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## PRE-GREEK. A LANGUAGE RECONSTRUCTED

(second version, November 2003)

*To the memory of Edzard Johan Furnée*

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#### Introduction

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## D. THE UNITY OF PRE-GREEK

[I am indebted to professors Melchert and Ruijgh for their comments.]

## 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 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 etymological connections between Greek words, as variants of a Pre-Greek word. When several possible variations are used, many combinations become possible, and here Furnée has gone too far in a number of cases. 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. 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 with a very few exceptions, 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, (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 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 related names are found. It is my impression that such forms are found in the south as far as Cilicia.] 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 in 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 *τολύπη* '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. [I shall abbreviate

this, when necessary PrGrAn.] 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 'Pelasgian' 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). 'Pelasgian' has done much harm, and it is time to definitely reject it. The latest attempt was Heubeck's 'Minoisch-Mykenische' (1961 Graeaecca), where the material was reduced to some ten words; the theory has been tacitly abandoned, I think. (Another matter is the problem of  $\sigma\tilde{\upsilon}\zeta$  /  $\hat{\upsilon}\zeta$  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 *rjo*, *rja* and *tja* show that palatalization probably was. This is confirmed by the sign *pte* which will go back on *p<sup>y</sup>e*. (In our material cf.  $\theta\acute{\alpha}\pi\tau\alpha$ . I wonder whether  $\kappa\rho\sigma\sigma\acute{o}\phi\theta\omicron\nu$  points to *p<sup>y</sup>* > *pt* but then realized with aspiration.) Further, the signs *two*, *twe*, *dwo*, *dwe*, *nwa*, *swa*, *swi* point to labialization as a distinctive feature, i.e.: *t<sup>w</sup>o*, *t<sup>w</sup>e*, *d<sup>w</sup>o*, *d<sup>w</sup>e*, *n<sup>w</sup>a*, *s<sup>w</sup>a*, *s<sup>w</sup>i*. Note that palatal and labial forms are found with resonants and stops. The existence of labio-velars is confirmed by *qasireu* βασιλεύς, etc. (See further Beekes, *Glotta* 73 (1995/6) 12f.) This results in a system:

p	p <sup>y</sup>	p <sup>w</sup>
t	t <sup>y</sup>	t <sup>w</sup>
k	k <sup>y</sup>	k <sup>w</sup>
c	c <sup>y</sup>	c <sup>w</sup>
s	s <sup>y</sup>	s <sup>w</sup>
r	r <sup>y</sup>	r <sup>w</sup>
l	l <sup>y</sup>	l <sup>w</sup>
m	m <sup>y</sup>	m <sup>w</sup>
n	n <sup>y</sup>	n <sup>w</sup>

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

We can now use this insight in explaining forms. Thus,  $\delta\acute{\alpha}\phi\omicron\nu\eta$  -  $\delta\alpha\upsilon\chi\nu(\alpha)$ - can now be explained as *dak<sup>w</sup>n-*, in the first form giving a labial (this time aspirated),  $\phi$ , in the other being rendered by  $-\upsilon\chi-$  with anticipation of the labial feature, while the velar remains a velar. Then we can understand  $\alpha\tilde{\nu}\chi\acute{\eta}\nu$  - Lesb.  $\acute{\alpha}\mu\phi\eta\nu$  from *\*ank<sup>w</sup>c̄n*;

the latter form is directly understandable (with  $\varphi$  from the labio-velar); the first went through  $*an^wkēn$  (or  $*a^wnkēn$ ) giving  $αὐχην$  (with loss of the nasal, a development known from Armenian). Perhaps also possible is  $*ak^wēn > αὐχην$  with prenasalized  $*ank^wēn > ἄμφην$ . 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  $λλ$  might continue  $l^j$ ; we know that  $*ly$  gave  $λλ$  in Greek. Thus in Achilles. [Chantraine's treatment of this name is characteristically averting; and in the Addenda (CEG 4) this is not corrected.] Note also that Achilles with one  $λ$  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  $αν$ , and  $ar^y$   $αρ$ , and also  $ειρ$  (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 appellativische 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  $*-αιλ-$ . Thus  $as^y$  may have given  $αισ$ , cf.  $κόβαισος$ , which has a v.l.  $κόβασος$ . 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  $ar^w$  resulted in  $αυρ$  (s. the suff.). In this way, we may understand  $καλαῦροψ$  (beside  $κολόρ-οβ-ον$ ) as *kalar<sup>w</sup>-op-*. Another form which shows the remarkable interchange  $α/αυ$  is  $ἄρασχάδες$  -  $αὔροσχάς$ . Here one might assume *ar<sup>w</sup>ask-at-*. (Note that the labial element would at the same time explain the  $ο$  as a variant of  $α$ .) I think this gives the solution for the hopeless etymon  $ἄλοξ$ ,  $αὐλαξ$ ,  $ὠλαξ$ ,  $εὐλάκ-α$ . I assume *al<sup>w</sup>-ak-*. It gives  $αὐλακ-$  through anticipation,  $ἄλοκ-$  through colouring; thus the first two forms, which are best attested, are directly clear. Further  $αυ/ευ/ω$  interchange frequently. Also  $ὀλοκ-$  is unproblematic. [Homeric acc.  $ὠλκ-α$  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  $*ὀλακ'(α)$ ,  $*ὠλακ'(α)$ ? Or is it  $ὠλκ- < *ωλακ-$  with syncope?]

I do not know whether in suffixes of the structure VC a diphthong is allowed. Cf. the forms in  $-αιφος$ . Otherwise one might think of  $-ay^w-$ , or even  $-aw^y-$ , but such sounds are rather rare in the languages of the world. Cf.  $Λακ-εδ-άιμ-ων$ , if it should be thus analysed (for  $-εδ-$  cf.  $Τένεδος$ ,  $Λέβεδος$ ). An instance of  $-αι-$  due to a palatal consonant may be  $ἐξαίφνης$  -  $ἐξάπινης$  -  $ἄφνω$  (a brilliant combination by Furnée 158 etc.) which may contain  $-ap^y-$  (the palatalization was ignored in the last form). (Comparable to the development in the second word is  $κνώψ$  -  $κινώπετον$ , from  $k^yn-$ ? with  $υ < ι$  before  $ου$  in  $κινουῖτες$ ?)

There is evidence for an affricate, somewhat like  $[t^s]$ ; I shall note it with  $/c/$ . See on the variations B 5.5 (esp. on the forms of *Asklepios*). We may suspect a series  $c$ ,  $c^y$ ,  $c^w$ .

There may have been a sound like the Hittite  $ḫ$ . It may have been present in a cluster  $ḫs$ , 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  $ἰα-$ ,  $ἰαμβος$ ,  $ἰάσων$  (? , long  $a$ ) [but  $ἰασον$  ( $ἰ$   $Αργος$ ) from  $ἰwaso-$ , with long  $i$ ]. The ending  $-υια$  may have been  $-uy-a$  (a Pre-Greek  $y$  may have had a different development from inherited  $y$ .) In the same way,  $-αια < *-ay-a?$  with a variant  $-εια$  (note that there is no  $-οια$ ). Cf.  $Πηνελόπεια$ ,  $Περσεφόνη$ . Perhaps the  $y$  disappeared in some cases, giving  $γαῖα$  :  $γᾶ$  (see on the suffix  $-αι/-ε(ι)-$ ).

Initial  $*w$  may often have been lost ( $ἄναξ$ ). But  $wa-$  may also have been rendered by  $οα-$ , as in  $ῶαξός$ , Cret.  $φαξός$ . Thus also  $ῶϊλεύς$  (which has been considered as identical with the root of  $ἰλος$ ). We find  $υα-$  (which became automatically  $ὕα-$ ) in  $ὕακινθος$ , Cret.  $φάκινθος$ . [Furnée 377 assumes a prothetic  $υ-$  in the latter

word, which seems improbable to me.] Thus perhaps also ὕα/ελος. The differences will be due to the time when the loan was borrowed, and whether the Greek dialect still had a *u*; many possibilities arise in this way. - Still another treatment we see in the word for 'truffle', for which we find οὔτιον, οἶδνον (-τιν-), ὕδνον (-τιν-), or ἴτιον. I think that these are all renderings of \**wít-*. [Again Furnée 184 assumes a prothetic vowel, *ϕιτ-* / ὀϕιτ-, which does not seem to be the right solution. He further assumes a variation \**wít-* / *wut-*, which seems also improbable to me, though the variation *ι/υ* is attested.] Rather *υ-* is a form of *οι-*, with the *-ο-* changed under influence of the *-ι-*; cf. Lejeune, *Phonét.* 174 with n. 2; note that Greek did not allow *-οι-* before consonants; of course *οι* became *υ* in Boeotian in the third century B.C.; variation *οι/υ* 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. βράκαλον· ῥόπαλον H. probably shows a development \**wrak-* > βρακ- [as Fur. 147 remarks on καλαῦροψ "Die landläufige Etymologie <connecting> ῥέπω ... ist wohl ohne weiteres aufzugeben."] σορόα· παλιούρου εἶδος H. ('sorb-apple') continues \**sorw-* (Lat. *sorbus*, Fr. 'sorbier'; Fur. 230).

It seems as if there was no initial aspiration. Furnée has a few words with ἄ-, ἑ- (one or two with ἰ-; none with ὀ-, ἦ-, ὦ-). Several are doubtful; best is αἰμασιά (αἰμοί). 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 ἥρωξ, Ἐλληνες and Ἡφαιστος (but note that Myc. *apaitio* does not have *ha-*). Of course aspiration can have been added secondarily in Greek. Cf. the variation in ἄφθα / ἄφθα and ἐλεδώνη / ἐλεδώνη which is a variant of δελεδώνη. But Prof. Ruijgh 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 *emaa<sub>2</sub>* (/Hermahās/'Hermes').

