
   - iNP ονδ ονθ ογγ
   - uNP ομβ (υντ) ονδ (υνθ) ογγ

So we do not find 1. VNπ and 3. VNφ; 7. VNκ 9. VNχ. [δελαγχαν;]

In the same way we find vowel + C. The consonant may have the normal variation: plain, voiced, aspirated which did not make opposition in Pre-Greek. A palatalized cons. would colour e preceding (and a following) /a/ to [ε], which may also appear as ει, with an i indicating the transition to the consonant; such an i is often seen in languages with palatalized consonants, like Russian en Irish. So we find -αρ- as -ειρ-; also -αιρ- is possible (the transition to ε not being indicated). A palatalized l (F) may be rendered as geminate, ρλ.

If a labialized consonant followed (or preceded) an a, this may have been heard as [o]. Thus -αρ- may be represented as -αυρ-, with anticipation of the labial element, or as -ουρ-, when the a was also coloured.

The consonant may be geminated; as there is frequent variation between single and geminated, the may have been no opposition.

Vowels may have been short or long; in suffixes a long vowel was quite frequent. A long ù may have been represented as ου; it is difficult, if not impossible, to demonstrate this.

**The Material**

The examples are mostly taken from Furnée, to whom I refer for details. Words can also be checked in GED. In brackets variants are given. I added geographical names (GN) from Fick, Vorgr. Ortsnamen (+ more material, w. ref. to pages).
1. -αβ- (Fur. 107)
\[\text{αγράκαβος, αλ(λ)άβης, αραβος, ασκάλαβος, απτέλε/αβος, κάκκαβος, κάνναβος, κάραβος, κόλλαβος, μέσ(σ)αβον, λατραβός, μάτταβος.}\]
GN Καπτάβιος (Rhodes 47), Κάσταβος (Caria)

2. -αγ-
\[\text{άρπαγ-; cf. Cha. Form. 397ff.; λάταξ; ούραξ}\]

3. -αγγ-
\[\text{σφάραγγος.}\]

3a -αγγ-
\[\text{δαλάγχαν}\]

4. -αθ-
\[\text{άρασχάδες; μεμβράς; σπυράδ-}\]

5. -αθ-
\[\text{άσπαλαθος, γυργαθός, σπύραθ-οι}\]
GN Υρνάθον (Epidauros)

6. -αι/-ε(ι)- (See also 6b.)
There are words in -αι/-ε(ι)α, like γρυμέα/γρυμεία (or γρυμείια/γρυμαία (note the hesitation in the accentuation). Frisk notes "die Bildung hat kein näheres Gegenstück." I suggest that the suffix was -αγ- (a), which was pronounced [-αγ-α, -ε-α] (we saw that ει often varies with αι); the suffix was identified with Gr. αι or ει (before vowel), but the -e- could also be lost; in this way the three variant forms can be explained. Further we have κολοτεά/κολ(ον)τεά; κορχυρέα (κορκόνρε Η. is prob. an error); κώδεια/κώδεα [note the short α] (κώδυα/κωδία) are not clear to me; but cf. Αμάθωια/Αμάθεια).

I wonder whether this can give the solution for γη (<γα)/γαιά: from *gaya the i was retained or lost (as in -αι above), which gave gā. (The i-less rendering, which gave -aa- > -a, being as old as the rendering γαιά; this means that the ā became η Attic, not α as in the result of later contractions Another question that might be solved in this way is Athena’s name Αθηναίη. I always found this form, supposedly derived from the adjective, rather strange, as well as the coexistence with Αθήνη (Homer uses both forms). The last form is often explained as a development from the form in -αια, according to an Ionic-Attic rule αι > α; however, this rule is unclear: "Aucune explication satisfaisante n’a été donné jusqu’ici de ces faits." Lejeune, Phonét. 1972, 247. And it is impossible, as the rule, supposed to be Ionic-Attic, i.e. post-}
Mycenaean, as Mycenaean already has At(h)änā (potnia) [the interpretation as gen. Athānās is to be rejected]. Note that Λά is also already found in Mycenaean (in the Thebes tablets, Ma Ka). [I hesitate to add Μᾶ - Μάια, as one generally considers Μᾶ as primary.]

I further think that this *ay-a is the same suffix as -εια which makes feminine names, Αμάλθεια, Πηνελώπεια, Ιφιμέδεια. Ruijgh also assumed that this suffix was Pre-Greek (Etudes § 212 [Prof. Ruijgh wrote me however that he abandoned this view.]). (Note that in Myc. Ipemedeja the -j- is preserved; cf. Ruijgh, El. Achi. 155 n.3.) - There are of course many place names in -εια: Καδμεία, Καλαυρέια, Κερύνεια, Μίδεια, Σκελερδεία, Λεβάδεια etc.

Often the final was adapted to -αία (with long α) after the dominant type, derived from the adjective in -αιος (Chantr. Form. 91, type ἀναγκαίη; [Chantr. speaks of "Le suffixe fémin. -ία" but that has a short α]); cf. βρυκταία, διρκαία, σφαιρία.

