

Time to Gather Stones Together: Greek and Its Indo-European Background*

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Harvard University The origin of Greek ‘stone’ and its unique inflectional paradigm is one of the most notorious problems in Greek nominal morphology. Much ink has been spilled on this topic, but even though many insightful suggestions have already been made both about its inner-Greek connections and its possible cognates in other Indo-European languages, we still have no plausible scenario that would shed light on the morphological peculiarities of and explain how a vast host of different forms claimed to be related to it actually belong together. In this paper I will first propose a new morphological analysis of (§1); then I will discuss related words in Greek (§2) and other Indo-European languages (§3); and finally I will offer a novel root etymology (§4).

1. Before we can address the morphological issues, the phonology of the word should be discussed. The vowel /a/ in the first syllable of is long (and the fact that this long // has not been subject to the Attic-Ionic sound change * > * > *- seems to indicate the Aeolic provenance of the word in Homer). This // is usually found in the arsis where it is not resolvable into two shorts and is therefore likely to be a direct continuation of a Proto-Greek *.

¹Despite earlier assumptions,² the hiatus in cannot have arisen from the loss of digamma, as indicated by Cypriot gen. sg. *-la-o* (similarly Cretan) and as now proved by Mycenaean *ra-e-ja* ‘(made) of stone’ (Heubeck 1961). Rather, as correctly seen by Heubeck, Beekes (1985:15) and Rasmussen (1990–1991:90), the likeliest Proto-Greek re-construction for is **lhas* (with **-h- < *-s-*).

* Preliminary versions of this paper were presented at the Harvard Indo-European Workshop, the 21st Annual UCLA Indo-European Conference and the Institute for Linguistic Studies (St. Petersburg). I would like to thank the audience at all three venues, in particular, Nikolai Kazansky, Petr Kocharov, Craig Melchert, and Andrey Shatskov, as well as Jay Jasanoff, Martin Peters, Jeremy Rau, and Brent Vine, who commented on the written version. The usual disclaimer applies.

1 Brugmann 1900:100–4; Saussure 1909. 2 The lack of vowel contraction in the outcome of Proto-Greek **lhas* in Homer is essentially

unproblematic; cf. likewise disyllabic **dh₁so- > *teho- >* vs. ().

Stephanie W. Jamison, H. Craig Melchert, and Brent Vine (eds.). 2010. *Proceedings of the 21st Annual UCLA Indo-European Conference*. Bremen: Hemen. 189–206.

3The morphology of η (m., later also f.) places the word in a class of its own within Greek: gen. sg. η , dat. sg. η (739, verse-final), acc. sg. η (9 in Homer), du. η , gen. pl. η , dat. pl. η .⁴ It has often been assumed that the masculine gender of η is not original, but rather that the word shifted from the neuter under the influence of other words meaning 'stone', such as $\sigma\tau\eta$ and $\sigma\tau\eta$; under this assumption our word was originally a neuter *as*-stem **I has*, gen. sg. **I hahos* of the type η , 'prize'. The theory that masculine η , acc. η is a secondary development has been adopted by Hamp (1967b:17) and Rasmussen (1990–1991:90), who have further argued that **I has*, gen. sg. **I hahos* is an inner-Greek replacement of inherited heteroclitic **I har/-n* (< **leh₂sr* in Rasmussen's reconstruction). But even though **I has* may continue a neuter *as*-stem, this solution is unlikely.

5First of all, in our case there is nothing in Greek that could support the reconstruction **I har*: there is not a single trace of the alleged oblique stem **h-* or of derivatives like **h-*. Both Hamp and Rasmussen explicitly refer to E. Benveniste's well-known claim that the Greek neuter stems in η are in fact remodeled heteroclitic **r/n*-stems (Benveniste 1935:33). However, this claim has been shown to be generally without foundation. Benveniste's theory was in large part based on the idea that any *ro*-derivative should ultimately be based on an *r*-stem, hence his reconstructions **h₁ro-* (for 'awe', because of η), **h₂ro-* (for μ 'body', because of Gmc. **tim ra-*) or **h₃ro-* (for 'darkness', because of η), etc. But since the appearance of Benveniste's influential book our knowledge of Indo-European nominal morphology in general and of the history of Greek *as*-stems has increased dramatically. First, we now know that **-ro-* existed as an independent suffix, derivationally unrelated to **r/n*-stems.⁶ Second, it has become clear that Greek *as*-stems have multiple origins. In fact, there are only two members of this small class that are at all likely to have an **r/n*-stem in their derivational prehistory, namely, 'marvel' and 'limit', which may continue **k₁er-r* and **per-ur* (note that both of these words have an η in the root). Early attestation

3 In post-Homeric times this anomalous declension was gradually eliminated. 4 Buck 1955:93; Chantraine 1958:211. 5 Mostly associated with Caland systems, e.g., **krúh-* 'gore' (Young Avestan *xr-*) **kruh₂₂-ró-* 'gory' (Vedic *krrá-*). See Nussbaum 1976; 1998:528n25 and now Rau 2009:65–186. For other types of **ro*-formations see Vine 2002.

6 η is likely related to 'monster', which can be traced back to **k₁err* (with liquid dissimilation); amphikinetic **k₁er-r* can then be explained as an internal derivative of **k₁er-r/n-*, which itself will give Proto-Greek **k₁er-ar* **k₁er-as* >. As far as η is

of *-t-* in the oblique stem of these two words (*-*, *-*, PN) sets them apart from the rest of the neuter stems in *-as*—as well as from *.* Other neuter *as*-stems in Greek can either be analyzed as primary *s*-stems derived directly from a root in final **-h₂* or as secondary *s*-stem derivatives from **h₂*stems. There is thus no evidence for a general and regular development of PIE heteroclitic stems into Greek *as*-stems.