### The vowels.

I think that this language had only three vowels, *a*, *i*, *u*. The Greek words have very often *ε* and *ο*, 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, ιγ, υγ; αγγ, ιγγ, υγγ; and αθ, ιθ, υθ; ανθ, ινθ, υνθ but no forms with εγ(γ), ογ(γ) etc. (I saw ῥήσκονθος; and ὄλονθος, but as a variant of ὄλυνθος, and μηλολόνη 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.). Also the palatalized and labialized consonants will have influenced the vowels. - Furnée (340) has a rule *α > o* before *ο*, *ω*, *υ* (καλυβός / κολυβός); this can now be understood as the *ο*-like realization of /*a*/ before high rounded vowels in the following syllable.

Further I doubt that there was phonemic length. 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 θρινάκη - θρίναξ (see B 6.2). Cf. ὄβριμος - βριμός, βριμή (though this could be explained differently). A quite different argument is the following. ἄχυρον and πίτυρον both mean 'chaff'; it is therefore probable that they contain the same suffix *-υρ-*; but in the first word the *υ* is short, in the second long.

This idea is confirmed by the fact that it explains the φοῖνιξ-rule of Greek accentuation. The The nominatives in -ιξ, -οξ are properispomenon (if possible) though the suffix has a long vowel elsewhere, e.g. φοῖνικος. 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-, -υκ- were of Pre-Greek origin. (We don't have it with -ᾱξ, perhaps because *i* and *υ* 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(ς); they may continue *\*au* (cf. Τλώς, Hitt. *talawa-*) I suggest that the diphthong was contracted early, whereby the *u*/*ū* disappeared. For -εϋς (from *\*-ηϋς*) one would also posit *\*au*. That /a/ was realized / heard as [e, ē] is no problem. [The length may come from prevocalic *\*au*. The *e*-colour may partly come from a preceding palatalized consonant (Ἀχιλλεύς, Ὀδυσσεύς?).] (Are we allowed to compare *ā* > Ion.-Att. η?) For the feminine in -Myc. -*ēja* I agree with Ruijgh, *Etudes* § 212, that it is an independent Pre-Greek suffix, cf. Κυθήρεια, Πηνελόπεια. Another point is that suffixes often have a long vowel (-ιν-, -ισ-, -ᾱσ(σ)-): they are often found in the pre-final syllable) and standing before one consonant; were they stressed? I counted long α's in Furnée's index, which gave only 13 instances; anyhow this asks for an explanation. Note that an η often represents *ā* (γαῖθυλλίς / 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 σίδᾱρος we would not know that it is an old a. Few people know that Λῆμνος represents Λᾱμνος. Note Κρήτη. Note the suffixes -ηλ-, -ητ-. Well known words with η = ē: σπήλαιον

### Diphthongs.

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

### Accentuation.

I noted hesitation in: ἄβραμς / -μίσ, αἰγώλιος / -ιός, ἄχυρος / -ός, ἄχωρ / ἄχώρ, κόρυδος / κορυδός, κορύδαλος / κορυδαλλός, μέδιμνος / μεδιμνός, σίκυος / σικυός, ὕρισχος / ὕρισσός. 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. αϋ

Of course, αϋ occurs in PIE words, but only when it derives from *\*h<sub>2</sub>eu* (mostly in initial position) or *ch<sub>2</sub>u* (which is rare).

Exx. βλαῦδες, βράυκας, γραύκαλας, κάναυστρον, κασαύρα, τραυξάνα; Λαβραυνδός.

### 2. β

As is well known, *\*b* was rare in PIE. In Pre-Gr. words it seems to occur relatively more often.

Exx. ἄβλαροι, ἄβλας, ἄβυρβηλος, ἄρβαλος, ἄρβόν, ἄρβύλη, 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. ἄβδελλον, ἄβδηρα, ἄβδης, ἱβδης, αὐτο-κάβδαλος, κίβδηλος, κυβάβδα, σίβδα, τίβδαινον; Κομβδιλιπια.

[Note that μόλυβδος rather continues *-wā-*; Beekes, *MSS* 59, 1999, 7-14 .]

### 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. ἄγδυσ, ἀμυγδάλη, γδουπέω (cf. κτυπέω), ἱγδη, κρίγδανον, λύγδη, μάγδωλος.

### 5. γν

Exx. ἱγνύς (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. ἀκιδνός, ἀλαπαδνός, ἀράχιδνα, λεπαδνός (λα-), σίπυδνος. Ἀριάδνη.

### 7. κτ

The group is regular in PIE, but in Pre-Gr. it is found with variants; see B5.5.

Exx. ἀβίυκτον, βάκται, δίκτυ.

### 8. κχ

The group can hardly be of IE origin, but it is not frequent. I noted: βάκχαρ, λάκχα, σάκχαρ, συκχάς; Βάκχος, Βρίακχος, Βύκχης. -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, φεδιμνος, ἱαμνος, βαθυμνιάτης, κρημνός (Beekes), κριμνός, λάμνα, λωρυμνόν, μέριμνα, πρημνάς, ρόδαμνος, σίγυμνον, σίδριμνον; Ἀτύμνιος, Καρτεμνίδες.

### 10. ου

The diphthong is of course perfectly IE (but not in suffixes), but it is found several times in Pre-Greek.

Exx. σενδούκη, σκίουρος, στρουθός, τάγχουρος, τοῦφος, φάνδουρος, φασίουλος (ο/ω), φοῦσκος, 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, καρπαρδ-εῦσαι, καρδαμάλη.

### 13. ρκν

A rare group. Perhaps there is no reason to speak of a group.



Exx. ἄβαρκνα, βερκνίς.

#### 14. ρν (ρδ, νδ)

Exx. κίσινρις (-νδ-), ἀχέρδα (-να), σκαπέρδα. See on the suffixes.

15. An σ occurs both word-initially and between vowels, where it has disappeared in inherited words. (Of course, in a few cases Greek got a new σ.)

Init.: σάρυττα, σαγύριον, σάναπτιν, σάνδαλον, σάνδυξ, σαρρυφθεῖν, σεκούα, σέλινον, σιβύνη, σίγυμνον.

Intervoc.: ἄγασυλλίς, ἄγχοῦσα (ἔγχ-), αἶθουσ(σ)α, αἵμασιά, αἷσακος, αἰσάλων, αἰσιμνάω (-υμν-), αἴσινες, αἰσνητήρ, αἷσυλος, αἰσύφ(ι)ος, ἄλεισον, δρόσος, κάδουσα, κασαλβάς.

After resonant: ἄλσος, βάλσαμον, γελσόν, γένσιμος, μάρσι/υππος.

#### 16. σβ

The group is hardly known from inherited words (σβέννυμι is problematic).

Exx. ἄσβολος, θίσβη, ᾿Ασβετος. -σβ- may continue Pre-Gr. -sg<sup>w</sup>: Myc. *tiqajo* may be /this<sup>g</sup>waios/ Θισβαῖος.

#### 17. σγ

Again this group is hardly known from IE words. It may sometimes continue -cg-, as in ἄμυσγέλα̃, ᾿Ασγελάτας (see 5.5).

Exx. ἄλισγέω, ὑσγίνη, φάσγανον, ἄμυσγέλα̃, ἄσγάνδης, πισγίς; ᾿Ασγελάτας.

#### 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, λασταγεί.

#### 19. στλ

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

Exx. ἄστλιγγες, 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: ᾿Ατθίς : ᾿Αθήνη.

Exx. ἰτθέλα, κότθυβος. Πετθαλοί.

#### 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, δαυχνα-, σαυχμόν.

### 23. ω

The ω is of course perfectly IE, but occurrence of \*ō̄ was very restricted. Otherwise, it must represent vowel + laryngeal (*ch<sub>3</sub>*, *oH*) which are only possible in certain circumstances.

Exx. ἀμακρῶτις, ἄμωτον, ἄνθρωπος, ἄνωνις, ἀποφῶλιος, ἀρρωδέω, ἀσκαλώπας, ἀσκαμωνία, ἀσκόλια, φασκόνδας, ἀσμωλεῖν, βαλλωτή, κασσωρίς, κινώπετον, λαιμώρη, μετώπιον, λωρυμνόν, ὕσ(σ)ωπος, 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 there occur several 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 λλ in Greek. And then perhaps also *n'* as νν, *r'* as ρρ. For σσ and ττ see B 5.5. Unclear δδ, κκ, ππ, and μμ (palatal *m'* is a rare sound).

I note some exx.

Stops δδ: ἄδδαι, ἄδδιξ, - κκ: ἄκκαλος, βέλεκκος, λάκκος(?) - ππ: ἄγριππος, λούππις - ττ: βίττακος, λάττα, κάττος, μάτταβος, μέττες, μίττος; Πιττακός. We must also recall the instances of κχ, πφ, τθ (above).

Liquids λλ: ἀλλάβης, ἄλλοπίης, ἀμίλλακαν, βαλλωτή, βάτελλα, βδέλλα, βίλλιν, πάτελλα, - μμ: κλεμμύς, - νν: ἀγάννα, βλέννος, γίννος, λαχάννα; Δίκτυννα, - ρρ: ἀρράβακα, βίρρη, βίρροξ, καρρόν

Sibilants σσ: αἶθουσ(σ)α, ἄφρισσα, γίσσα.