We also find -εια used in nouns: δαυρεία, ζαλεία, κουλβάτεια, ...

Nouns with -εο- are very rare; we find: γαλεός, είλεός, κολεόν, νικύλεων, συφεός(?), φωλεός. Further it may be found in Ὀκέανος < *-kay-an- (there was probably no /e/, and the hiatus is also remarkable; note the forms Ωγη, Ωγεν-).

Beside -αια, εια we may expect -αιος/ν we find it e.g. in διρκαιον, σπήλαιον, ψιφαίον, γραψαίος, (*σκαραβαιοςreconstr. by Fur. 169), ... (See also 7.)

κομβ/πο-θηλ-εια/-αια; κέςκεν; ἐλέα/ἐλεία/ἐλαιος; ἡλέος

7. -αι(ν)-o- (Fur. 233 n. 22, 255 n. 32. Partly from -αιο-; it is often impossible to establish whether a form had a φ or not.) See also 6.

άκυλαιον, ἀραιός, βαραίος, βαλαίον, διρκαιον, ἔλαιον (Myc. era/tawo), μάταιος, μεσσαίον, σίφαιον; Ἀχαιφός.

GN Αστυπάλαια (58)

8. -αιβ-

GN Περραβοί (Thess.)

9. -αιθ-

GN Σύμαιθα (Thess.), Περαιθείς (Arc. deme), Κελαιθείς (Thess. deme), Κυναιθείς (Arc. deme)

10. -αιν- (Fur. 171 n. 117)

άκαινα/ον, βολίταινα, γάγγραινα, κολύβδαινα (-υμβ-), κορύφαινα, μύραινα, σμύραινα, τρίαινα, φάξαινα. φάλλαινα, φάκαινα.

11. -αιρ- represents -arp- with palatal. r

κύπαιρος (-ειρον, -ηρις, -ερος).
12. -ακ- (Fur. 158 n. 64)
άβυρτάκη, αύλαξ, βατιάκη, ἐριθάκη, δόναξ/δῶναξ/δοῦναξ, θρινάκη (θηνάξ), θόραξ -ης, -ἀκ-ος, καυνάκη, θυλάκη, πιστάκη, φάρμακον.
GN Ζάραξ, -ης (Lac.)

13. -αλ(λ)- (Fur. 254 n. 28), Beekes FS Kortlandt
Exx. ἀρύβαλλος, αἴγιθαλ(λ)ος, βύσσαλος, κόκκαλος, κορύδαλ(λ)ος (-ός), πάρδαλος.
[Prof: Melchert suggests that these words may have been taken from IE Anat. languages, where -alla- is very productive. I think that it was PrGr-Anat., as it is frequent in Greek; cf. on τολύπη in the introduction.]
GN Κασταλία (Phoc. source), Φάρσαλος, Στύμφαλος (Arc.),

14. -αμβ- (Fur. 184)
διθύραμβος, θριαμβος, ἵαμβος, καράμβας, σήραμβος.

15. -αμν- σφένδαμνος.
GN Σέδαμνος (Crete),

15. -αμ- ἄρταμος.
GN Κίσ(σ)άμος (Kos), Πέργαμον, Κώγαμος (Lydia), Κύαμον (M Kydon), Ὁδραμος (Kydon.)

16. -αν-
GN ἰάρδανος (R Crete, Elis), Ἀπιδανός (R Thess.), Ὑριδανός (R), Κάντανος (Crete), Ἀνδανός (18), Δράκανον (Kos, Ikaria),

17. -ἀν- γεντιανή

18. -ἀνδ- ἀσγάνδης.

19. -ανδρ- γελανδρόν
GN Τήλανδρος (51), Τύμανδρος (Pamph.), Μυῖανδρος (53), Φολέγανδρος,
20. -ανθ/τ- (Fur. 191 n. 35; 216 n. 71. -αντ- unless otherwise stated)
άλιβας, ἀσκάνθης (σκάνθας), κιλλίβας (but κελλίβατ-), ὀκρίβας, φάλανθ/τος,
Ἄβαντες, Μέλανθ/τ-, Πειρανθ/τ-, Ἄνανθ/τ-, Γίγαντες, Κορύβαντες.
GN Βαφράντιον (Chios), Αμυκλαντ-, Λήλαντος (Eub.), Ἐρύμανθ/τ- (Arc.)

21. -ανν-
tύραννος.

22. -αξ-
-αξ-; cf. -ιξ-, -οξ-,
ἀμαξα, ἀτράφαξς, σαβάξας (κτ),
GN Κυρτάρπαξον (Crete), Δανάρπαξον (Crete),

23. -απ- (Fur. 235 n. 31)
ἀρναπος, γαυσαπός, μόναπος.
GN Μεσσαπ-ιος (Crete 24)

24. -αρ (Fur. 134 n. 75: mostly neuters)
ικταρ, κύδαρ, νέκταρ, σκίναρ, σφαρ; ἀφαρ(?); adj. μάκαρ; anim. ὀαρ, δάμαρ (gen. -ρτος;
Myc. dama / duma).