The hypothesis that *is* is a reflex of **Ihar* < PIE **I~hsr* is thus not backed up by any actual evidence: in fact, it rests solely on the presumed equation of this word with Armenian *lea n* ‘stone’ and Old Irish *lie* ‘id.’, to be discussed below—but, as we will see, these forms do not have to be explained as outcomes of **I~h₂sr/n* - either. In view of the problems involved in the derivation of *is* from a PIE het-

eroclitic stem, an alternative solution is desirable. In my view *is* directly continues an animate stem **leh₂(e)s-h₂-s*, acc. **leh-m*, which is best understood as a “singulative” formation derived from a stem with a collective suffix **-h₂₂(e)s-h₂-* by adding the endings for animate nouns, **-s* in nom. and **-m* in acc. The derivation of “singulatives” of this type was described by Leukart (1980:238–47; 1994). Leukart’s best known example is **neun(i)s* ‘young man’ (Attic, Ionic), derived from a collective noun **neun(i)* ‘group of young people’:

**neuo* - ‘young’ **neueh₂* ‘being young, youth’ **neueh₂-h₁(e/o)n-*
‘having youth’ (> Hsch. ?) **neueh₂-h₁n-eh₂* ‘group of young
people’ **neueh₂-h₁n-eh₂-s* ‘member of a **neueh₂-h₁n-eh₂*’⁹

Another illustrative example is Greek ‘sailor’¹⁰:

^{NA4}concerned, this word cannot be separated from Homeric *is*, which, barring semantic problems, may be compared to Hittite *p ru* ‘rock’ and Old Indic *párvan-*, *páru-* ‘knot’. ⁷ See Nikolaev (to appear). ⁸ As Leukart points out, unattested ** ()* must be a replacement of ** ()* (cf. fem. *l-*, not *-*).

⁹ The analysis here differs from the one originally proposed by Leukart only insofar as he glosses **neueh₂* as ‘Gesamtheit der jungen Leute’ and operates with an individualizing **-n* suffix, while I use Hoffmann’s possessive suffix **-h₁(e/o)n-* instead. ¹⁰ Klingenschmitt apud Janda 1997:144.

*no/eh₂u - 'ship' *neh₂u-(h₁)-tó - 'having a ship' (*barb tus* type) *néh₂u-(h₁)-to - 'the one having a ship' *néh₂u-(h₁)-(coll.) 'ship's crew' *néh₂-tehu-(h₁₂)-teh₂-s 'a member of the crew'

For *h₂-derivatives from athematic stems we may compare Janda's attractive derivation of Greek *φ*, f. 'tree, oak' (Janda 1997:141–5). The base word in this case is clearly PIE *do/eru - 'tree'; the stem *druh₁₁₂- 'wood' can be reconstructed based on Younger Avestan *dr-*, and the following derivational chain can be posited:

*do/eru - 'tree' *dru-h₂- 'wood' *druh₂-s, *druh₂-m 'a single tree; a type of tree'

Greek *σ*, 'single stone' can likewise be explained as a singulative, derived from a stem in *-h₁₂₂- (Proto-Greek *lha) with the meaning 'mass of stones'. The next step is to offer a derivational account of *lha 'stones, mass of stones'. Such a form with a collective meaning is very likely to be a "neuter plural" with suffixal *-h₂ made from a stem whose Proto-Greek shape was *lh-. What may in fact lie behind this *lh- is a neuter s-stem *leh-e/os- 'stone' with an early vowel contraction after the loss of the laryngeal (compare Old Indic *bh s* - 'light' < *b eh₂-e/os-, Avestan *dh* - 'gift' < *deh₃₂₁₃-e/os-). As a collective neuter plural of this stem we would expect a form *leh₁₄ of the same structure as Greek *σ* or Latin *genera*; this *leh₂₂-es-h-es-h₂₂ 'mass of stones' is the

11 Schindler apud Watkins 1995:162–3. 12 This solution only superficially resembles the reconstruction proposed for *σ* by Pedersen

(1926:44–7), who, building on Saussure 1909 (= 1922:587), regarded *σ* as a reflex of an animate stem *-s, *-()-os, which would effectively be an instance of a special declensional type unparalleled among the *h₂-stems (note the sigmatic nominative and the absence of any ablaut in the paradigm).

13 Alternatively, Proto-Greek *lh- could go back to a neuter root noun *leh₂s - 'stone'; however, as we will see below (§2), other evidence makes this reconstruction unattractive.

14 *gēnes- *gēnesh₂ (Homeric *σ*, *τ*) is not the oldest way of making neuter plurals from s-stems: originally, as has long been seen, these were derived internally (*gēnes- *gēn s) and traces of this model can still be found in Indo-Iranian, where amphikinetic s-stems were reinforced by adding *-h₂ (e.g. *uars-i 'shine' > Old Indic *vārc si* = Old Avestan *varc .h*).

¹⁵source of Proto-Greek **lha*, which serves as the basis for an externally derived “singulative” **lha-s* >. The story of ends here. However, two problems are still unresolved:

first, the analysis just proposed presupposes that is ultimately derived from a root **leh₂-*, for which no further evidence is known. Secondly, if there indeed existed an *s*-stem **leh₂-e/os-* ‘stone’, it is unclear why a new singular/singulative with the same meaning had to be derived from the neuter plural **leh₂-es-h₂*. To answer the first of these questions and find further evidence for the postulated root we will have to take a fresh look at other words for ‘stone’ in Greek and other Indo-European languages. The answer to the second question will emerge along the way.

2. First we will address the remaining Greek evidence. The first word to be discussed here is Attic-Ionic // ‘pebble’, ‘small stones used as weights in an upright loom’. The root vocalisms of () and ¹⁶ can be reconciled under the assumption that the *e*-timbre of () is due to a vowel dissimilation in original **lii-* (compare the similar dissimilation in Messenian ‘curtain’ vs. , Heracleian ‘former’ vs.). The mobile accent (/) makes the reconstruction of a **i*-stem very plausible (compare the accent pattern in other *dev* stems in Greek: , ‘burning hot’ or , ‘street’); our word, therefore, is likely to be an **ih*-derivative of some kind. Since **lii-* simply means ‘(small) stone’, it is unlikely that it was originally a genitival or possessive derivative; **-ih₂₂-* in this case is merely an extension without an apparent derivational meaning, compare ‘flight’ vs. **-* (found in adv. -).

The next question is what exactly **lii-* is an **ih₂-*derivative of. It might appear attractive to trace **lii-* back to the *s*-stem **lh-* (< **leh₂e/os-*), reconstructed above for , but this is impossible: Proto-Greek **lhi* would give

¹⁵ The inflection of should in this case be regarded as “heteroclitic”: the oblique case-forms (gen. sg. , dat. sg.) historically belong most likely to the declensional paradigm of a different stem. One likely source of these forms is the underlying *s*-stem: gen. sg. **lehes-os*, dat. sg. **leh₂₂es-i* > **lhos*, **lhi*. For a similar “heteroclisys” compare , ‘ground’ (stem **oud-as-*) vs. spondaic dat.sg. (< **oud-ei*, stem **oud-*) or adj. μ , acc. μ , but μ - in the oblique case forms. Alternatively, , can be traced back directly to **leh₂es-h₂-os*, dat. sg. **leh₂es-h₂-i*. ¹⁶ For original -- note also the name of the blue rock thrush : the bird owes its name to its habit of perching openly on rocks or ruins.