## 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 sometimes not. The vowel is in most cases an ᾱ-. The numbers by Fur. 368ff. are as follows:

α ± 90, ο 10, ε 5, ι 3, υ 0, η 6, αι 2.

(For υ I have excluded ὑάκινθος and ὕσσωπος, for αι I have excluded αἶλινος, which is a cry.) Note that - in general - α varies with ο, ε, αι. Indeed we have cases where proth. ο varies with α; also for ε (εἰκλ- : αἰκλ-, ἐψία : ᾱψία). The η interchanges three times with α. αι interchanges once with α, once with ο. Though not all other cases can be removed, it is clear that the phenomenon regards, originally, α only - which agrees with my assumption that the language had no *e* and *o*.

Exx. ἀγασυλλίς : γηθυλλίς, ἀκιρίς : κίρρις, ἀκορνοί : κόρνοψ, ἀχραδαμύλα : χραμαδοῖλαι, ἀναρίτης : νηρίτης, ἀσκάλαβος : (σ)καλαβώτης, ἀχύνωψ : κύνωψ.

## 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. 390f.

Exx. γέλενος / σχέλινος, (σ)κιδάφη; κίκερος : σκίγκος; (σ)κορδύλη (ῶ); βάταλος : σπ-; πέλεθος : σπ-; φαττάγης : σπ-; θριγκός (τριγχός) : στρίγχός; τοπεῖον : στυπεῖον; (σ)μήρινθος; (σ)μύραινα.

A prothetic vowel may appear before an σ- mobile (Fur. 390 n. 8): ἀσκάλαβος : σκαλαβώτης : καλαβάς; ἀσφάραγος : σφάραγος : φάραγξ; ἀσκάλαφος : κάλαφος. (Uncertain is: σκυρίττω : ἄγκυρίττει.)

## 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 / κέρσιμον, κτύπος / γδουπέω, ἀχάρνας / ἀκάρναξ, ἴσκλαι / ἰσχαλάω, κίχλη / κίγκλος, κρέμυς / χρέμυς, βλέν(ν)α / πλέννα, βροκός / πρόκον, καλαῦροπ- / κολλόροβον, κυπάτης / κυβάλης, ἄγριππος / ἄγριφος, κύπρος / κύφερον, ὄμπνη / ὀμφύνειν, βασκᾶς / φασκᾶς, κιναβεύεσθαι / κιναφεύειν, σκολύβρα / σκολύφρα, ἀτράφαξυς / ἀδράφαξυς, καιάτας / καιάδας, κοντόη / κονδός, βρύθακες / βρυτιγγοί, θρόνα / τρόνα, θρυγονάω / τρυγονάω, γέλγιθ- / γέλγιδ-, κόρυθος / κόρυδος, σπύραθος / σφυράδ-.

### 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. ἀχύνωψ / ἀγχύνωψ, γίγλυμος / γίγγλυμος, γοῦρος / ἄγγουρος, κάχρυς / κάγχρυς, κύχραμος (ι) / κιγκράμας, ὕσπληξ / ὕσπληγξ, φάραγξ -γγος / (ἄ)σφάραγος, κολύβδαινα / κολύμβαινα, κορυφή / κόρυμβος, σαλάμβη / σαλάβη, τράφηξ / τράμπις, ἀτράφαξυς / ἀνδράφαξυς, 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. -ινθος). [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) / κίναδος, κιδαφεύειν / κιναφεύειν, κλάδος / κλών (κλῶναξ), κάθος / κανίας, φληδῶντα / φλήναφος.

### 5.4. Labials, *m* and *μ*

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

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

Exx. ἀρβύλη / ἄρμυλα (n. pl.), βάρβιτος / βάρμιτος, βυρρός / μύρσος, κυβερνήτης / κυμερνήτης, κύμινδης / κύβινδης, λυκάβας / λυκάμας, μάσκη / βάσκα, μύσταξ / βύσταξ, σκόλυμος / σκόλυβος, στίμις / στίβις, φάρμακον / φόρβαντα; ἀπήνη / ἀμανάν (acc. sg.), σπάρος / σμαρίς, σφάραγος / σμάραγος.

Labial stop / ɸ. Fur. 228-242.

Exx. τέθηπα, θάπος / θαῦμα, κόβαλος / καυαλός, κασσαβάς / κασαύρα, κράμβος / κραῦρος, λέπας / λᾶας(?), σίβδα / σίδη.

The variation μ/ɸ. Fur. 242-247. A difficulty here is, of course, that Greek mostly did not preserve a ɸ, 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  $\mu > b$  (as in μόλυβδος, Myc. *moriwodo*).

Exx. βασυμνι-άτης / βασυν-ίας, κρίμνον / κρίνον, μέδιμνος / φεδιμνος, σίγυμνος / σίγυνος (σίγυννος). The evidence comprises 8 or 9 words in -μνος. It is found six times word initially: μῆλον / ἥλον, μονθυλεύω / ὀνθυλεύω; note μέρωψ / ἄέρωψ (εἶρωψ), where the latter forms could continue \*ἄ-φερωψ, \*ἔ-φερωψ. Note further κύαμος / κύμηχα < \*κυφ-αμ-, \*κυμ-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 16) different types. They may be presented as follows (C = consonant):

	a. labials	b. velars
1. C/Ct	π/πτ	κ/κτ
2. C/Cs	π/ψ	
3. C/sC	(π/σπ)	κ/σκ
4. Ct/Cs	πτ/ψ	κτ/ξ
5. Ct/sC		κτ/σκ
6. Cs/sC	(ψ/σπ)	(ξ/σκ)
7. Cs/ss		ξ/σσ
8. sC/ss		σκ/σσ
8c. C/ss		κ/σσ
	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., showing 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 *τ*. This is of course a dental affricate, i.e. a sound like [t̪]. For convenience I shall note it as *c* (without a diacritic). May be it was a *č*, but as long as we have not shown that there was a distinction between *c* and *č*, we can disregard this. E.g. ἄμυσγάλα / ἄμυγδάλη will have been \**amucgala*, represented in the first instance as \**amusgala* or \**amudgala*, the latter giving \**amugdala*. Thus Asklepios was called Ἄσκληπιός or Ἄγλαπιός. I think that he name was \**Acklap-*, 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 δικεῖν beside δίσκος and δίκτυον.

Now one might suppose that all variants in this group are due to an affricate, 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* / *κολύβδαινα*, *κίβαλος* / *κίβδης*, *λύπη* / *λύπτα*; without variants note *κρόσσοφθον*, *σαρρυφθεῖν*. Note that *μόλυβος* / *μόλυβδος* continues *\*moliwdos*.

1b. *κτ* is most probably explained like 5b, discussed above (so 1b is a part of 5b).

Exx. (Fur. 319ff): *ἄρακις* / *ἄράκτην*, *μογέω* / *μοχθέω*, *πελεκάν* / *σπέλεκτος*, *ἄκακία* / *κάκτος*.

2a. *ψ* may result from *\*pc*. (It is remarkable that there is no 2b. *κ/ξ*, as *ξ* is unproblematic in Greek.)

Exx. (Fur. 324ff): *βίττακος* / *ψίττακος* (*σίττακος*), *δέφω* / *δέψω*(?), *κανβίον* / *κανψής*, *πῶρος* / *ψωρίτης*.

3a, b. (*π/σπ*, *κ/σκ*) Both can come from *\*cp*, *ck*.

Exx. (Fur. 292 n. 2): *θίσβη* / *θίβις*.

(Fur. 295ff.): *βέκος* / *βέσκεροι*, *ἵχλα* / *ἵσκληι*, *μάκελλα* / *μάσκη* (*βάσκη*), *μῦκος* / *μύσκος*, *φάκελον* / *φάσκαλος*.

4a, b. *πτ/ψ* and *κτ/ξ* can continue *\*pc*, *kc* and belong together with 2a, b.

Exx. (Fur. 263 A3): *διφθέρα* / *διψάρα*, (Fur. 318, 324): *χαλυβδικός* / *Χάλυψος*.

(Fur. 263 A3): *μόροχθος* / *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*.]

Exx. (Fur. 301 A2): *ἄμυσγέλα* / *ἄμυγδάλη*, (Fur. 279, 319): *δίσκος* / *δίκτυ(ον)*.

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 *\*cp*, *ck*.

Exx. (Fur. 393): *ἄσπίνθιον* / *ἄψίνθιον*, *ὀσφῶς* / *ψύαι*.

Exx. (Fur. 393): *ἱσχίον* / *ἱξῶς*, *φοῦσκος* / *φοξός*.

7b. *ξ/σσ*. If *ξ* represents *\*kc*, the *k* may have disappeared in other cases (which did not give *ξ*) after which *\*c* became *σσ*.

Exx. (Fur. 130 n. 59): *κριξός* / *κρισσός*, (Fur. 317): *σίβδα* / *ξίμβα*; (Fur. 286 n. 72): *τραύξαννα*, *τρώξανον* / *τραύσανον*, *ἱξάλη* / *ἱσάλη* (*ισσέλα*, *ἰτθέλα*). *Οὐλίξης* / *᾽Οδυσσεύς*.

8b. *σκ/σσ* can be explained parallel to 7b: *\*ck > σκ*, or with loss of the *k*, *\*c > σσ*.

Exx. (Fur. 300): *ῥρισχος* / *ῥρίσσος*.

I added 8c. for *δάλαγχαν* = *θάλασσα*. We have *δαλαχ-* (with prenasal.) / *θαλασσ-*, and I suppose that it had a *\*k'* (this is a case where a *cluster* seems improbable).