25. -αρ- (Fur. 257 n. 36)
ἀσκαρος, βασσάρα, βάςσαρος, γάδαρος, γίγλαρος, κίσθαρος, κύςσαρος, κύτταρος,
λεσχάρα, φάλαρα. Also σίδάρος?
GN Ἄπαρα (Crete, Lycia), Πάταρα (Lycia), Πίναρα (lycia), Μέγαρα (75),
Ἄλλαρία (Crete), Κυαρία (Caria)

26. -ασ- (Fur. 157 n. 57)
κάρπασος, κραύγασος, καμιασος (κάβαισος), πάγασα.
GN Κύρβασα (Crete), Μέδμασα (Crete), Πήδασα (Mess.), Πύρασος (Thess.),
Παγασαι (Thess.)

27. -ασσ-
GN Ρυτιασσός (Crete), Κρυσσός (Crete), Μυκάλησσός Ταφιασσός (32)

28. -ατ-
ἀπάτη, ἥλακάτη,
GN Καίρατος (Crete), Μίλατος (Crete 27),
29. -σύρ- this may continue -ar"-
(ἄ)φαυρος, φλαυρός, (ἄ)μαυρός, ἀγλαυρός, θησαυρός, κασαύρα (-ας), λάσταυρος, πέταυρον (ευ);
GN 'Επίδαυρος.

30. -αχ-
βότραχος, κύμβαχος, σελάχος

30a -αψ-
λυκαψός, σκινδαψός

31. -γδ-
ἀπριγδα (adv.).

32. -γρ- (cf. on -ρ-)
παναγρίς, συαγρίς

33. -εδ-
GN Τένεδος, Λέβεδος. (Λακεδαιμών?)

34. -εζ- see -ις-

35. -ειρ- may continue -ερ"-, -αρ"-
οίγερος, κύπειρον, σάβειρος (σαπέρδης); Κάβειροι.

36. -ελ- (Cf. the next)
Exx. ἀμυσγέλα, ἀσφόδελος, βρίκελος, δρύσελα, (ἐπι)ζάφελος, θικέλιον, ἱτθέλα, κύβελα, στυφελὸς (στύφλος), δυσπεμπελος?

37. -ελλ- (Cf. 27 -ελ-)
ἀκρόσπελλος, βάτελλα, βδέλλα, πάτελλα, πέλλα.

38. -εμ- (Fur. 151 n. 42)
ιάλεμος (ᾱ), κοάλεμος (ᾱ), π(τ)όλεμος (or IE?), θελεμόν.

39. -εμν- (Fur. 151 n. 44)
ἀμφι-κέλεμνον, Καρτεμνίδες.
GN Σέλεμνος (95)

40. -env- (I wonder whether "η could give vv)
tίβεννα. Cf. βλέννος.
Cf. Lat., from Etruscan, (doss-)ennus, Porsenna.

41. -er-
dιφθέρα, ἀσκέρα (-ηρα), κασσίτερος
GN’ Ωλερός (Crete)

42. -ετ- (Fur. 115 n. 4)
καιετός, καίπετος, μάσπετον, νέπετος, τηλύγετος?
GN Ξυπέτη (Att.), Ταλετόν (Lac.), Ταυγέτος,

42a. -eψ- as in nom. -εψς
βασιλεύς; several PN’s: ’Αχιλ(λ)εψς, ’Οδυσσεύς

43. -ευρ- see -αυρ-.

44. -ευτ- (Fur. 173; 181 n. 7)
βασκευταί, κρατευταί.

45. -ηβ-
kύρηβος.
GN Κάνδηβα, Τένδηβα, Τορρήβος all in Lydia.

46. -ηθ-
GN Πεπάρθος, Σεσάρθος (67), Κικύνθος (Pagas.), Κάνθος (M Chalkis), Αίνθος (M 68), Πάρνης, -ηθ- (Att.). Cf. -αθ-.

47. -ηκ-, -ηχ- (Fur. 199; 245 n. 70)
βήρης, δάνδης, κύβης, λώβης, νάρθης, πήλης, τράφης, φήλης; κύμης / κύμμης.

48. -ηλ- (Fur. 115 n. 5)
ὀβρόκηλος, ὀβύρβηλος, ἀρβήλος, ἀσύφηλος, βάκηλος, θάργηλος, κάβηλος, κάπηλος, κιβόδηλος, κιχήλα, νενίλος, τράχηλος, φάσθηλος.
GN Κυδρήλ-ειοι (Kos), 'Υδρήλα (Caria)
49. -ήν (Fur. 172 n. 118)

άδην, ἀτμήν, ἀτταγήν, αὐχήν (ἀμφην), βαλ(λ)ήν, δοθήν, ἐσσήν, καμασήν (-ασός),
κυφήν, σειρήν, σωλήν, ταγήν, τιβήν.