¹⁷**l ii* (> Attic-Ionic *). In my opinion, the only preform that would produce the required outcome is a reconstruction **l ui*, with a metathesis *-*ui* > *-*iu*- after a non-front vowel (compare **auieto* - > , Ionic , Attic 'eagle').

(Despite their similar meanings and apparent root connection, Aeolic 'stone' and Attic-Ionic *)(- '(small) stone' are thus not immediately related: for phonological reasons *)- can only go back to a protoform with a *-*u*- in it. In fact, there is further evidence for a Proto-Greek **l ~ u*- 'stone' from which **l ui*- could have been derived.¹⁸ First, there is the Attic adjective 'rocky, of hard stones' (A. *Ag.*

666; E. *El.* 534). According to the laws of Attic phonology, () cannot go back to a proto-form **l so* - (that would be derivationally related to the *s*-stem **l h* - < **leh*₂₁₉ *e /os*-), since the latter would develop into Attic *- . The sequence - can only come from **l /uo* -: **le* - < **l* - *o* - < **l* - *uo* - (< **l* *uo* - < **l* *uo* -).

17 Even if one were able to generate a Proto-Greek **l s* - as a *super-zero-grade*, there is an innerGreek phonological problem with this analysis. Since the function of *-*ih*(*) as a derivative of **leh* in this case is unrelated to *Motion*, it is unlikely that speakers would have been able to detect a morpheme boundary in a putative **l s-i* > **l h-i*; this being the case, **l hi* would give Attic-Ionic * (< **l* (i) < **l* (i)), since in all non-Aeolic dialects the sequence *-*a /ohiV* - (< *-*a /osiV* -) without intervening morpheme boundary is reflected as *-*iV* - with a subsequent loss of non-syllabic **i* (see Kiparsky 1967:629; Peters 1980:142 and Peters 1984:99n* for a discussion of the dialectal outcomes of Proto-Greek *-*osio*, **telesie /o* - and **gelasie /o* -). A borrowing from an Aeolic dialect (where **lahi* would indeed have given -) would be unlikely in the extreme, given the technical meaning of our word. For these reasons it does not appear possible to explain *22-e /os*-. 18 The following discussion owes much to insights contained in Brugmann 1900:102-4 and

Pedersen 1926:45-6. 19 Nevertheless, it should be pointed out that as evidence in support of Proto-Greek

**l /uo* - is indecisive: there are two factors that complicate any such inference from this word. One is that , even though it is only attested in Attic tragedy, might still be a poetic borrowing from Ionic (note that the first member of the compound () clearly has a Homeric ring to it, cf. , -). If (-) is Ionic, a development **l ho* - > **l o* - > - with quantitative metathesis, but without contraction, would likewise be entirely legitimate, in which case we would have to admit that (-) does not guarantee a ProtoGreek **l /uo* - as it could be related to Proto-Greek **l h* - (>) instead. The second complicating factor is that even if (-) is not an Ionic borrowing, it may easily be a poetic creation, imitating the alternation between the forms of Homeric - and Attic - 'host of men' (< **l* *uo* - < **leh*₂*uo* -), both of which were exploited in Attic tragedy for metrical purposes (e.g., [E. *Andr.* 1089] ~ [E. *Andr.* 19], ~).

A firmer foundation for nominal **l̥u-* is provided by Attic, Ionic ‘passage, alley’, Mycenaean *ra-u-ra-ta*, *ra-w a-ra-ta*²⁰: the proto-form of this word can be unproblematically reconstructed as Proto-Greek **laur*. However, its relation to the words for ‘stone’ is still not immediately apparent, for semantic reasons. The only thing we can say about the meaning and usage of this word with any certainty is that *laur* specifically refers to narrow passages;²¹ only once, in a late text (Plu. *Crass.* 4), is this word applied to a cleft leading inside a cave. However, the theory that the original meaning of Proto-Greek **laur* was ‘cleft in a rock; tunnel in a mountain’ is supported by the very plausible etymology of this word suggested by Jokl (1934:46–8), who compared *laur* to Albanian (Geg) *lerë* f. ‘pebble bank, heap of stones’ (< **laur*, cf. *err* ‘darkness’ < **ausra*, Lithuanian *aurà*). The semantic development from ‘cleft in a rock’ to ‘narrow passage’ is quite possible, and Proto-Greek **laur* thus provides one more argument in favor of a Proto-Greek **l̥u-* ‘stone’.

²²Further supporting evidence for a Proto-Greek nominal stem ‘stone’ starting with **l̥* and ending in **u* is supplied by the Attic-Ionic verb () ‘to stone’ (Hdt.+). Since the meaning of the verb strongly suggests denominative origin and its shape is perfectly compatible with this assumption,²³ we may surmise that it was derived from a nominal stem in *-u-*. As Brugmann (1900:102–3) already noticed, the allomorph *-s-* does not need to be original in the present stem, but could rather have been transferred from the stem *-s-* in the aorist and future. This *-s-* can go back to Common Greek **leu-s-* or **lu-s-* (the latter with Osthoff’s Law).

The facts can now be summarized as follows: while Greek *lithos* in all likelihood is based on an *s*-stem **l̥s-* from PIE **leh-es-* (ultimately from a root **leh₂₂-*), Greek also appears to have words meaning ‘stone’ derived from **l̥u-*/**l̥u-l̥*/**lau-* (with ablaut typical for “long-diphthong” roots). The formal and

²⁰ From the Melanthius episode in the *Odyssey* (126–38) we learn that only one person could attack within a *laur* at a time (μῆτις ἑκάστη μῆτις), and a scholiast confirms this, glossing *laur* as *laur*. In Herodotus (1.180) the word refers to small alleys leading off of main streets, and similarly, in Pindar (*P.* 8.86), the *laur* are back streets, where defeated contestants hide from their enemies.

²¹ Demiraj 1997:237–8. ²² Compare pres. **leu-*, aor. *-s-* ‘to be more, to be superfluous’ in Hsch. derived from *-s-* (Hsch. μῆτις).