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 rendering 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 *\*c*, which was rendered *ττ* or *σσ*, or single *σ, τ* (the variant *ζ* would then fit in, but one would also expect a variant *στ*). Here again, however, it is

difficult to decide between \**c* or \**k'* or \**č*.

Exx. (Fur. 253ff): κιττός / κισσός, κρότιον / κρόσσοφθον, μύρτινη / μυρσίνη, τεῦτλον / σεῦτλον, τίλφη / σίλφη, γάδος / γάζας, ἄσμων / ἄδμων.

10. τ/στ may be from \**ct* giving στ, or with loss of the *t*, \**c* > σσ.

Exx. (Fur. 301ff): βαλλωτή / βαλλάστιον [does this point to a *c*?], μάτρυλλος / μάστρυλλος, μύτις / μύσταξ, πατίλη / παστίλη,

11. σσ(ττ)/στ can be \**ct* > *st*, or with loss of the *t*, \**c* > σσ.

Exx. (Fur. 304 A1, 329): ψιττάκιον / πιστάκιον.

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:

κ/π,β	κ/τ,δ	π/τ	
γ/β	γ/δ	β/δ	γ/β/δ
χ/φ		φ/θ	χ/φ/θ

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. κ/π: κλάνιον / πλανίς; γ/β: βράκαλον / ῥόπαλον, γλέπω / βλέπω; χάλις / φαλικρόν.

κ/τ: ἄσκάνδης / ἄστανδης; γ/δ: γάλατμον / ἄδαλτόμον.

π/τ: βαπαίνει / βαταίνει; β/δ: σάμβαλον / σάνδαλον; φ/θ: γνυφαί / γνύθος.

γ/β/δ: γέφυρα / βέφυρα / δέφυρα;

It is tempting to assume labio-velars in these cases, but some cases may have a different origin (βράκαλον / ῥόπαλον 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. δ, τ, θ, ν/λ; 2. δ, ν/ρ and also 3. λ/ρ

1. Exx. (Fur. 387f.). δ/λ: ἄβλαρος / βδαροί (330 v. 27); δάφνη / λάφνη; Ὀδυσσεύς / Ὀλυσσεύς. Cf. Myc. gen. *dapu<sub>2</sub>ritojo* / *daburinthojo* - λαβύρινθος; καλάμινθα / Myc. *kadamita*.

[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, *ʃ*.]

θ/λ: θάπτα / λάττα; ν/λ: νίτρον / λίτρον.

2. δ/ρ: σίβδα / ξίμβραι. ν/ρ: βλήχνον / βλήχρον.

3. λ/ρ: ἄζηρίς / ἄζηλῖς, κρίβανος / κλίβανος, κρῶμαξ / κλῶμαξ.

### 5.8 Simple / geminate

Beside a few isolated cases we find this interchange in ν/νν but notably in λ/λλ. On τ/ττ and σ/σσ see above 5.5.

Fur. 386f.

Exx. v/vv: ἄνηθον (τ) / ἄννηθον (τ), τημενίς / τήβεννα. Note the suffix -ωνν-.

λ/λλ: βαλ(λ)ήν, θυλίς / θυλλίς, σπέλεθος / σπέλληξι (dat. pl.), μακέλη / μάκελλα (so this will be -aʰa-).

Note γεῖσ(σ)ον, σάρῖσα / σάρισσα.

Note the case of (ʰAθῆνη) - ʰAτῆς - ʰAττικός.

### 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) σύριχος, σύρισσος / ὕριχός (-ίσκος, -ίχος, -ίσσος). Perhaps Ἑλλάς beside Σελλοί belongs here. Another instance seems ἄπιον, which is cognate with Lat. *pīrum* which points to -pis-. [Prof. Ruijgh points to Λίγυ-εη < \*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.

Exx. κ / zero: κάνδαρος / ἄνθραξ, καλινδέομαι / ἄλίνδω, κόγχαι / ὄγγαι, κανθήλιον / ἀνθήλιον.

γ / zero: γίννος / ἰννός, but this form may be a late notation/development).

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

τ / zero: τάγχουρος / ἄγχουρος, τήγανον / ἥγανον, τίφυον / ἴφυον (with ī);

δ / zero: δελεδώνη / ἔλεδώνη (ē-).

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

### 5.11 v-, λ- / zero

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

νάφθα / ἄφθα (ǎ-).

λαιψηρός / αἰψηρός, λαμπήνη / ἀπήνη, λατμενεῖα / ἄτμήν.

Of a different type is γνάμπτω / κάμπτω

Perhaps it concerns palatal nʷ, ʎ, 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:

κιρσός / κρισσός, κριξός, τέρμινθος / τρέμιθος. Cf. Τερμίλαι / Τρεμίλαι.

ἄρπιξ / ἀπρίξ, κέδροπα / κέρδοπα, νάθραξ / νάρθηξ.

It is mostly unknown what was the original configuration. (In a case like ἔρβως / εὔρωσ, where β may stand for - or continue - ʃ, I would think that the ʃ was anticipated. It may concern an original rʷ.)

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

Aspiration shift is sometimes found: θριγκός / τριγχός, ἄθραγένη / ἀνδράχνη. In the case of φάτνη / πᾶθνη the metathesis seems to have occurred late in the history of Greek (Beekes in Bammeyer-Venneman, *Languages in Prehist. Europe*).

### 5.13 Secondary phonetic developments

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, ἄβλαροι. For this case cf. 5.7b δ/λ.

γδ- > δ-: γδοῦπος, δοῦπος

δν > γν: δνόφος, γνόφος

κμ- > μ-: κμέλεθρον / μέλαθρον,

ψ- > σπ-? ψενδυλ-? / σπονδύλη. See 5. above.

ψ- > σ-: ψέφας / σείφα, ψίττακος / σίττακος; cf. Ψαπφώ, Σαπφώ

### 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. κτεῖς, 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 diphthong *s*, but these hardly occur). Note that a variation x/y is not repeated under y.

#### 1. the vowel α.

1a. α/ε has 80 occurrences in Furnée's material (347).

Exx. ἄγχουσα / ἔγχουσα, ἄρυσος / ἔρυσος, γάλινθοι / γέλινθοι, ζακελτίς / ζεκελτίς, καίατα / καιέτας, κάμπος / κέμπορ, κάχρυς / κέγχρος, σάνδυξ / σενδούκη

1b. α/ο. These vary also very often. Fur. 339 mentions that he found 80 instances.

Exx. ἄξουγγία / ὀξύγγιον, ἄρρωδέω / ὀρρωδέω, γράβιον / γοβρίαί, ἡπίαλος / ἡπίολος, κάβαξ / κόβακτρα, καλύβη / κόλυβος, λυκαψός / λύκοψος.

1c. α/αι Fur. 336ff. ἀκραιφνής / ἀκραπνής, ἀσύφηλος / αἰσύφιος, λάγματα / λαίγματα.

1d. α/αυ. Fur. 302 n.37. καναύστρον / κάναστρον, μνάσιον / μναύσιον; ἄλοξ / αὐλάξ.

1e. α/ω κλάδος / κλῶναξ.

1f. αι/ει. Fur. 352 A4; 339 A2. Exx. καιρία / κειρία, κύπαιρος / κύπειρος, λαιαί / λειαί.

1g. αυ/ευ. Fur. 353 A5. λαυκανίη / λευκανίη, πέταυρον / πέτευρον; αὐλάξ / εὐλάκα.

1h. αυ/ω, ο. Fur. 301 n. 32. κασαύρα(ς) / κασωρίς, θαῦμα / θῶμα, σαῦσαξ / σῶσικες, βαύκαλον / βῶκος, καλαῦροψ / κολλῶροβον / κολλόροβον.

1i. ᾱ/αι Fur. 338. λήθαργος / λαίθαργος, ληκάω / λαικάζω, πήγανον / φαίκανον.

1j. α/ᾱ: λαδος (λήδιον) / λᾱδος (λήδιον)



2. the vowel ε.

2a. ε/α see under α.

2b. ε/ι. Fur. 355ff. βλίτυξ / βλέτυες, ἐβίσκος / ἰβίσκος, δέπας / Μyc. *dīpa*, ἔντυβον / ἰντυβος, κελλόν / κίλλιξ, κιλλίβας / κελλίβας, κύτεσος / κύτισος, λέσφος / λίσπος (φ).

2c. ε/ι/υ. Fur. 354 n. 55. κεχράμος / κίχραμος (κιγκράμας) / κύχραμος.

2d. ε/ευ. Fur. 115. ἄργετος / ἄρκευθος

2e. ει/αι see αι.

2f. ει/η. Fur. 339 A2. κείθιον (χείτιον) / κήθιον, χειραμός / χηραμός.

2g. ευ/ε see ε/ευ.

2h. ευ/αυ see αυ.

2i. ε/η. Fur. 358 n. 42. ἔνυστρον / ἦνυστρον, μέρμερος / μέρμηρα, ψάκελον / βάκηλον, μήδεα / μέδεα (μέζεα); Πηλαγόνες / Πελαγόνες.

2j. η/ι. Fur. 171 n. 114. βλήτον / βλίτον, σκῆνος / σκίναρ, ψημύθιον / ψιμύθιον.

3. the vowel ο.

3a. ο/α see α.

3b. ο/ι. Fur. 191 n. 37. ἄκονος / ἄκινος, ἰβρίκαλοι / ὀβρίκαλα, ὄνογλιν / ὄνιγλιν.