GN Θηρήν (Crete ++31, 63), Τροίζην, Ἀραδήν (Crete)

50. -ην-

γλαβρήνη

51. -ηρ-

σπινθήρ; Αἰγλάρη?

GN Ποθηρεύς (Crete), Κύθηρα

52. -ηρ- (Fur. 204 n. 10)

ἀβδήρα, ἀνδήρα, αἵηρός, ἀσκάληρον, ἀσκηρά (-έρα), μύκηρος; ἁμβηρίς, κύπηρίς,
λεβηρίς.

53. -ης(ς)- Cf. -ας-

GN Μάρπησσα (M Paros), Μυκαλησσός (Boe. +80); Ἀρδητός (Att.), Ἰμηττός (Att. +85)

54. -ητ- (Fur. 172 n. 118)

ἀλ(λ)άβης, κάνης, κόνης, λέβης, μάσθης, μύκης, τάπης (Myc. tepa). Here also:
ἀν(ν)ητον (-θον, -σον)?

GN Μάσητα (71), Μύης, -ήτος (Caria)

55. -ηττ- see -ηςς-

56. -ης-

GN Αἰδηψός (Eub.), Γαληψός (Thrac.)

57. -θ-

See Cha. Form. 368; cf. -νθος.

βρένθος, κανθός, σπέλθος, μίνθος,

58. -θρ-

κύριθρα, μάραθρον; GN Λίβηθρα R.

59. -ιβ-, -ιβ-
ερυθίβη

60. -ιγ-
μαστίγ-, πεμφίγ- 'bladder'

61. -ιγγ-, -ιγκ-, -ιγχ-
αστλιγγας, βρυτιγγοί, έλμιγγος, θρίγγος (-ιγκ-, -ιγχ-), θωμιγγ -γος, ολιγγος, σάλπιγγ.

62. -ιδ-; cf. -ινδ- (Fur. 324 n. 7)
βαλβίς, γελγίς, κηλίς, κρηπίς, σφράγις

63. -ιδ-να
This will be a combination of two suffixes. Cf. on -ν-.
άράχιδνα (cf. άρακκος, -χ-)

64. -ιθ-, -ιθ (cf. -ινθ-)
άγλις -ιθ-, αί γιθαλος (short i), αί γιθος, ασπίθον, γάλθιοι, ερίθος, ήλίθιος, κάλθος.

65. -ικ-; cf. -ιχ- (Fur. 226 n. 102)
κάλικον, κύλις, κύρνικα, λέ(ι)κρίκα, μυρίκη (later long i), νώρικον, σώσικες

65a -ικ-
Φοινικες

66. -ιλ-, -ιλ- (indicated)
αιγίλαψι, κονίλη 'arom. plant', μέσπιλ-ον 'medlar', μαρίλη, μυστίλη 'bread-spoon',
(σ)πατίλη (-ιλ- = παστίλη, στρόβιλος 'ball, whirlwind'
GN Σκανδίλη (Kos)

67. -ιλλ-
άργιλλος, αμιλλα, αριλλα, ασιλλα, ρόβιλλος,

68. -ιμν- (Fur. 246 n. 71)
μέδιμνος (i), μέριμνα, σίδριμνον

69. -ιν-
άκινος 'plant', ἀπόλινον, (βα)βάκινον, γοσσύπινον, καρκίνος, κότινος, ὄξινα,
GN Μύρινα (Lemn.), Σίκινος (Cycl.), 'Αρπινα (Elis)

70. -ίν-
kύμινον, πυτινή, ρητίνη, σέλινον, φοξίνος, φορίνη; GN Σαλαμίν-

71. -ινδ-; cf. -ινθ- and -ιθ-, -ιτ-
kύβινδ-ις, κυμίνδ-αλα, ἀλινδόν; cf. μίνδς;
GN Κραυσίνδων (R), Πύρινδος (Caria), Βρυγίνδαρα (Rhod. +46)

72. -ινθ-; cf. -ινδ-
οἰγινθός, ἀσπίνθιον, καλαμίνθη, λαβύρινθος, λίμινθες, μήρινς
GN Κήρινθος (Eub.), Κόρινθος (+74), Σήρινθος (?)

72a -ίξ-
cοτίξις, κυνίξις, σόρνιξα,

72a -ιπ-
GN Εὐρίπος

73. -ις-
ἀρπίσα (-εξα), κύτισος
GN Λάρισα, Κεδρισός, Κηφισός (-ισος = -ισσος 25, 61), Τυλισός (Crete)

73a -ιςκ-
ἀλδίσκον, ἱβισκός, μαρίσκος, ύρίσκος (varr.),

74. -ιτ-; cf. -ιδ-, -ιθ- (Fur. 163)
βάρβιτος, βόλ(β)ιτον, πόρφιτον
GN Σύβριτα (Crete)

75. -ιχ-; cf. -ικ-
ἀρσίχος

76. -κν- (Probably a combination of -ν- with a preceding consonant; see on -ν-) άβαρκνα, δορύκνιον, πισάκνα, φενακνίς, φιδάκνη

77. -μ-
GN Λάτμος (Caria), Πάτμος
78. -v- (Fur. 132 n. 65.) Sometimes a preceding velar becomes aspirated
άράχνη, δαυχνα-, κέρκνος, κύδνος, κυλίχνιον, μόλυχνον, πελίχνη, σαταρνίς, σφάγνος, ούτνον/ύδνον, ψύδνος; Κάβαρνος.
GN Κύθνος (Cycl.)