²³ Compare the denominative type, where the present stem in **-u-je/o-* did not develop into **-eije/o-* in any dialect of the second or first millennium (except Elean), as might be expected, but was instead analogically refashioned after the sigmatic aorist.

semantic similarity between $*leh_2-$ and $*IV^-u-$ is too striking to be fortuitous. In my opinion Proto-Greek $*Iu-/I^{\sim}u-$ can be further analyzed as an acrostatic $u-$ stem $*I^{\sim}h_2u-$: the preconsonantal root-allomorph $*lehu-$ gives Proto-Greek $*lau-$, found in $\lambda\alpha\upsilon\sigma$ and (cf. $*neh_{22}u-C$ in ‘from aboard ship’, ‘sailor’), and a reflex of prevocalic $*lehu-$ is found in Proto-Greek $*Iu-o > Attic-Ionic *Iuo > -$ (cf. $*neh_{22}u-V$ in the Ionic gen. sg. ‘ship’), while lengthened-grade $*Ih_2u > *Iu > (-)$.²⁴ The u -stem $*I^{\sim}h-u-$ can now finally be compared to the root $*leh_{22}$ -reconstructed above for λ . **3.** It is time for us to leave Greek and place the reconstruction $*leh_2u-$ in a broader Indo-European context.

The first step in this direction was already made above: as we have just seen, Greek ‘narrow passage’ and Albanian *lerë* ‘pebble bank’ make a PIE $*leh_{225}uro-$ nearly indispensable. A tertium comparationis for this proto-form is perhaps found in Anatolian. The word in question is Milyan *la re-* (nom.-acc. pl. *la ra*, dat. sg. *la ri*), variously translated as ‘Steinplatte’ (evorokin 1977:135), ‘Steininschrift’ (Meriggi 1980:367) or ‘Steinmal’ (Eichner 1993:145). If indeed this word denoted a stone tablet, a stele, or any kind of ritual object made of stone, a derivation from a possessive denominative ro -derivative $*le_{(u)}u-ro-$ ‘stony, made of stone’ would certainly be appealing. But would it work phonologically? In fact, Hajnal (1995:26) made a persuasive case for // as the phonological value of Lycian λ and suggested Proto-Anatolian $*-hu-$ as the origin of this secondary labiovelar. If Hajnal’s theory is correct, Milyan *la re-* may go back to $*la uro < *la uro < *leh_{2226} uro-$. This analysis of the Milyan word depends crucially on a meaning like ‘stone plate’ that is not established beyond doubt and also assumes a controversial phonological development.

24 The lengthened grade might seem suspect, but there is hardly any other way to explain the verb (-): a reconstruction $*leu-s-$ with short vowel would make any connection with other words for ‘stone’ impossible (which would be undesirable). In addition, Common Greek $*Iu-$ beside $*I^{\sim}u-$ seems to be required by the corrupt gloss in Hesychius † (ms.

), which, as Brugmann (1900:100) noticed, must be a non-Ionic-Attic reflex of $*Iuo-$ ($> *leo-$ with antevocalic shortening): the change of antevocalic e to i is alien to Ionic or Attic. Nevertheless, we are dealing with an emended form: note the claim made by Pedersen (1926:45) that the original lemma may rather have been †.

25 Melchert 2004:119 leaves *la re-* without translation. 26 See Kloekhorst 2008a:126 for a different phonological interpretation of Milyan λ (I owe this reference to C. Melchert); note that Kloekhorst’s identification of the sound as /ç/ is based solely on systemic grounds.

27less, the possibility remains that Milyan *la re* - provides a complete match to Greek and Albanian *ler*. We are finally in a position to tackle two notorious forms: Armenian *lea n*

and Old Irish *lie*. Let us briefly review the pertinent facts. The Armenian *n*

-stem *lea n* (gen. sg. *lerin*) 'mountain' has often been de-

rived from PIE **k leitr* 'slope' (PIE *lei-* 'incline'),²⁹ but Hamp (1967a, b) rejected this traditional a

*k

criticized derivation in favor of a very appealing comparison

Greek forms discussed above (, ,). Hamp was not sure whether

underlying root contained **s* or **u*, but he noticed correctly

either analysis *lea n* must go back to a proto-form with a l

the root. Old Irish *lie* (disyllabic, later *līa*, *līa*) 'stone' goes

with a final

30etymological **-nk-*, as can be inferred from the oblique forms: dat. sg. *liic*,

gen. *liac*, nom. pl. *lieic*. Like Armenian *lea n*, the Old Irish word adds an

interesting twist to our discussion, since the vowel in the initial syllable of *lie*

is unlikely to go back to *** raised in hiatus before **-ænC* - > **--* of the following

syllable: a proto-form with a short vowel in the root would have given /le.g/.

This fact

27 There is one potential argument that lends further support to this analysis, namely, the possibility of an etymological relationship between Milyan *la re* - and Lydian *laqrīsa* 'covered passage, *dromos*', compared to the Milyan word by evorokin (1977:135) and Eichner (1993:145). Since *laqrīsa* clearly designates an element of a tomb and is therefore something made of stone, this word may be based on our **leh₂uro* - 'of stone'. Unfortunately, the phonology in this case is unverifiable. The normal sources of Lydian *q* are the inherited labiovelars **k* and **g* and the sequences **ku* and **ku* (Gérard 2005:57), but there are no examples that

could prove or disprove that Lydian *q* could also come from a secondary labiovelar (intervocalic Proto-Anatolian **-Hu-*).

There might even be a third Anatolian comparandum, namely, Hittite *la ura* - 'offering table' or 'stand', which was compared to Milyan *la re* - by Melchert apud Hajnal 1995:26. The leap of faith is to assume that the original meaning of *la ura* - (< **leh₂u-ro* -) was 'stone table' and that by normal semantic extension the word came to designate any table, including wooden ones. This is of course suggested as a mere possibility.

28 Cf. Greek 'hill'. 29 In view of the paucity of reliable examples no fixed rules can be written; nevertheless, it has

been plausibly argued that a Proto-Armenian sequence **-i.a* - (with **i* from *** or **i*) gives *-ea* - (compare aor. *-eac* < **-iha* < **-sa*), while a sequence **-..a* - contracts to *-a* - (compare *garown* < **uesaro* - < **ues-r-* 'spring' or *ariwn* < **esar-* < **h₁esh₂r-* 'blood'). 30 Pace Lindeman

(1997:85) the first vowel of *lie* is unlikely to be explained as a product of

vowel raising in hiatus: while there are several examples of raising of *** to *i* before *a* (from

**a* or unstressed **o*), e.g., gen. sg. *niad* 'sister's son' < **nepotos* (see Schrijver 1995:387),

there is no evidence to support the claim that **æ* in **le.ægg-* < **le.ank-* (where **æ* < **a*

before a

was also acknowledged by Hamp (1967b:87), who reconstructed **lXnk-* (where *X = *s* or **u*).