3c. ο/υ. Fur. 358ff. ὄλονθος / ὄλυνθος, σκολοβρέω / σκολυβρός, σκύτη / -κόττα, κυδώνιον / κοδώνεα, κυρσέας / κορσίς, πρύτανις / πρότανις, τοπεῖον / τυτυπείον.

3d. ο/ου. Fur. 359 βρόκος / βρουῖκος, κολοτέα / κολουτέα (λυ, λω).

3e. ο/ω. Fur. 279 γνοτέρα / γνωτέρα, κολλώροβον / κολλόροβον, φασίωλος / φασίολος (-ουλος), ὄρυγες / ὄρυξ -γος; ὄσχοι / ὄσχη.

3f. οι/υ. Fur. 127 χραμαδοῖλαι / ἄχραδαμύλα (ἄκραμύλα).

3g. οι/ου. Fur. 358 + n. 65. κολουτία / κολοιτία (κολοτέα), ψούδιον / ψοίθης?

3h. ου/υ. Fur. 120 n. 29. κτύπος / γδουπέω, κρουῖναι / γρυῖνός.

3i. ου/ω. Fur. 133 μωκάομαι / μουκῆζει, 148 λούπηξ / λώβηξ, φασίουλος / φασίωλος (-ολος).

3j. ω/η. θρωῖναξ / ἄνθρήνη.

3k. ω/υ. Fur. 302 n. 35 ζώγιος / ζύγγιος, ὕσσωπος / ἰσσύπος, λωβεύω / 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.

Exx. Fur. 364ff. αἰσυμνάω / αἰσιμνάω, ἀνθρίσκος / ἄνθρυσκον, βίδην / βυδοί, βρικός / βρυκός, ζύγαστρον / σίγιστρον, κινώπετον / κυνοῦπες, κύβεις / κίβις, μάρσιπος / μάρυπος.

[Prof. Melchert points out to me that an interchange *i/u* is sometimes found in Anatolian; as in *kiklu/īpa*- 'steel', *išqaru/iḥ*); see his Anat. Hist. Phon. 178.]

5. υ/ε. γυργαθός / γεργαθος

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 doubt 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/o 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 ε and short ι and υ is frequent, especially in suffixes: γήθιον / γάθια, κύβεσις / κίβησις, θίβις / θίβις, κρίμνον / κῤῥίμνον, θρίναξ / θρινάκη; ψημύθιον / ψιμύθιον, σπονδύλη / σπονδύλιον. Cf. κάραβος / καράμβιος (cf. κηραφίς), φενᾱκίζω / πηνηκίζω 'deceive'; Ωγην(-) / Ωγεν(-). γνωτέρα / γνωτέρα.

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

### 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. We further find α/αυ, ε/ευ, and ου/υ and ο/υ. In two cases we find diphthong / long vowel: αι/ᾱ, ει/ῃ. Examples were given above.

### 6.4. Rising diphthongs?

Relatively frequent are sequences of a more closed followed by a more open vowel, 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:

εα: σεᾱγών (σι-, συ-)

ια: βατιάκη, θίασος, θρίαμβος, σίαλον, φιάλη, φιαρός. Note σιᾱγών (σε-, συ-).

ιυ: ἰυγή

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

υε: γυέλιον (γύαλον), πύελος (πυα-)

Remarkable is also the sequence -ωυ-:

ωυ: πῶυ(γ)ξ; μούξ?

### 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.

Fur. 378-385. Exx. βραγchia / βαραγchia, σκέρβολος / σκέραφος, κνύζα / (σ)κόνυζα, σκόροδον / σκόρδον, τονθορύζω / τονθρύζω, Ἀρεπυία / Ἀρπυια, κνώψ / κινώπετον / κυνούπες, Κορύβαντες / Κύρβαντες.

## 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 ε or ι.

Exx. βέβραξ, βέ(μ)βρος, γάγγαμον, γαγγλίον, γαγγραίνα, γίγαρτον, γίγγλυμος, κί-κυβος, σέ-συφ-ος / Σίσυφ-ος (cf. ἄ-σύφ-ηλος); με-μαίκυλον (μι-); νενίηλος; σέσελις; σίσυρα (-υρνα); μεμβράς?; perhaps

κίκυμος, κίχραμος (κε-, κυ-, κιγκ-); δεινδρύω. Cf. Κέκρω; Πεπάρηθος, Τιταρήσιος; here also Λέ-λεγ-ες? With prenasal. τενορηδ-ών, τενορήν-η cf. ἀνορηδών, θρωναξ. Different vowels in: λάλαμις (cf. λαῖλαψ); κο-κρύς; also γηγῆλις?. Reduplication of a syllable in: μόρμορος (μορμυραία), μαρμαρυγή. More difficult are: γέλγισ : ἄγλῖς (< \*γε-γλ- : ἄ-γλ-?), κέρκα : ἄκρις (< \*κε-κρ- : ἄ-κρ-?). Also Μεμβλῖαρος : Βλῖαρος (cf. μεμβράς?); Μεμβλῖς = Μέλος, also Μιμαλλῖς.

A completely different type perhaps in ἄμ-άμαξυς, cf. ἄμαξίς; also ἄμαμιθάδες?

## 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 - ιγγ - υγγ, ανθ - ινθ - υνθ etc.

A different structure have the suffixes with ν (+ vowel) following a consonant: e.g. κύδνος, πισάκνα, μόλυχον, 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 α/ι/υμ-ν. The well known groups -mn- and -m- 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, ινν, υνν also arise in this way? Also other sounds are found in this position: -ρ-, -δ-, -γ-, -λ- (rarely): ψυδρός, κύριθρα, παναγρίς, φάλακρος; σκαπέρδα; λάθαργος; ὄνιγλιν. (Note μόλυβδος, which seems to continue *moliwd-*, Beekes).

Probably the character of the consonant can be seen. Thus -αιν- could render -an<sup>v</sup>-, while a<sup>v</sup> seems to have resulted in αλλ (or -ελλ- with colouring). Thus εἰρ could come from ar<sup>v</sup>, *air* becoming *cir*. A nice confirmation could be αυρ, if this represents ar<sup>w</sup> (cf. ἀυροσχάδες beside ἀρασχάδες, if this form had \*ar<sup>w</sup>-). Cf. B 1.

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

A form like -ευντ- is deviating; we do not often find a diphthong before the consonant. Does it stand for \*-aut- from -at<sup>w</sup>? Cf. -aiy- in ἔλαιον, where we may suspect ay<sup>w</sup> or aw<sup>v</sup> (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 - ῑθ, υκ - ῡκ. The explanation is perhaps be that length was not phonemic. In the case of ῡρ one might think again of ur<sup>v</sup> > uir, though r<sup>v</sup> is a rare phoneme (like m<sup>v</sup>).

### 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)

ἀγράκαβος, ἄλ(λ)άβης, ἄραβος, ἀσκάλαβος, ἀττέλε/αβος, κάκκαβος, κάνναβος, κάραβος, κόλλαβος, μέσ(σ)αβον, λατραβός, μάτταβος.

GN Καττάβιος (Rhodes 47), Κάσταβος (Caria)

2. -αγ-

άρπαγ-; cf. Cha. *Form.* 397ff.

3. -αγγ-

σφάραγγος.

4. -αδ-

ἀρασχάδες.

5. -αθ-

ἀσπάλαθος, γυργαθός.

GN' Υρνάθιον (Epidauros)

6. -αι-/-ε(ι)- (See also 6b.)

There are words in -αια/-ε(ι)α, like γρυμέα/γρυμεία (or γρυμεῖα)/γρυμαία (note the hesitation in the accentuation). Frisk notes "die Bildung hat kein näheres Gegenstück." I suggest that the suffix was -αγ-(α), which was pronounced [-äy-a, -ey-a] (we saw that ει often varies with αι); the suffix was identified with Gr. αι or ει (before vowel), but the -y- could also be lost; in this way the three variant forms can be explained. Further we have κολοιτέα/κολ(ο)υτέα; κορχυρέα (κορκόδρυα H. is prob. an error); κώδεια/κώδεα [note the short α] (κώδυνια/κωδία are not clear to me; but cf. Αμάθυια/Αμάθεια).

I wonder whether this can give the solution for γῆ (<γᾱ̃)/γαῖα: from \*gaya the *i* was retained or lost (as in -εα above), which gave gā̃. (The i-less rendering, which gave -aa- > -ā̃, being as old as the rendering γαῖα; this means that the ā̃ became η Attic, not ᾱ̃ 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 -αία, according to an Ionoic-Attic rule αι > ᾱ̃; however, this rule is unclear: "Aucune explication satisfaisante n'a été donnée 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)ānā̃ (*potnia*) [the interpretation as gen. Athānās is to be rejected]. Note that Γᾱ̃ is also already found in Mycenaean (in the Thebes tablets, *Ma Ka*). [I hesitate to add Mā̃ - Μᾱ̃ια, as one generally considers Mā̃ as primary.]

I further think that this \*ay-a is the same suffix as -εια which makes feminine names, Αμάλθεια, Πηνελόπεια, 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. *Ipemedēja* the -j- is preserved; cf. Ruijgh, *El. Ach.* 155 n.3.) - There are of course many place names in -εια: Καδμεία, Καλαύρεια, Κερύνεια, Μίδεια, Σκελερδεία, Λεβιάδεια etc.

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

We also find -εία used in nouns: δαυρεία, ζαλεία, κουλυβάτεια, ...