79 -οξ- (cf. ιξ)
μοροξός (χθ),

80. -οπ- (Fur. 107; often there is a variant with -αβ-)
ἐλ(λ)ος, καλαύρος, -πος (-όφις), κόλλος, σκάλος, σκόλος,
GN Κορόπη (Thess.), Κασσιόπη (Corc.), Πανοπεύς (Phoc.)

81. -ορ- (See also on word end)
άχορα (-υρα), λέ πορίς

82. -οσσ-α, -οττ-α
GN 'Ερμωνοσσα (Chios), 'Αδροττα (Lydia), 'Αζιοττ-ηνος (Lydia), Μολσία?

83. -ουλ-
φασίουλος (-ωλος) ?

84. -ουρ- may contine -αρν-
ίνδουρος, κάβουρος, λιγγούριον (λο-, λυ-), παλίουρος, πάρουρος, πάνδουρα, σάγουρον, σκίουρος, τάγχουρος,
GN Λυκόσουρα (Arc., the oldest town of all; +93)

85. -ουσ(σ)- (Fur. 197 n. 55)
άγχουσα (ἐ-), αίθουσ(σ)α (αίδωσσα), κάδουσα, νήθουσα; GN 'Ακίδουσα, 'Εμπουσα, Κηλούσα (Κήλωσσα M Fur. 197), Μέδουσα.

86. -πν- (This may rather be a suffix -ν- after a stem)
θεράπνη, ὀμπνη

87. -πτ- (this suffix will have consisted of one phoneme, so pν?
μαρπτόν, πέσσυ(μ)πτον, σάναπτιν

88. -ρ- (Fur. 124 n. 37; 215 n. 62)
βάλαγρος, γήλιγρος, σίγραι, τάρανδρος, χάλανδρον; Ἡ δαγρος (Lyc. idakre?).
Compare also on -ρν-, -ρη- and -γρ-.

89. -ργ-
λάθαργος (αι, η)

90. -ρδ-
GN Κύαρδα (Caria)

91. -ρν- (Fur. 48 n. 126; 215 n. 62)
ἀκαρνάν (ἀκάρναξ), ἀκορά, κυβερνάω, λιπερνέω (λιφ-), σκέπαρνος,
We find variants without the -ν-: σίσυρνα : σίσυρα, κυβερνάω : κυμερήναι, σαταρνίδες :
σαταρνίδες, κίσινις : κίσινις.
So probably the cluster arose through the addition of the suffix -ν-. Note that -μ- is found in
Etruscan and already in Cappadocian; Fur. 48 n. 126. See also on (single) -ρ-.
GN Φαλάσαρνα (Crete), Ἀλασάρνα (Kos); Δέρνα; Ἀλίκυρνα (Aet.)

92. -σκ-
ύρίσκος (χ, σσ)

93. -σ- (Fur. 254 n. 27. In several cases this seems not a suffix but the end of a root; cf. -ασ-, -σσ-, -υσ-)  
ἀλσος, κάβαιςος (ασ), μύςος, πίςος, μίςος, φάρσος
GN Πρίανσος (Crete), Σ(α)ρανσός (Crete), Ἰαλυσός (Crete)

94. -σσ-
κυκασσις, κυπάρισσος, σάρισσα

95. -στ-
ἀλάβαστος, θεμιστ- (cf. Myc. temitija / timitija [Ruijgh]), λεπαστή, πλατάνιστος;
GN Κάρυστος, Λύκαστος (Crete), Φαιστός, Ὀγχυστός (R Thess.)

96. -στρ-; cf. -θρ-. [??]
ἀλάβαστρον, δέπαστρον (λ-), ἐνυστρον (ἡ-), ξύγαστρον, κάναστρον, λαι(στ)ρόν,  
σίγιστρον
[Prof. Melchert writes me that he thinks that the suffix may be Luwian (-as-tar-ra/i-), as in  
dέπαστρον, where δέπας is of Luwian origin; see Melchert in FS Manaster Ramer.]
97. -τ-
άσφαλτος, ἀτρακτός, ἀφλαστὸν

98. -ττ- (see 5.5 on ττ/σσ)
kυριττοὶ, προκόττα; Φέρεφαττα

99. -υβ-
ἐντυβον, θόρυβος, ἱντυβος (οὐβ), σιλλυβος, σίττυβος, σκόλυβος (μ), σκολύβρα (-οβ-), χάλυψ; cf. ὄχοιμός