Armenian *lea n* and Old Irish *lie* thus show a reflex of initial **l-* as opposed to **l-* (< **leh₂₋*) in Greek and **l̃u-* (< **leh_{2u-}*) in the other forms we have examined above. Independently from one another, Eichner (apud Mayrhofer 1986:133) and Rasmussen (1990–1991:90) used this Armeno-Helleno-Celtic comparison as an example of Eichner's Law: they resolved the conundrum posed by the **l-* ~ **l̃-* ablaut by reconstructing a root **lh_{2s}-/*lahs-*. Hamp's protoform **l s ren-* was revised by Rasmussen as **lh_{2srn-}* (with a blend of two heteroclitic stem formants, as in Latin *itineris*), and for Old Irish *lie* he reconstructed **lh_{2snk-}*, while Greek was supposed to go back to **leh_{2s-r-}*. Indeed, the reconstruction of a lengthened-grade vowel in the root (supported by Greek, as discussed above) seems to be the only phonologically plausible solution in our case. The root shape **lehs-* is unproblematic as well: for this root type we may compare **peh_{22s-}* 'to protect'. But how compelling really is the reconstruction **l hs -r/-n-*? One of the greatest attractions of this analysis has been its ability to derive Greek from effectively the same proto-form as Armenian *lea n* and Old Irish *lie* (minus the lengthened grade); however, as we saw above (§1), Greek is unlikely to continue anything like a heteroclitic stem **lh_{22s-r/-n-}*. Even more disturbing is the fact that if we reconstruct a root **leh_{2s-}*, following Eichner and Rasmussen, there is no way to integrate into this analysis the extended allomorph **leh_{312u-}* posited above. To sum up, the Eichner-Rasmussen analysis is quite attractive and cannot be

ruled out with certainty, but it nevertheless faces serious difficulties.

Therefore I would like to suggest a slightly different reconstruction for Armenian *lea n* and Old Irish *lie*. Since intervocalic **-u-* was lost in the history of Irish, there is no

tautosyllabic nasal by a Proto-Celtic sound change) could have triggered the same raising (note the absence of raising in *té*, *teit* 'hot' < **te.ænt-* < **tep-nt-*).

31 The second problem is in itself perhaps not insuperable and an attempt could be made to reconcile the Eichner-Rasmussen solution with the *s*-stem analysis of proposed above: the stem **lh_{2-s-r/-n-}* would then be an instance of a stem with a complex suffix **-sr/-sen-* backformed to an *s*-stem, presumably based on a locative **leh-s-en*. The endocentric meaning 'stone' would be compatible with the back-formation approach. However, an acrostatic **lh_{22-s-r/-n-}* would be unique: in a **sr/sen-* extension of a regularly inflected *s*-stem one would not have expected **-*grade in the root (for which the derivational base provides no evidence).

32 Cf. **h₂iuuh₁nkos* > **iouænkos* > Primitive Irish **oueggah* > Early Old Irish *oéc*, Old Irish *oāc* 'young'.

problem with reconstructing **I h₃₃₂* Likewise, a protoform **I hunk* - > **I unk* - as a proto-form for Old Irish *lie .urno* - > **I urno* - is possible for Armenian *lean* : compare **sneh₁₂₃₄urti* - > **sn urti* - > *neard* 'tendon'. Under the reconstruction **I hurl-n* -, both the Armenian and Celtic words can be compared with the **I ~ h₂₂u* - established above.³⁵ Greek shares the same root, but has a different derivational prehistory.

What are we to make of all this? In keeping with the promise made in our title, it is now possible to gather all the stones together: all the 'stone' words can now be subsumed under one of two derivatives from the root **leh-*, namely, the *s*-stem **leh₂-es* - and the *u*-stem **leh₂-u* -. 4. The last unanswered question concerns the root **leh₂₂*- which, it was argued above, underlies the words for 'stone' in at least five daughter languages: no evidence for such a root is on the record. But in fact, suitable evidence has long been available; we just need to know where to look.

Importantly, in different Indo-European languages we find a recurring pattern whereby words for 'stone' or 'rock' are based on verbs of 'cutting' and 'splitting':

- OCS *skala* , Gothic *hallus* 'rock': Hittite *i kalla -i*, Lithuanian *skeliù* , Greek 'I split';
- Latin *saxum* 'rock, boulder': OCS *s k* 'chop', Latin *sec re* , OHG *sahs* 'knife' and *sega* 'saw';
- Latin *r p s* 'rock': *rum p ere* 'break'.

33 The presence of other reflexes of **I ~ hu* - in Celtic may tip the scale in favor of the derivation of Old Irish *lie* from **I h₂₂unk* - (even though it cannot of course be excluded that Celtic, just like Greek, inherited both **leh₂-es*- and **I ~ h₂u* -, **I ~ h₂url-n* -): as Schmitt (1997:825) recently pointed out, the Gaulish substratum is a likely source of the Romance words for 'lava' (Italian *lava* , French dial. *lave*). Schmitt's reconstruction of Gaulish **laua* is not a mere inference from the Romance data, but is also supported by Gallo-Latin *lausiae* 'pebbles in a stone-quarry'.

34 The root is that of Greek , Tocharian B *ñor*, Avestan *sn uuar* (see Eichner 1978:154). 35 It should be noted that we find quite a few other **url/n* -stems attested beside *u* -stems, e.g., **sneh₁u-r/n* - in Avestan *sn uuar*, Vedic *sn van* 'sinew' vs. **snehu* - found in Avestan *sn uu(īa-)* 'made of sinew' (Nussbaum 1998:535; for other examples see Nikolaev 2009:479– 81). It is tempting to see in such **url/n* -stems back-formations to loc. sg. forms in **-en* of the respective bare *u* -stems. Accordingly a **url/n* -stem **I h₂₁url-n* - found beside a *u* -stem **I hu* - would not be an odd formation at all; moreover, since we have independent evidence for the reconstruction of **I h₂₂u* - with -grade in the root (namely, Proto-Greek **I u* - in aor. - and Hsch. †), **I hu-r/n* - would have an immediate morphological advantage over a putative **I h₂₂-sr/n* -, presumably back-formed to a regularly inflected *s* -stem **leh₂-es*-.

