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

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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 *.

Despite earlier assumptions, 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, Beebes (1985:15) and Rasmussen (1990–1991:90), the likeliest Proto-Greek re-construction for is *lhas (with *-h- < *-s-).

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The morphology of (m., later also f.) places the word in a class of its own within Greek: gen. sg., dat. sg. (739, verse-final), acc. sg. (9 in Homer), du., gen. pl., dat. pl. (739). It has often been assumed that the masculine gender of has is not original, but rather that the word shifted from the neuter under the influence of other words meaning 'stone', such as and ; under this assumption our word was originally a neuter as-stem *I has, gen. sg. *I hahos of the type, 'prize'. The theory that masculine, acc. 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.

First 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 - 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 * (for 'awe', because of ), * (for 'body', because of Gmc. *tim ra-) or * (for 'darkness', because of ), 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. 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 *k er-r and *per-ur (note that both of these words have an -r- in the root). Early attestation

3 In post-Homeric times this anomalous declension was gradually eliminated. 4 Buck 1955:93; Chantreina 1958:211. 5 Mostly associated with Caland systems, e.g., *kruh- 'goré' (Young Avestan xř) *kruh>x-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 is likely related to 'monster', which can be traced back to *k err (with liquid dissimilation); amphikinetik *k er-r can then be explained as an internal derivative of *k er-rin-, which itself will give Proto-Greek *k er-ar *k er-as. As far as 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 *h7-stems. There is thus no evidence for a general and regular development of PIE heteroclitic stems into Greek as-stems.

The hypothesis that is a reflex of *l har < PIE *l ~ 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 *l ~ h2n-stems - either. In view of the problems involved in the derivation of from a PIE het-
eroclitic stem, an alternative solution is desirable. In my view 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’ *neueh ‘being young, youth’ *neueh-h1(e/o)n - ‘having youth’ (> Hsch. ?) *neueh-h1n-eh2 ‘group of young people’ *neueh-h1n-eh2-s ‘member of a *neueh-h1n-eh2’s

Another illustrative example is Greek ‘sailor’:

NA concerned, this word cannot be separated from Homeric , 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. /-, not -).

9 The analysis here differs from the one originally proposed by Leukart only insofar as he glosses *neueh 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 Klingenschmith apud Janda 1997:144.
For *h₂-derivatives from athematic stems we may compare Janda’s attractive derivation of Greek, f. ‘tree, oak’ (Janda 1997:141–5). The base word in this case is clearly PIE *do /eru - ‘tree’; the stem *druh₁₂ - ‘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, ‘single stone’ can likewise be explained as a singulative, derived from a stem in *-h₁₂ (Proto-Greek *l ha) with the meaning ‘mass of stones’. The next step is to offer a derivational account of *l ha ‘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 *l h -.

11 Schindler apud Watkins 1995:162-3. 12 This solution only superficially resembles the reconstruction proposed for  by Pedersen (1926:44–7), who, building on Saussure 1909 (= 1922:587), regarded 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 *l h - 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, ) 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 várc sī = Old Avestan varc .h).
The source of Proto-Greek *\textit{lha}, which serves as the basis for an externally derived "singulative" *\textit{lha-s} > . The story of \textit{leha} ends here. However, two problems are still unresolved:

first, the analysis just proposed presupposes that \textit{leha} is ultimately derived from a root *\textit{leh2}-, for which no further evidence is known. Secondly, if there indeed existed an s-stem *\textit{leh2-es-os} 'stone', it is unclear why a new singular/singulative with the same meaning had to be derived from the neuter plural *\textit{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.

\textbf{2.} First we will address the remaining Greek evidence. The first word to be discussed here is Attic-Ionic /\textit{pebble}', 'small stones used as weights in an upright loom'. The root vocalisms of () and *\textit{lhi} can be reconciled under the assumption that the e-timbre of () is due to a vowel dissimilation in original *\textit{lhi}- (compare the similar dissimilation in Messenian ‘curtain' vs. , Heraclean ‘former' vs. ). The mobile accent (/) makes the reconstruction of a *\textit{ih}-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 *\textit{ih}-derivative of some kind. Since *\textit{lhi}- simply means '(small) stone', it is unlikely that it was originally a genitival or possessive derivative; *\textit{ih}- in this case is merely an extension without an apparent derivational meaning, compare ‘flight' vs. *- (found in adv. - ).