100. -υγγ-
λάρυγξ, πίσυγγος (ι), σπῆλυγγ-, φάρυγξ

101. -υθ-
ἀμύς -δος, ἐμύς, κορυδός, πηλαμύς, χλαμύς,

102. -υνα
GN Καλυδνά (Kos)

103. -υθ- with long and/or short u
ἀγνύς (ṽ), λήκυθος (short υ)

104. -υι-α
ἀγυια, κώδυια; Ἀρπυια
GN Καδυή (18, 24), Κινδυία (Crete, also Κινδύη 18, 24)

105. -υκ-
ἀμπυξ, ἵδυξ, σκαρδάμυκ-τος
GN Νάρυξ (Locris), Βαβύκα (Lac.)

106. -ύκ-
δοῖδυξ, κῆρυξ, -υκος, καρύκ(κ)η, σάνδυξ,

107. -υλ- (Fur. 205 n. 14)
ἀρβύλη, βατύλη, δάκτυλος, κανθύλη, κοτύλη, κροβύλη, μμαϊκυλον (με-), σφόνδυλος (σπ-).
108. -δλ-
(σ)κορδύλη; σφονδύλη (σπ-),
GN Καρδαμύλη (Mess.)

108a -υλλ-
Σίβυλλα

109. -υμ-
γέρσυμον, γίγγλυμος, -θελυμος
GN Σίδυμα (? 33), Κάρυμαι (Crete), Λάρυμα (Kos)

110. -υμβ-
ίθυμβος, κόλυμβος

111. -υμν- (Fur. 243 n. 66 on -umm- in Etruscan and Cappadocian)
aίσυμνάω, βασυμνιάτας (ā), σίγυμνος
GN 'Πιθυμνα(Crete), Μάθυμνα (Lesb. +28), Λάρυμνα (Locr.)

112. -υν-. See also on -υνν-.
βόθυνος, σιγύνη (cf. -υνν-), λάγυνος
GN Γόρτυν (Crete)

112a -υνν-
σίγυνος, Δίκτυννα
See on -υν-.

113. -υνδ-; cf. -υνθ/τ-
Βερεκύνδαи
GN Καμυνδ-ιος (Rhodes), Κάλυνδα (Caria)

114. -υνθ/τ-
βόλυνθον, κολοκύνθη, ολυνθός; Βερεκύνθ/ται,
GN ' Αμάρυνθος, Ζάκυνθος(+88), Τίρυνς

115.[--]
116. -υξ-
GN 'Ολόφυξος (Athos)
117. -υπ-
ίσσυπος (older ὄσσωπος), μάρσυππος, οἰσύππη, τολύπη.

118. -υρ-
άήσυρος, ἄχυρα (-ορα), ζέφυρος, λαιθυρ-άζειν, μαυκυρόν, λάθυρος, νακύριον, ὄνυρ-ιζεται, σατύρος, σίσυρα
GN Ἕλυρος (Crete). Αἴσυρος (Bith. +18), Αἴγυρον (+30), Κοῖνυρα (Thrac.), Τέγυρα (Boe.), Νίσυρος (Kos)

119. -ὑρ-
ἄγυρα, ἀνάγυρος (όνο-), γέργυρα (γόργ-), γέφυρα, λάφυρον, πλημυρίς, πίτυρον,

120. -υσ; on -υστρον see -στρον
ἀρυσος

121. -υτ-
πινυτός, νηπύτιος
GN Λαγινάπυτον (Crete), Κολλυτός (Crete)

121a -υφ-
κέλύφος,

122. -υχ-
βό(σ)τρυχος
GN Μόσυχ-λον (Lemn.)

123. -φθ-
κροσσόφθον, λάκαφθον, μόλοφθος, νά(σ)καφθον, σάρρυφθεῖν

124. -φ- (on -φφ-o- Cha. Form. 263)
ἀργέλοφοι (ιλ), μαστρόφος (-πός), σέριφος, σέσυφος

125. -οκ-
GN Κοθωκ-ίδαι (Att. +70)

126. -ωλ-
ἀποφάλιος?, μάγδωλος, [φασίωλος (-ουλος, -όλος)], φάσκωλος
GN Κίμωλος (Cycl.)
3. Word end

Word end is interesting as some original finals of the Pre-Greek language may have been preserved. Of course, Greek endings must be removed, notably -ος, -ον. Thus -ιον, -υον may often continue original -ι, -υ. (Cf. Myc. dunijo beside duni.) The words in -νθος have almost displaced those in -νθ (Τίρυνθ- etc.).

1. in vowel

1a. -α. A short -α can in Greek only result from *-ya < *-ih2; in other cases we may have to do with an original, Pre-Greek short -a. (It is often difficult to see whether an -α is short or long; the material must be further studied.)