Nouns with -εο- are very rare; we find: γωλεός, εἰλεός, κολεόν, νικύλεον, συφεός(?), φωλεός. Further it may be found in Ωκέανος < \*-kay-an- (there was probably no /c/, and the hiatus is also remarkable; note the forms

Ωγην, Ωγεν-).

Beside -αια, εια we may expect -αι-ος/ν; we find it e.g. in δῖρκαιον, σπήλαιον, ψιφαῖον; γραψαῖος, (\*σκαρβαῖος reconstr. by Fur. 169), ... (See also 6b.)

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

ἄκυλαῖον, ἄραιός, βαγαῖος, βαλαιόν, δῖρκαιον, ἔλαιον (Myc. *era<sub>3</sub>/rawo*), μάταιος, μεσσαῖον, σίραιον; Ἀχαιφός.

GN Ἀστυπάλαια (58)

8. -αιβ-

GN Περραιβοί (Thess.)

9. -αιθ-

GN Σύμαιθα (Thess.), Περαιθεῖς (Arc. deme), Κελαιθεῖς (Thess. deme), Κυναιθεῖς (Arc. deme)

10. -αιν- (Fur. 171 n. 117)

ἄκαινα/ον, βολίταινα, γάγγραινα, κολύβδαινα (-υμβ-), κορύφαινα, μύραινα, σμύραινα, τρίαινα, φάζαινα. φάλλαινα, φώκαινα.

11. -αιρ-ο-

κύπαιρος (-ειρον, -ηρις, -ερος).

12. -ακ- (Fur. 158 n. 64)

ἄβυρτάκη, αὐλάξ, βατιάκη, ἐριθάκη, θρινάκη (θρίναξ), καυνάκη, θῦλάκη, πιστάκη, φάρμακον.

GN Ζάρᾱξ, -ηξ (Lac.)

13. -αλ(λ)-ο- (Fur. 254 n. 28)

Exx. ἄρῦβαλλος, αἰγίθαλ(λ)ος, βύσσαλοι, 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 PrGrAn., as it is frequent in Greek; cf. on *τολύπη* in the introduction.]

GN Κασταλία (Phoc. source), Φάρσαλος, Στύμφαλος (Arc.),

14. -αμβ- (Fur. 184)

διθύραμβος, θρίαμβος, ἱαμβος, καράμβας, σήραμβος.

15. -αμν-

σφένδαμνος.

GN Σέδαμνος (Crete),

15. -αμ-ο-

ἄρταμος.

GN Κίς(σ)αμος (Kos), Πέργαμον, Κώγαμος (Lydia), Κύαμον (M Kydon.), Ύδραμος (Kydon.)

16. -αν-

GN Ἰάρδανος (R Crete, Elis), Ἀπιδανός (R Thess.), Ἡριδανός (R), Κάντανος (Crete), Ἄνδανος (18), Δρά/κανον (Kos, Ikaria),

17. -ᾶν-

γεντιανή

18. -ανδ-

ἀσγάνδης.

19. -ανδρ-

γελανδρόν

GN Τήλανδρος (51), Τύμανδ(ρ)ος (Pamph.), Μυϊανδ(ρ)ος (53), Φολέγανδρος,

20. -ανθ/τ- (Fur. 191 n. 35; 216 n. 71. -αντ- unless otherwise stated)

ἀλίβας, ἀσκάνθης (σκάνθας), κιλλίβας (but κελλίβατ-), ὀκρίβας, φάλανθ/τος, Αβαντες, Μέλανθ/τ-, Πείρανθ/τ-, Ὑανθ/τ-, Γίγαντες, Κορύβαντες.

GN Βαβράντιον (Chios), Αμυκλαντ-, Λήλαντον (Eub.), Ἐρύμανθ/τ- (Arc.)

21. -ανν-

τύραννος.

22. -αξ-

GN Κυρτάρπαξον (Crete), Δανάρπαξον (Crete),

23. -απ-ο- (Fur. 235 n. 31)

ἄρναπος, γαυσαπός, μόναπος.

GN Μεσσαπ-ιος (Crete 24)

24. -αρ (Fur. 134 n. 75: mostly neuters)

ἵκταρ, κύδαρ, νέκταρ, σκίναρ, σῦφαρ; ἄφαρ(?); adj. μάκαρ; anim. ὄαρ, δάμαρ (gen. -ρτος; Myc. *dama* / *duma*).

25. -αρ- (Fur. 257 n. 36)

ἄσκαρος, βασσάρα, βάσσαρος, γάδαρος, γίγγλαρος, κίσθαρος, κύσσαρος, κύτταρος, λεσχάρα, φάλαρα. Also σίδᾶρος?

GN Ἄπταρα (Crete, Lycia), Πάταρα (Lycia), Πίναρα (Lycia), Μέγαρα (75), Ἀλλαρία (Crete), Κυαρία (Caria)

26. -ασ-α/ο- (Fur. 157 n. 57)

κάρπασος, κραύγασος, καμασός (κάβαισος), πάγασα.

GN Κύρβασα (Crete), Μέδμασα (Crete), Πήδασα (Mess.), Πύρασος (Thess.), Παγασαί (Thess.)

27. -ασσ-

GN Ρυτιασσός (Crete), Κρυασσός (Crete), Μυκάλησσός Ταφιασσός (32)

28. -ατ-

GN Καίρατος (Crete), Μίλατος (Crete 27),

29. -αυρ-α/ο-

(ἄ)φαῦρος, φλαῦρος, (ἄ)μαυρός, ἄγλαυρος, κασαύρα (-ας), λάσταυρος, πέταυρον (ευ);

GN Ἐπίδανυρος.

30. -αχ-

βότραχος, κύμβαχος.

31. -γδα

ἄπριγδα (adv.).

32. -γρ- (cf. on -ρ-)

παναγρίς.

33. -εδ-

GN Τένεδος, Λέβεδος. (Λακεδαίμων?)

34. -εζ-α see -ισ-.

35. -ειρ-ο-

αἵγειρος, κύπειρον, σάβειρος (σαπέρδης); Κάβειροι.

36. -ελλ-α/ο- (Cf. 28 -ελ-α/ο-)

ἄκρόσπελλος, βάτελλα, βδέλλα, πάτελλα, πέλλα.

37. -ελ-α/ο- (Cf. the foregoing)

Εxx. ἄμυσγέλα, ἄσφόμελος, βρίκελος, δρύψελα, (ἐπι)ζάφελος, θικέλιον, ἰτθέλα, κύβελα, στυφελός (στύφλος), δυσπεμπελος?

38. -εμ-ο- (Fur. 151 n. 42)

ἰάλεμος (ᾱ), κοάλεμος (ᾱ), π(τ)όλεμος (or IE?), θελεμόν.

39. -εμν-ο- (Fur. 151 n. 44)

ἄμφι-κέλεμνον, Καρτεμνίδες.

GN Σέλεμνος (95)

40. -ενν-α (I wonder whether  $n^v$  could give  $vv$ )  
τήβεννα. Cf. βλέννος.  
Cf. Lat., from Etruscan, (*doss-*)*cnnus*, *Porsenna*.

41. -ερ-α  
διφθέρα, ἀσκέρα (-ηρα).  
GN Ὠλερος (Crete)

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

43. -ευρ- sec -αυρ-.

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

45. -ηβ-  
κύρηβος.  
GN Κάνδηβα, Τένδηβα, Τορρηβός all in Lydia.

46. -ηθ-  
GN Πεπάρηθος, Σεσάρηθος (67), Κικύνηθος (Pagas.), Κάνηθος (M Chalkis), Αἴνηθος (M 68), Πάρνης, -ηθ- (Att.). Cf. -αθ-.

47. -ηκ-, -ηχ- (Fur. 199; 245 n. 70)  
βήρηξ, δάνδηξ, κύβηξ, λώβηξ, νάρθηξ, πήληξ, τράφηξ, φήληξ; κύμηξ / κύμηχα.

48. -ηλ- (Fur. 115 n. 5)  
ἄβρόκηλος, ἄβύρβηλος, ἄρβηλος, ἀσύφηλος, βάκηλος, θάργηλος, κάβηλος, κάπηλος, κίβδηλος, κιχήλα, νενίηλος, τράχηλος, φάσηλος.  
GN Κυδρηλ-ειοι (Kos), Ὑδρηλα (Caria)

49. -ήν (Fur. 172 n. 118)  
ἄδῆν, ἀτμήν, ἀτταγήν, αὐχήν (ἄμφην), βαλ(λ)ήν, δοθινήν, ἐσσήν, καμασήν (-ασὸς), κυφήν, σειρήν, σωλήν, ταγήν, τιβήν.  
Θηρήν (Crete ++31, 63), Τροιζήν, Ἀραδῆν (Crete)

50. -ην-  
γλαβρήνη

51. -ηρ



σπίνθηρ; Αἰγλάηρ?

GN Ποθηρεύς (Crete), Κύθηρα

52. -ηρ- (Fur. 204 n. 10)

ἄβδηρα, ἄνδηρα, αἰψηρός, ἀσκάληρον, ἀσκηρά (-έρα), μύκηρος; ἱμβηρίς, κύπηρις, λεβηρίς.

53. -ησ(σ)- Cf. -ασσ-.

Μάρπησσα (M Paros), Μυκαλησσός (Boe. +80); Ἄρδηττός (Att.), Ὑμηττός (Att. +85)

54. -ητ- (Fur. 172 n. 118)

ἀλ(λ)άβης, κάνης, κώνης, λέβης, μάσθλης, μύκης, τάπης (Myc. *tepa*). Here also: ἄν(ν)ητον (-θον, -σον)?