It is thus entirely possible that the PIE **leh-* we are looking for is not a root meaning 'stone', but rather a root meaning 'to cut' or 'to split'. In fact, the morphology of the words for 'stone' we have reconstructed thus far is perfectly compatible with this approach and even speaks in its favor: it is surely no accident that the *s*-stem **leh₂es-* and the *u*-stem **leh₂₂₃₆u-* correspond to two types of verbal nouns that can be securely reconstructed for the proto-language. *S*-stems represent the productive and well-known late PIE way of making verbal abstracts,³⁷ while the residual type of *u*-stem verbal substantives can be exemplified by Vedic *jásu-* 'exhilaration', Greek **'ruination'*, or Old Irish *riuth* 'running'.³⁸³⁹ Since action nouns can easily be concretized as result nouns, the verbal nouns **leh₂es-/ *leh₂u-* 'cutting, splitting' could come to mean 'cut, split stuff', whence 'rock, stone'.

All that is missing now is actual evidence for a root **leh₂-* 'to cut'. There are two possible pieces of evidence for such a root.

The first is the Tocharian AB root *l tk*⁻⁴⁰ 'to cut off', which has no etymology. It is now nearly universally agreed that Tocharian verbal roots in *-tk-* originate in **ske /o-* presents made to roots ending in a dental stop, where the **-s-*⁴¹ in a resulting Proto-Tocharian cluster **-tsk-* was lost by a sound law. can be mechanically traced back to **lh* In line with this theory Tocharian *l tk--T-*, which can then be interpreted as our root **leh₂-* with a dental extension.⁴²² The second, less straightforward piece of evidence in favor of the reconstruction of a root **leh₂-* with a meaning 'to cut' or 'to cleave' is the quasi-root **leuH-* found in Old Indic *lav-* 'to cut, to split', where pres. *lun ti* (Br.+; later also *lunóti*) is the best known and best attested part of the Averbó; the verbal adjective *(-)l_{na}* - shows the root in the zero-grade, while the full-grade form of the root

36 See Stüber 2002:69–171. 37 See Nussbaum 1997. 38 Fossilized case-forms of both *s*-stems and *u*-stems are used to derive non-finite forms of the

verb: compare for *s*-stems Vedic *-áse*, Younger Avestan *-a h*, Greek **-h*, and Latin *-re*, and for *u*-stems Old Avestan *d uu i* and *v duii*.

39 For instance, Greek *genos*, Latin *genus* and Vedic *jánas-* all mean 'stock, kin, lineage' (i.e., **'what is born'*), not 'birth'.

40 See Adams 1999:547 ("etymology unknown"); for the forms see now Malzahn 2010:834. 41 See Malzahn 2010:460–1 for a recent discussion and references. 42 Such an extension is not unparalleled in a laryngeal-final root: compare Greek *(-)* from **preh₁-* 'blow' (Hittite *p ra*) or from **kieh₂-* 'sieve' (Attic *(-)*, Hittite *kinaizz*).

can be seen in the noun *laví-* ‘sickle’.⁴³ As has long been noticed, this Old Indic root has a correspondence in Germanic **leu-* (e.g., Old Norse *lé* ‘scythe’ < **leun*).

In my opinion, the apparent reflex of **leuH-* in Indo-Aryan and Germanic is best interpreted as a new full grade, secondarily back-formed to the zero-grade **luH-* (viz. **luh₂₄₄₋*). For this process we may compare **kouh-* in OCS *kovati* ‘to forge’ and **keuh₂₂₋* in Greek () ‘to split’: these “state I” forms are based on **kuh₂₋*, the zero-grade of the root **keh_{245U-}* - found in Tocharian B *kau-*, A *ko-* ‘to destroy, kill’ and Latin *cauda* ‘tail’, *caudex* ‘tree-trunk’. It is worth mentioning that zero-grade **luh₂₋* is potentially attested outside Old Indic: an expected substantivization of adj. **luh_{246-tó-}* ‘cut’ would be an *i* stem **luh_{247-ti-}* ‘what is cut, opening’, a direct reflex of which we find in Hittite (*katta*)*luzzi-* ‘threshold’ (*‘what is beside the opening’). A further derivative of **luh_{2-ti-}* is **luh_{248-ti-}* > Hittite *lutti-* ‘window’. Both (-)*luzzi-* and *lutti-* may equally contain unstressed reflexes of monophthongized **ou* (or **eu*), but in any event, these words are likely to be *i*-stem derivatives from a stem **luh_{249-to-}*. As in the case of **kuh₂₋*, the zero-grade **luh-* might be a result of a laryngeal metathesis that converted original **lh_{22UC-}* - to **luh_{2C-}*; it is thus not unreasonable

43 *lun ti* has already been compared to Greek **lu-*, namely by Peters (1989:223), whose formu-

lation largely anticipates the conclusions of this section of the present paper (“m.E. zu ai. *lun ti* gehöriges idg. **lh_{2U-}* / **leh_{2U-}* - ‘Stein’”). 44 The connection of *lun ti*, etc. to the family of **leuH-* ‘set free, release’ (*LIV* 417; Toch. B

lyewetār, Greek , Latin *lu*) was never very appealing semantically (and is rejected, for example, in *EWAla*).

45 See Jasanoff 1978:81; on Greek () from **keuh₂₋* (not **kes-* ‘to rub’) see Peters 1989:260. (I am grateful to Brent Vine for reminding me of the relevance of the root **keh_{2U-}* - in this connection.)

46 A reflex of **luh_{2-to-}* is possibly found in the late Vedic acc. sg. fem. *l t m* (TS VII 5.9.1), which, however, may well be secondary. 47 For this semantic analysis see Kloekhorst (2008b:464–5), who points out that the word also

refers to the lintel. The word thus probably referred at least originally to the frame surrounding a door or window.

48 For this root etymology of Hittite *lutti-* - see Eichner 1973:80. Melchert 1984:59–60 has added Tocharian B *lyauto* ‘opening’ (< **luteh₂₋*) as a further comparandum (differently Hilmarsson 1988).

49 The derivation **luh_{2-to-}* - ‘cut’ **l(o/e)uh_{2-ti-}* ‘that which is cut’ (whence ‘cut; opening’) follows the model that in PIE was used to derive (i) substantivizations of adjectives (masculine) or (ii) adjective abstracts (feminine), see Nussbaum apud Vine 2006b:151.

to speculate that the real full-grade in this case is
*leh₂

2

251U - 'stone'.