Exx. ἀβαρκνα, ἀγάννα, ἀγέρδα, ἀδάλτα?, ἀκουδα, ἀβδηρα, ἀκαρα, ἀκορνα, ἀκόστιλα, ἀκτάρα, ἀλαρα, ἀμουχρα, ἀρδα, ἀσταγάνα, ἀφα, βρούκα, γόδα, γόλα, δάξα, δάρδα, θάπτα, μόδα, ῥομιξα, σάττα, σόρνιξα, σοῦα, κέδροπα (χ-), etc. Note forms in -να: ἀρνα,...and -εννα. Note σαλαμανδρα, σκολοπενώρ.
1b. -t. IE words (i.e. neuters) in -t are very rare in Greek. Exx. ζόκτι, κόρι, νάπ/υ in σίναπι, τάγυρι (ταγύριον), ἄκορι. We can safely assume, I think, that words in -τον, -τον originally ended in -τ, -υ.

-ις is also frequent. Note that this situation is only to be expected if the language had only the vowels a, i, u.

1c. -υ. ἄβαρυ, κόνδυ, μῶλυ, ... See the foregoing on -υον. -υς is also found several times: ἀγυος, ἀρτυς, ἀτράφαξυς, βίθυν, βλέτυς, ἱλυς (ἲ), -μένδυς, μίμαρκυς, μωυς, πηλαμύς, ἱάπυς.

1d. -ενς. Though the ending may also be an IE heritage, in many words the ending is clearly of Pre-Greek origin. βασιλεύς (Myc. qasireu); Ἀχιλ(λ)εύς.

1e. -ώ. κοθώ, κόρθω, μοτώ, τίτώ, Γέλλώ ... The suffix makes fem. names in -ώ: Λητώ, Σαπφώ. Words in -ως are masculine: ἀχαρνώς(ς), ἤρως; Μίνως, Τάλως.

2. -in -ρ

2a. in -ρν ἀσάρ(ν?), ἀκχάνταρ, βάκαρ, ἐλίμαρ, κύδαρ, νέκταρ, νῶκαρ, σελίαρ

2b. -ρ Exx. [συλλιρ is Lac. < -ις]

2c. -ρ Exx. ἀδιγόρ, ἀκκόρ, κακκόρ, κέμμορ (μπ), πίσορ.

2d. -ρ Exx. ψίθυρ, (Dor.) μάρτυρ.

2e. -ρ Exx. ἀχωρ, ἴχωρ, κέλωρ, ψόθωρ

3. Several words end (in the nom.) in -ζ or -ψ.

3a. -ζ, stem in -κ-, is found quite often: -αζ: ἄβαζ, ἀκάρναζ, ἀμμαζ, ἀνδράφαζ, ἀνθραζ, βύσταζ, μάλβαζ, σαῦσαζ. ἀναζ has a stem in -κτ-.
-άξ: φένοξ, ράξ, σφήξ,
-ηξ: δάνδηξ, βήρηξ,
-ίξ: αδδίξ, ανθέριξ, ἀπριξ, κόλιξ, ἀρπιξ,
-οξ: βέβροξ, βύρροξ,
-ουξ: βρούξ,
-νξ: βλιτνξ; Πνύξ, Στύξ.

Note acc. βάλλεκα; and acc. βρύγκα.

3b. -ψ have:

λάτραψ, λαϊλαψ, ἀλιψ, κόριψ, ἀγίποψ, κόλλοψ, μέροψ, γύψ, μόνωψ. Monosyll.: χρέψ.

4. in -ν: (Kuiper 217)

βαλλήν, καρβάν; Ωγήν.
κίνδυν, μόςσυν, ρόθυν-ες,

5. Several words end in -ας (ā-stems):

άβας, ἀβλας, ἀθρας(?), ἀμφιας, ἀσκαλώπας, ἀσκούνδας, ἀταγάς, βαδάς (βατάς),
βασκάς, βύας, καλοβάς, κασάς; Ἄθάμας, Ἄσγελατας (ā).

With a stem in -αντ-: ἀλίβας (ντ), λυκάβας (-ντ-) etc.; see on the suffix.
With stem in αδ-: ἀχράς, βουνιάς, πρηνιάς; see on the suffix.

D. THE UNITY OF PRE-GREEK

I think that the material itself shows that we have largely to do with one language, or a
group of closely related dialects or languages. Of course, we cannot in every case demonstrate
that the words that are non-Greek belong to this same language. And it is a priori probable that
there are loanswords from other sources, but the bulk of the known non-Greek words seems to fit
the general picture we have of 'Pre-Greek', the Pre-Greek substratum. E.g. κότθυβος /
kόσσυμβος shows not only the element σσ/θ, well-known from geographical names, but also the
suffix -ψβ- with prenasalization. κρόσσιον / κρότιον also shows the σσ/θ, but κρόσσοφθον has
a suffix that is also typical for this language. The word δαλάγχαν beside θάλλασσα (-ττα) has
again the suffix σσ/ττ but also the. ἀστλιγξ / ὀστλιγξ has both the typical (prenasalized) suffix
-γγ- and variation α/ω. In μήρινθος / σμήρινθος we have the 'mobile s-' and the well known
suffix, while μέρμις, -θος has the unprenasalized variant, and σμήριγγες has another
Pre-Greek suffix. In ἀ(μ)βρύττοι / βρύττος (βρύσσος) we have prothetic vowel and
prenasalization combined.