GN Μάσσητα (71), Μύης, -ητος (Caria)

55. -ηττ- see -ησσ-

56. -ηψ-

GN Αἶδηψός (Eub.), Γαληψός (Thrac.)

57. -θος

See Cha. *Form.* 368; cf. -νθος.

βρένθος, κανθός, σπέλεθος, μίνθος,

58. -θρ-

κύριθρα, μάραθρον; GN Λίβηθρα R.

On -αθρον Fur. 303 n. 39: κάν(ν)αθρον, μέλαθρον, σπάλαθρον. Cf. on -στρ-ον.

59. -ιβ-, -ιβ-

ἐρυθίβη

60. -ῖγ-

μαστίγ-

61. -ιγγ-, -ιγκ-, -ιγχ-

ἄστλιγγας, βρυτιγγοί, ἔλμιγγος, θρίγγος (-ιγκ-, -ιγχ-), θῶμιγξ -γγος, σάλπιγξ.

62. -ῖδ-; cf. -ινδ- (Fur. 324 n. 7)

βαλβίς, γελγίς, κρηπίς, σφραγίς

63. -ιδ-να

This will be a combination of two suffixes. Cf. on -ν-.

ἀράχιδνα (cf. ἄρακος, -χ-)

64. -ῑθ-, -ιθ- (cf. -ινδ-)

ἄγλις -ῑθ-, αἰγιθαλός (short ι), αἰγιθος, ἀσπίθιον, γάλιθοι, κάλιθος.

65. -ικ-; cf. -ιχ- (Fur. 226 n. 102)

κάλικον, κύρνικα, λέ(ί)κρικα, νώρικον, σώσικες

66. -ιλ-, -ῑλ- (indicated)

αἰγίλωψ, μαρίλη, (σ)πατίλη (-ῑλ- = παστίλη

GN Σκανδίλη (Kos)

67. -ιλλ-

ἄργιλλος, ἄμιλλα, ἄριλλα, ἄσιλλα

68. -ιμν- (Fur. 246 n. 71)

μέδιμνος (ί), μέριμνα, σίδριμνον

69. -ιν-

ἀπόλινον, βάκινον, γοσσύπινον.

GN Μύρινα (Lemn.), Σίκινος (Cycl.), ἼΑρπινα (Elis)

70. -ῑν-

κύμινον, πυτίνη, ῥητίνη, σέλινον, φοξίνος, φορίνη; Σαλαμῖν-

71. -ινδ-; cf. -ινθ- and -ιδ-, -ιτ-.

κύβινδ-ις, κυμίνδ-αλα, ἄλινδον; cf. μίνδις;

GN Κραυσίνδων (R), Πύρινδος (Caria), Βρυγίνδαρα (Rhod. +46)

72. -ινθ-; cf. -ινδ-.

αἰγίνθος, ἀσπίνθιον, καλαμίνθη, λαβύρινθος, λίμινθες, μήρινς

GN Κήρινθος (Eub.), Κόρινθος (+74), Σήρινθος (?)

73. -ισ-

ἄρπισα (-εζα), κύτισος

GN Λάρισα, Κεδρισός, Κηφισός (-ῑσος = -ισσος 25, 61), Τυλισός (Crete)

74. -ιτ-; cf. -ιδ-, -ιθ- (Fur. 163)

βάρβιτος, βόλ(β)ιτον, πόρπιτον

GN Σύβριτα (Crete)

75. -ιχ-; cf. -ικ-

ἄρσιχος

76. -κν- (Probably a combination of -ν- with a preceding sound; see on -ν-)

ἄβαρκνα, δορύκνιον, πισάκνα, φενακνίς, φιδάκνη

77. -μ-ο-

GN Λάτμος (Caria), Πάτμος

78. -ν- (Fur. 132 n. 65.) Sometimes a preceding velar becomes aspirated

ἀράχνη, δαυχνα-, κέρκνος, κύδνος, κυλίχνιον, μόλυχνον, πελίχνη, σαταρνίς, σφάγνος, ψύδνος; Κάβαρνος.

GN Κύθνος (Cycl.)

79. -ξ-

ἄμαξα, ἀτράφαξυς, κοτίξις, κυνίξεις, μοροξός (χθ), σαβάξας (κτ), σόρνιξα

80. -οπ- (Fur. 107; often there is a variant with -αβ-)

ἔλ(λ)οψ, καλαῦροψ, -πος (-όφης), κόλλοψ, σκάλοψ

GN Κορόπη (Thess.), Κασσιόπη (Corc.), Πανοπεύς (Phoc.)

81. -ορ- (See also on word end)

ἄχορα (-υρα), λέπορις

82. -οσσ-α, -οττ-α

GN Ἑρμωνοσσα (Chios), Ὑδροττα (Lydia), Ἀζιοττ-ηνος (Lydia), Μολσσία?

83. -ουλ-ο-

φασίουλος (-ωλος)

84. -ουρ-

ἵνδουρος, κάβουρος, λιγγοῦριον (λο-, λυ-), παλίουρος, πάρουρος, πάνδουρα, τάγχουρος, σκίουρος.

GN Λυκόσουρα (Arc., the oldest town of all; +93)

85. -ουσ(σ)-α (Fur. 197 n. 55)

ἄγχουσα (ἔ-), αἶθουσ(σ)α (αἶδωσσα), κάδουσα, νήθουσα; Ἀκίδουσα, Ἑμπουσα, Κηλοῦσα (Κήλωσσα M Fur. 197), Μέδουσα.

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

θεράπνη, ὄμπνη

87. -πτ- (this suffix will have consisted of one phoneme, so *pʷ*?)

μαρυπτόν, πέσσυ(μ)πτον, σάναπτιν

88. -ρ- (Fur. 124 n. 37; 215 n. 62)

βάλαγρος, γήλιγρος, σίγραι, τάρανδρος, χάλανδρον; Ἰδαγρος (Lyc. *idākre*?).

Compare also on -ρν-, -ργ- and -γρ-.

89. -ργ-

λάθαργος (αι, η)

90. -ρδ-

GN Κύαρδα (Caria)

91. -ρν- (Fur. 48 n. 126; 215 n. 62)

ἄκαρνάν (ἄκάρναξ), ἄκορνα, κυβερνάω, λιπερνέω (λιφ-).

We find variants without the -v-:

σίσυρνα : σίσυρα, κυβερνάω : κυμερῆναι, σαταρνίδες : σαταρίδες, κίσιρνις : κίσσιρις.

So probably the cluster arose through the addition of the suffix -v-. Note that -*rn-* is found in Etruscan and already in Cappadocian; Fur. 48 n. 126. See also on (single) -ρ-.

GN Φαλάσαρνα (Crete), ᾽Αλασάρνα (Kos); Λέρνα; ᾽Αλίκυρνα (Act.)

92. -σκ-

ύρίσκοις (χ, σσ)

93. -σ-ο- (Fur. 254 n. 27. In several cases this seems not a suffix but the end of a root; cf. -ασ-, -ισ-, -υσ-)

ἄλσος, κάβαισος (ασ), μύσος, πῖσος, μῖσος, φάρσος

GN Πρίανσος (Crete), Σ(α)ρανσός (Crete), ᾽Ιαλυσός (Crete)

94. -σσ-

κύπασσις, κυπάρισσος, σάρισσα

95. -στ-

ἀλάβαστος, θεμιστ- (cf. Myc. *temitija* / *timitija* [Ruijgh]), λεπαστή, πλατάνιστος;

GN Κάρυστος, Λύκαστος (Crete), Φαιστός, ᾽Ογχιστός (R Thess.)

96. -στρον; cf. -θρ-.

ἀλάβαστρον, δέπαστρον (λ-), ἔνυστρον (ῆ-), ζύγαστρον, κάναστρον, λαι(σ)τρόν, σίγιστρον

[Prof. Melchert writes me that he thinks that the suffix may be Luwian (-*as-tar-ra/i-*), as in δέπαστρον, where δέπας is of Luwian origin; see Melchert in FS Manaster Ramer.]

97. -τ-ο-

ἄσφαλτος, ἄτρακτος, ἄφλαστον

98. -ττ- (see 5.5 on ττ/σσ)

κυριττοί, προκόττα; Φέρεφαττα

99. -υβ-

ἔντυβον, θόρυβος, ἵντυβος (ουβ), σὶλλυβος, σίττυβος, σκόλυβος (μ), σκολύβρα (-οβ-), χάλυψ; cf. ὀχθοιβός

100. -υγγ-

λάρυγξ, πῖσυγγος (ῑ), φάρυγξ

101. -υδ-

ἄμύς -δος, κορυδός

102. -υδνα

GN Καλυδνά (Kos)

103. -υθ- with long and/or short u

ἄγνύς (ῡ), λήκυθος (short υ)

104. -υι-α

ἄγυια, κώδυια; ῥ Αρπυια

GN Καδυίη (18, 24), Κινδυία (Crete, also Κινδύη 18, 24)

105. -υκ-

ἄμπυξ, ἴδυξ

GN Νᾶρυξ (Locris), Βαβύκα (Lac.)

106. -ῡκ-

κῆρυξ, -υκος

107. -υλ- (Fur. 205 n. 14)

ἄρβύλη, βατύλη, δάκτυλος, κανθύλη, κοτύλη, κρωβύλη, μιμαίκυλον (με-), σφόνδυλος (σπ-) with short υ.

108. -ῡλ-

(σ)κορδύλη; σφονδύλη (σπ-),

GN Καρδαμύλη (Mess.)