2

52

2

2

2

2

53

2

can be traced back to a verbal root
*leh₂

ti *'make cut'.

proposed: granted a possible preservation of
*luh₂

ti 'make clean' = / tǎ - 'cut' : X , where X is resolved as lun - and *treuh₂¹

3-u - 'to live', *d enh₂

1

52 See Nussbaum 1997:117, where the scenario for *terh₂-,
*truh₂

53 Overall, the system of derivatives from the root *leh₂
2- (*geh₂

2

2

The next question is how this *lehu - should be interpreted: it may seem tempting to regard this stem as a u-present, but a more promising

alternative in my opinion is to assume that the *-u - in this form is the suffix of the nominal *u*-stem verbal abstract 'cutting', which is in fact lurking behind our **leh*. The key feature of the scenario just proposed is the penetration of the origi-

nally nominal suffix *-u - into the verbal root. This is not unheard of: as a possible parallel one may quote the case of the root **terh-* 'to rub' (, μ), where, apparently based on a nominal stem **terh-u* - (Greek), a new rootallomorph **truh-* was back-formed, reflected in Slavic **truti-* was created (μ, 'wear out') to which in turn a new full-grade **treuh*. The solution for the root of Old Indic *lun ti* contrived above is admittedly

speculative and may not be the last word on the origin of this verb; nevertheless, supported by the evidence of Tocharian / *tk-*, a root **leh-* 'to cut' becomes a very strong candidate for inclusion in the repertoire of PIE verbal roots. 5. We can now take stock. All of the words for 'stone' discussed in this paper

- 'to cut, to split, to cleave'

attested in Tocharian / *tk-* and, somewhat indirectly, in Old Indic *lun ti*. The majority of

the words for 'stone' are based on a *u*-stem verbal substantive **l ~ hu* - 'cutting' that also had a concretized meaning 'that which has been cut'. Verbal abstracts are a category that is characteristically prone to morphological renewal and *u* stems already became residual in this function within the proto-language: at some

50 Old Indic *lun ti*, despite its primary appearance, does not militate against the solution just

-to - 'cut' into Early Vedic, a

nasal-infix factitive present stem could easily have been created based on the proportion *p tá* - 'clean(ed)' : *pun*

51 In fact, these two options need not be mutually exclusive: in my view, the forms sometimes labeled *u*-presents (of the type **g ieh-u* - as the precursor of the verbal stem **b erh-u* - 'to move out', **ser-u* - 'to heed', etc.) should be seen as denominative in origin and based on *u*-stem verbal abstracts of the type discussed above. A detailed discussion of this question cannot be accommodated here (for the reconstruction of *u*-stem **b orh-u* - 'to boil, to flutter' found in Germanic, Italic, Celtic, and Iranian, see in any event Nikolaev 2009:480n67).

presented above is laid out, without, however, being fully endorsed by its author. - reconstructed above is reminiscent of the root **geh-*?) 'to rejoice' that seems to be the common denominator of two roots reconstructed in LIV 184, where we find **g(e)h-d-* in Tocharian AB *k tk-* (< **katsk-*) and Greek (Ionic) 'rejoice', beside **geh-u* - with *u*-extension in Greek, 'proud, exulting in'.

point the functions of **h₁* *hu-* ‘cutting; cut, split stuff’ were relegated to the productive *s*-stem **leh₂₂-es-*, while **h₂* *h₂u-* itself became lexicalized in the meaning ‘rock, stone’ (cf. Latin *saxum*). **h₂* *h₂u-* and its derivatives **lh₁u₁-n-* and **leh₂₂u-ro-* gave rise to such forms as Armenian *lean* and Old Irish *lie*, Greek (̂) ‘small stone’, (-) ‘to stone’ and - ‘rocky’, Greek , Albanian *ler* and possibly even Hittite *laura-* and Milyan *lara*.

History often repeats itself, and that is what must have happened with the verbal abstract **leh₂-es-*: its late PIE collective **leh* similarly changed its lexical meaning from ‘split/cut substance’ to ‘mass of stones’ and as a result was no longer paradigmatically associated with **leh₂₂-es-h₅₄-es-*.² A new singular with the meaning ‘single stone’ was needed and this is the reason **leh₅₅-s* > was created. *2-es-h₂*

References Adams, Douglas Q. 1999. *A Dictionary of*

Tocharian B. Amsterdam and Atlanta: Rodopi.

Beekes, Robert S. P. 1985. *The Origins of the Indo-European Nominal Inflection* (IBS 46). Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.

———. 2009. *Etymological Dictionary of Greek*. Leiden and Boston: Brill. Benveniste, Émile. 1935. *Origines de la formation des noms en indo-européen*. Paris:

Adrien-Maisonneuve. Brugmann, Karl. 1900. Griechische und italische Miscellen. *IF*

11.99–110. Buck, Carl Darling. 1955. *The Greek Dialects*. Chicago: University of Chicago

Press. Chantraine, Pierre. 1958 [1942]. *Grammaire homérique* I. Paris: Klincksieck.

Demiraj, Bardhyl. 1997. *Albanische Etymologien*. Amsterdam and Atlanta: Rodopi.

Eichner, Heiner. 1973. Die Etymologie von heth. *mehur*. *MSS* 31.53–107. ———. 1974.

Die urindogermanische Wurzel **H₂reu* ‚hell machen‘. *Die Sprache* 24.144–62.

———. 1993. Probleme von Vers und Metrum in epichorischer Dichtung Altkleinasiens. In Gerhard Dobesch and Georg Rehrenböck (eds.), *Die epigraphische und altertumskundliche Erforschung Kleinasiens: Hundert Jahre Kleinasiatische Kommission der Österreichischen Akademie der Wissenschaften*, 97–169. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.

54 Compare Mod. French *vivre* ‘to live’ vs. plural *les vivres* ‘food and drink’ (Wackernagel 1926–1928:270).

55 Compare German *Trupp* m. ‘herd’ (Medieval Latin *truppus* ‘id.’), the plural of which, *Truppen*, was used in military contexts and developed a meaning ‘troops’: as a result a new singular *Truppe* f. ‘one unit’ was back-formed.