Other languages may well have existed in the area. Thus it is not certain that
Hieroglyphic Minoan expresses the same language as Linear A. Further, Eteocretan has not yet
been connected with other elements and seems isolated.

Another matter is that (non-Indo-European) loan-words from old Europe may have entered Greece cf. Beekes, *125 Jahre Idg.*, 2000, 21-31. And these may have been adopted already in Pre-Greek, as is suggested by ἔρεβινθος. Still another category are Anatolian (?) loanwords that entered Greek, and sometimes also other IE languages very early, like πέλεκυς.

However, I think that it is methodologically better to start from the assumption that non-Greek words are Pre-Greek; and we have now a set of criteria to confirm this. Only when there is reason to assume that they have a different origin we should accept this possibility.

**E. NON-INDO-EUROPEAN**

Our knowledge of Indo-European has grown so much, especially in the last thirty years with notably the growth of the laryngeal theory, that we can in some cases say that an Indo-European reconstruction is impossible. A good example is the word γνῶθις. To explain the -α- of this word we need to introduce a ‘second laryngeal’ (h₂). However, a preform *gnh₂dh- would have given Gr. *γνόθι- with a long a. One might think that assuming *h₂e would remedy the problem, but *gnh₂edh- would give *γναθ-, so we would have again a problem. The conclusion is that no Indo-European proto-form can be reconstructed, and that the word cannot be Indo-European. There is no problem in assuming a Pre-Greek word (though the word has no typical characteristics of Pre-Greek). - Another example is the word κρημνός ‘overhanging bank’, for which a connection with κρέμωμαι ‘hang (up)’ seemed evident. However, we now know that long vowels cannot be postulated at random, and here it is simply impossible: there is no formation type that would allow a long vowel. The objection is confirmed by the fact that there is no trace of the expected α < *h₂ (as in κρέμωμαι < *kremh₂-). Positively one can say that features of the landscape are often loanwords from a substratum. The inevitable conclusion is that the word is Pre-Greek.

The more we know about Indo-European, the less is possible. As our reconstructions become more and more precise, they have to conform to all the rules we have established by now. This holds for all etymological work: in a way, then, it becomes more difficult. This also regards Pre-Greek, as indicated: for some forms an Indo-European origin is no longer possible.

**F. Geographical names**

One question that rises when one adduces geographical names is to how far to the east such names can be found. I have simply followed Fick. I noted that his names go as far as Cilicia. I noted the following sites in Cilicia mentioned by him:

9 Κωρύκιον
24 Κιδρολλᾶς
32 Μαλλᾶς
37 Κιώς
Thus one might conclude that this (group of) languages reaches as far as the eastern border of Cilicia.

The Nouns in -ευς.

Perpillou (1973, 30-34) tried to refute that the suffix -ευ- was a loan from Pre-Greek. I think that his view is wrong. P. discusses Bosshardt’s interpretation (1942). [E. B., Die Nomina auf -ευς.] He assumes that the suffix had the form -.parser- But there is no confirmation for this form. (P. rightly points out that the notation for Hermes in Mycenaean, emaa = hermahēs, does not show an element -āys-.) Old words like ὀχεύς, φορεύς, τοκεύς, φονεύς can hardly be derived from βασιλεύς. I see no problem. These words indicate professions, functions, etc. like the professions of officials, and these words can well be accepted in this group (though of course φονεύς is not really a profession, but it indicates that somebody does this kind of thing, as opposed to others).

P. then states that proper names, like those of Achilles or Odysseus can as well be interpreted as pre-hellenic names that have been hellenised with the suffix -ευς. I object to "as well" ("aussi bien"); it is clear that this is one step further away: that the suffix could be used in this way is only a suggestion that is not proven; it is much simpler and much more natural to take these names as Pre-Greek names and no more; other, further interpretation is quite uncertain.

He adds that such an anthroponym cannot be used as basis for an hypothesis, just like βασιλεύς. But I do not use it for a hypothesis (as P. does saying that it is a hellenising form), but I only observe that the word is Pre-Greek (as P. admits). The same is true of βασιλεύς: I just observe that there is no IE etymology and that it is probably a Pre-Greek word. Thus both the names and the word βασιλεύς show that the suffix is probably an element of the Pre-Greek language, which was incorporated in Greek.

I conclude that P.’s refutation of the view that -ευ- is a loan from Pre-Greek has failed.

(I may add that the theory of the hellenization by the suffix would lead to nonsense if one applies it to the word βασιλεύς. - But note that P. did not say so.)