109. -υμ-

γέρσυμον, γίγγλυμος

GN Σίδυμα (? 33), Κάρυμαι (Crete), Λώρυμα (Kos)

110. -υμβ-

ἴθυμβος, κόλυμβος

111. -υμν- (Fur. 243 n. 66 on *-umn-* in Etruscan and Cappadocian)

αἰσυμνάω, βασυμνιάτᾱς (ᾱ), σίγυμνος

GN ῥίτθυμνα(Crete), Μάθυμνα (Lesb. +28), Λάρυμνα (Locr.)

112. -ῶν-. See also on -υνν-.

βόθυνος, σιγύνη (cf. -υνν-), λάγυνος

GN Γόρτυν (Crete)

113. -υνδ-; cf. -υνθ/τ-

Βερεκύνδαι

GN Καμυνδ-ιος (Rhodes), Κάλυνδα (Caria)

114. -υνθ/τ-

βόλυνθον, κολοκύνθη, ὄλυνθος; Βερεκύνθ/ται,

GN ῥ Αμάρυνθος, Ζάκυνθος(+88), Τίρυνς

115. -υνν-

σίγυννος, Δίκτυννα

See on -ῶν-.

116. -υξ-

GN ῥ Ολόφυξος (Athos)

117. -υπ-

ῥισσυπος (older ῥσσωπος), μάρσυπος, οἰσύπη, τολύπη.

118. -υρ-

ἄήσυρος, ἄχυρα (-ορα), λαιθυρ-ἄζειν, μαυκυρόν, ὄνυρ-ίζεται, σατύριον, σίσυρα

GN ῥ Ελυρος (Crete). Αἷσυρος (Bith. ++18), Αἷγυρον (+30), Κοίνυρα (Thrac.), Τέγυρα (Boe.), Νίσυρος (Kos)

119. -ῶρ-

ἄγκυρα, ἀνάγυρος ( ὀνό-), γέργυρα (γόργ-), πίτυρον,

120. -υσ-

ἄρυσος

121. -υτ-

GN Λαγινάπτυον (Crete), Κολλυτός (Crete)

122. -υχ-

βό(σ)τρυχος

GN Μόσυχ-λον (Lemn.)

123. -φθ-

κροσσόφθον, λάκαφθον, μόλοφθος, νά(σ)καφθον, σαρρυφθεῖν

124. -φ-ο- (on -αφ-ο- Cha. *Form.* 269)

ἀργέλοφοι (ιλ), μαστροφός (-πός), σέριφος, σέσυφος

125. -ωκ-

GN Κοθωκ-ίδαι (Att. +70)

126. -ωλ-

ἀποφώλιος?, μάγδωλος, φασίωλος (-ουλος, -ολος), φάσκωλος

GN Κίμωλος (Cycl.)

127. -ωμ-

βάρωμος

128. -ων- (Fur. 303 n. 39)

ἀλκυών, ἡϊών, σανδών, σινδών, σχαδών

129. -ωπ-; a variant is -ουπ-

αἰγίλωπ-, κύνωψ, κινώπετον (κυνούπες).

GN Εὐρωπός/α (Crete), Κασσώπη (Epir.)

130. -ωρ- (Fur. 211 n. 50)

ἄχώρα, ἀμάνωρ, βιάτωρ, ἰχώρ (ι), λείτωρ

GN Πίλωρος (Chalc. +22), Κησκώρα (Crete), Ὑσσώρον (M Samos)

131. -ωσσα see -ουσ(σ)α

GN Διρφωσσός (Eub.), Πιδωσσός (Caria +26)

132. -ωτ- (Fur. 283 n. 83; 384 n. 132)

ἄσκαλαβώτης, βαλλωτή, -καυδωτὸν, κῑβωτός, κράμβωτον, μόνωτος, οἰσπώτη

GN Θεσπρωτ-οί

Add. -ιννα (Cha. *Form.* 205),

### 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 -vθος have almost displaced those in -vθ (Τίρυνθ- etc.).

#### 1. in vowel

1a. -α. A short -α can in Greek only result from \*-ya < \*-ih<sub>2</sub>; 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. ἄβαρκνα, ἀγάννα, ἀγέρδα, ἄδαλτα?, αἴκουδα, ἄβδηρα, ἄκαρα, ἄκορνα, ἀκόστιλα, ἀκτάρρα, ἄλαρα, ἀμουχρά, ἄρδα, ἀσταγάννα, ἄφθα, βρούκα, γόδα, γόλα, δάξα, δάρδα, θάπτα, μόδα, ρόμιξα, σάττα, σόρνιξα, σοῦα, κέδροπα (χ-), etc. Note forms in -υα: ἄρυα,...and -εννα.

1b. -ι. IE words (i.e. neuters) in -ι are very rare in Greek.

Exx. ζάκτι, κόρι, τάγυρι (ταγύριον), ἀκαρί. We can safely assume, I think, that words in -ιον, -ιον originally ended in -ι, -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. ἀβαρύ, κόνδυ, μῶλυ, ... See the foregoing on -ιον.

-υς is also found several times: ἄγδυσ, ἄρπυς, ἀτράφαξυς, βίθυν, βλέτυς, ἱλυσ (ῑ), -μένδυσ, μίμαρκυς, μῶυς, πηλαμύς, ῥάπυς.

1d. -εϋς. 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. -ω. Γελλώ κοθώ, κόρθω, μοτώ, τῑτώ, ... The suffix makes fem. names in -ώ: Λητώ, Σαπφώ. Words in -ως are masculine: Ἀχαρνώ(ς), ἥρως; Μίνως, Τάλως.

## 2. -in -p

2a. in -αρ

ἄσαρ(ον)?, ἀκχάνταρ, βάκαρ, ἐλίμαρ, κύδαρ, νέκταρ, νῶκαρ, σελίαρ

2b. -ιρ

Exx. [συλλιρ is Lac. < -ις]

2c. -ορ

Exx. ἀδιγόρ, ἀκκόρ, κακκόρ, κέμμορ (μπ), πίσορ.

2d. -υρ

Exx. ψίθυρ, (Dor.) μάρτυρ,

2e. -ωρ

Exx. ἄχωρ, ἰχώρ, κέλωρ, ψόθωρ

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

3a. -ξ, stem in -κ-, is found quite often:

-αξ: ἄβαξ, ἀκάρναξ, ἄμβαξ, ἀνδράφαξ, ἄνθραξ, βύσταξ, μάλβαξ, σαῦσαξ. ἄναξ has a stem in -κτ-.

-ᾱξ: φέναξ, ῥάξ, σφήξ,

-ηξ: δάνδηξ, βήρηξ,

-ιξ: ἄδδιξ, ἀνθέριξ, ἀπρίξ, κόλιξ, ἄρπιξ,

-οξ: βέβροξ, βίρροξ,



-ουξ: βρούξ,  
-υξ: βλίτυξ, γόρτυξ; Πινύξ, Στύξ.  
Note acc. βάλλεκα; and acc. βρίγκα.

3b. -ψ have:

λάτραψ, λαΐλαψ, ἄλιψ, κόριψ, αἰγίποψ, κόλλοψ, μέροψ, γύψ, μόνωψ. Monosyll.: χρέμψ.

#### 4. in -v: (Kuijper 217)

βαλλήν, καρβάν; Ωγήν.  
κίνδυν, μόσσυν, ῥώθυν-ες,

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

ἄβάς, ἄβλας, ἄθρας(?), ἄμφίας, ἄσκαλώπας, ἄσκωνδας, ἄτταγῶς, βαδάς (βατῶς), βασκῶς, βύας, καλαβάς, κασῶς; ᾿Αθάμας, ᾿Ασγελατας (ā).

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

With stem in αδ-: ἀχράς, βουνιάς, πρημνάς; 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 loanwords 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 / κόσυμβος shows not only the element σσ/τθ, well-known from geographical names, but also the suffix -υβ- with prenasalization. κρόσσιον / κρότιον also shows the σσ/τ, but κρόσσοφθον has a suffix that is also typical for this language. The word δαλλάγχαν beside θάλασσα (-ττα) has again the suffix σσ/ττ but also the prenasalization. ἄστλιγξ / ὄστλιγξ has both the typical (prenasalized) suffix -ιγγ- and variation α/ο. In μήρινθος / σμήρινθος we have the 'mobile s-' and the well known suffix, while μέρμις, -ιθος has the unprenasalized variant, and σμήριγγες has another Pre-Greek suffix. In ἄ(μ)βρυττοι / 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 ἐρέβινθος. 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-INDOEUROPEAN

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 γνάθος. To explain the *-a-* of this word we need introduce a 'second laryngeal' (*h*<sub>2</sub>). However, a preform *\*gnh<sub>2</sub>dh-* would have given Gr. *\*γνᾱθ-* with a long *a*. One might think the assuming *\*h<sub>2</sub>c* would remedy the problem, but *\*gnh<sub>2</sub>cdh-* would give *\*γανᾱθ-*, so we would have another 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 κρέμαμαι '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* < *\*h<sub>2</sub>* (as in κρεμαμαι < *\*kremh<sub>2</sub>*). 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 rule 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 in the east such names can be adduced. 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 Κιδρολλᾱς
- 32 Μαλλός
- 37 Κνώς
- 43 Κάσαι, Σάρος, Κάρπαθος(?)
- 47 Καστάβαλα, Λαέρτη
- 59 Δαλισανδός
- 64 Καλύκαδνος
- 70 Κέσκος
- 72 Σ(ά)ράνσος, Κελένδερης,
- 74 Κύινδα
- 77 Πινδενισσός
- 79 Κασταλία
- 84 ᾽Αδανα