- EWAia = Mayrhofer, Manfred. 1986–1992. *Etymologisches Wörterbuch des Altindoarischen*. Heidelberg: Winter.
- Gérard, Raphaël. 2005. *Phonétique et morphologie de la langue lydienne*. Louvain-laNeuve and Paris: Peeters.
- Hajnal, Ivo. 1995. *Der lykische Vokalismus: Methode und Erkenntnisse der vergleichenden anatolischen Sprachwissenschaft auf das Vokalsystem einer Kleincorpussprache*. Graz: Leykam.
- Hamp, Eric P. 1967a. Two Armenian Etymologies. *REArm* 4.15–7. ———. 1967b. On the Notions of ‘stone’ and ‘mountain’ in Indo-European. *Journal of Linguistics* 3/1.83–90.
- Heubeck, Alfred. 1961. Myk. *ra-o “Stein” und Verwandtes. *IF* 66.29–34.
- Hilmarsson, Jörundur. 1988. West Tocharian *lyauto* “hole, opening” and Related Matters. *HS* 101.166–9.
- Janda, Michael. 1997. *Über “Stock und Stein”. Die indogermanischen Variationen eines universalen Phraseologismus* (MSS Beiheft 18). Dettelbach: Röhl.
- Jasanoff, Jay H. 1978. Observations on the Germanic Verschärfung. *MSS* 37.77–90.
- Jokl, Norbert. 1934. Zur Lehre von den alb.-griech. Teilgleichungen. *Revue internationale des études balkaniques* 1.46–64.
- Kiparsky, Paul. 1967. Sonorant Clusters in Greek. *Language* 43.619–35.
- Kloekhorst, Alwin. 2008a. Studies in Lycian and Carian Phonology and Morphology. *Kadmos* 47.117–46. ———. 2008b. *Etymological Dictionary of the Hittite Inherited Lexicon*. Leiden and Boston: Brill.
- Leukart, Alex. 1980. und das urgriechische Suffix --. In Manfred Mayrhofer, Martin Peters, and Oskar E. Pfeiffer (eds.), *Lautgeschichte und Etymologie: Akten der VI. Fachtagung der Indogermanischen Gesellschaft, Wien, 24.–29. September 1978*, 238–47. Wiesbaden: Reichert.
- . 1994. *Die frühgriechischen Nomina auf -ts und -s: Untersuchungen zu ihrer Herkunft und Ausbreitung*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Lindeman, Fredrik Otto. 1997. *Introduction to the ‘Laryngeal Theory’* (IBS 91). Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- LIV = Rix, Helmut (ed.). 2001. *Lexikon der indogermanischen Verben*². Wiesbaden: Reichert.
- Malzahn, Melanie. 2010. *The Tocharian Verbal System*. Leiden and Boston: Brill.
- Matasovi, Ranko. 2009. *Etymological Dictionary of Proto-Celtic*. Leiden: Brill.
- Mayrhofer, Manfred. 1986. *Indogermanische Grammatik* 1.2: *Lautlehre: Segmentale Phonologie des Indogermanischen*. Heidelberg: Winter.
- Melchert, H. Craig. 1984. *Studies in Hittite Historical Phonology* (ZVS Ergänzungsheft 32). Göttingen: Vandenhoeck and Ruprecht. ———. 2004. *A Dictionary of the Lycian Language*. Ann Arbor: Beech Stave.

- Meriggi, Piero. 1980. *Schizzo grammaticale dell'anatolico*. Rome: Accademia Nazionale dei Lincei.
- Nikolaev, Alexander S. 2009. The Germanic Word for 'sword' and Delocalival Derivation in Proto-Indo-European. *JIES* 37. 461–88.
- . (to appear). Indo-European **dem*(*h*₂)- 'to build' and Its Derivatives. *HS*.
- Nussbaum, Alan J. 1976. Caland's "Law" and the Caland System. Ph.D. diss., Harvard University. ———. 1986. *Head and Horn in Indo-European: The Words for "horn", "head" and "hornet"* (Studies in Indo-European Language and Culture 2). Berlin and New York: de Gruyter.
- . 1997. A Note on Hesychian *ἀσπίς* and *ἀσπίς*. In Douglas Q. Adams (ed.), *Festschrift for Eric P. Hamp*, 110–19. Washington, DC: Institute for the Study of Man.
- . 1998. Severe Problems. In Jay Jasanoff, H. Craig Melchert, and Lisi Oliver (eds.), *Mír Curad: Studies in Honor of Calvert Watkins*, 521–38. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- Pedersen, Holger. 1926. *La cinquième déclinaison latine* (Det Kongelige Danske Videnskaberne Selskab: Historisk-filologiske Meddelelser IX.5). Copenhagen: Høst.
- Peters, Martin. 1980. *Untersuchungen zur Vertretung der indogermanischen Laryngale im Griechischen*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- . 1984. Review of *The History of ἀσπίς and ἄσπις in Ancient Greek*, by F. M. J. Waanders. *Die Sprache* 30/2.98–100.
- . 1989. Sprachliche Studien zum Frühgriechischen. Habilitationsschrift, Universität Wien.
- Rasmussen, Jens Elmegård. 1990–1991. Some Additional Examples of PIE *-*h*- and *-*h*₂-. *Copenhagen Working Papers in Linguistics* 1.87–100. Reprinted in *Selected Papers on Indo-European Linguistics II*, 394–412, Copenhagen: Museum Tusulanum, 1999.
- Rau, Jeremy P. 2009. *Indo-European Nominal Morphology: The Decads and the Caland System* (IBS 132). Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- de Saussure, Ferdinand. 1909. Sur les composés latins du type *agricola*. In *Philologie et linguistique: Mélanges offerts à Louis Havet par ses anciens élèves et ses amis à l'occasion du 60e anniversaire de sa naissance le 6 janvier*, 459–71. Paris: Hachette. Reprinted in *Recueil des publications scientifiques de Ferdinand de Saussure*, 585–94, Heidelberg: Winter, 1922.
- Schmitt, Christian. 1997. Keltisches im heutigen Französisch. *ZCP* 49–50.814–29.
- evorokin, Vitalij V. 1977. Zu einigen karischen Wörtern. *MSS* 36.117–30. Stüber, Karin. 2002. *Die primären s-Stämme des Indogermanischen*. Wiesbaden: Reichert.

- Szemerényi, Oswald. 1972. Etyma Graeca III (16–21). In Alfred Ernout (ed.), *Mélanges de linguistique et de philologie grecques offerts à Pierre Chantraine*, 243–53. Paris: Klincksieck.
- Vine, Brent. 2002. On Full-grade *-ro- Formations in Greek and Indo-European. In Mark Southern (ed.), *Indo-European Perspectives*, 329–50. Washington, DC: Institute for the Study of Man.
- . 2006. An Alleged Case of “Inflectional Contamination”: On the *i*-Stem Inflection of Latin *civis*. *Incontri Linguistici* 29.139–58.
- Wackernagel, Jakob. 1926–1928 [1920–1924]. *Vorlesungen über Syntax I*. Basel: E. Birkhäuser.
- Watkins, Calvert. 1995. *How to Kill a Dragon: Aspects of Indo-European Poetics*. New York and Oxford: Oxford University Press.