The next question is what exactly *\textit{lhi}- is an *\textit{ih}-derivative of. It might appear attractive to trace *\textit{lhi}- back to the s-stem *\textit{lh}- (< *\textit{leheleos}-), reconstructed above for , but this is impossible: Proto-Greek *\textit{lhi} would give

15 The inflection of \textit{leha} 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. *\textit{lehes-os}, dat. sg. *\textit{lehes-i} > *\textit{lhos}, *\textit{lhi}. For a similar "heteroclisy" compare , ‘ground' (stem *\textit{oudas}-) vs. spondaic dat.sg. (< *\textit{oud-ei}, stem *\textit{oud-}) or adj. \textit{mu}, acc. \textit{mu}, but \textit{mu} in the oblique case forms. Alternatively, \textit{leha} can be traced back directly to *\textit{lehes-h2-os}, dat. sg. *\textit{lehes-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.
In my opinion, the only preform that would produce the required outcome is a reconstruction, with a metathesis after a non-front vowel (compare *\textit{auieito} \rightarrow \textit{ionic}, \textit{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 *-* in it. In fact, there is further evidence for a Proto-Greek *\textit{il} u- ‘stone’ from which *\textit{il u} could have been derived. 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 protoform *\textit{il} o - (that would be derivationally related to the s -stem *\textit{il ho -} *\textit{leho} *\textit{e}/os-), since the latter would develop into Attic *-. The sequence can only come from *\textit{il uo -: le - *i - o - *i - uo -} (< *\textit{il uo -} < *\textit{il uo -}).

Even if one were able to generate a Proto-Greek *\textit{il} s as a super-zero-grade, there is an inner-Greek phonological problem with this analysis. Since the function of *-*h*, as a derivative of *\textit{leh} in this case is unrelated to \textit{Motion}, it is unlikely that speakers would have been able to detect a morpheme boundary in a putative *\textit{il s} - *\textit{il ho}; this being the case, *\textit{il ho} would give Attic-Ionic * (< *\textit{il} i) < *\textit{il ho}, since in all non-Aeolic dialects the sequence *-a/o/iv -(< *-a/o/siV-) 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, *telesio/o - and *gelasio/o -). A borrowing from an Aeolic dialect (where *\textit{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-. The following discussion owes much to insights contained in Brugmann 1900:102–4 and Pedersen 1926:45–6. Nevertheless, it should be pointed out that as evidence in support of Proto-Greek *\textit{il 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 *\textit{il ho} - *\textit{il 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 Proto-Greek *\textit{il uo -} as it could be related to Proto-Greek *\textit{il ho -} 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’ (< *\textit{il o -} < *\textit{leho}), both of which were exploited in Attic tragedy for metrical purposes (e.g., [E. Andr. 1089] ~ [E. Andr. 19], ~).
A firmer foundation for nominal *l˘u- is provided by Attic, Ionic ‘passage, alley’, Mycenaean ra-u-ra-ta, ra-w a-ra-ta: 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 specifically refers to narrow passages; 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 to Albanian (Geg) lerë f. ‘pebble bank, heap of stones’ (< *laur, cf. err ‘darkness’ < *ausra, Lithuanian au rà). 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 *l˘u- ‘stone’. Further supporting evidence for a Proto-Greek nominal stem ‘stone’ starting with *l 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, we may surmise that it was derived from a nominal stem in -u-. As Brugmann (1900:102–3) already noticed, the allomorph - does not need to be original in the present stem, but could rather have been transferred from the stem - in the aorist and future. This - can go back to Common Greek *leu-s - or *l u-s - (the latter with Osthoff’s Law).

The facts can now be summarized as follows: while Greek in all likelihood is based on an s-stem *ls- from PIE *leh-es- (ultimately from a root *leh22-), Greek also appears to have words meaning ‘stone’ derived from *l˘u-*l˘u-/*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 at a time (µ  ‘µ), and a scholiast confirms this, glossing as . In Herodotus (1.180) the word refers to small alleys leading off of main streets, and similarly, in Pindar (P. 8.86), the are back streets, where defeated contestants hide from their enemies.

21 Demiraj 1997:237–8. 22 Compare pres. *, aor. - ‘to be more, to be superfluous’ in Hsch. derived from - (Hsch. µ , ).
23 Compare the denominative type, where the present stem in *-u-ie /o- did not develop into *-eiie /e- 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 *leh₂₂- and *IV- u- is too striking to be fortuitous. In my opinion Proto-Greek *I u-o-/*I- u- can be further analyzed as an acrostatic u-stem *I- h₂u-: the preconsonantal root-allomorph *lehu- gives Proto-Greek *laυ-, found in and (cf. *nehr₂₂υ- C in ‘from aboard ship’, ‘sailor’), and a reflex of prevocalic *lehu- is found in Proto-Greek *I u-o- > Attic-Ionic *I u-o- > - (cf. *nehr₂₂υ-V in the Ionic gen. sg. ‘ship’), while lengthened-grade *I h₂u- > *I u- (> ).

The u-stem *I- h-u- can now finally be compared to the root *leh₂₂- reconstructed above for .

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 *leh₂₂u-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), ‘Steinschrift’ (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 *leh₂₂υ-uro- ‘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 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- < *leh₂₂₂₂ Neverthe-u-ro-. 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 *I u- beside *I- 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 *I u-o- (> *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 (I owe this reference to C. Melchert); note that Kloekhorst’s identification of the sound as /ç/ is based solely on systemic grounds.
less, 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 derived from PIE *k leitr 'slope' (PIE lei- 'incline'), but Hamp (1967a, b) rejected this traditional and criticized derivation in favor of a very appealing comparison to Greek forms discussed above (, , ). Hamp was not sure whether the underlying root contained *s or *u, but he noticed correctly that under either analysis lea n must go back to a proto-form with a long vowel in the root. Old Irish lie (disyllabic, later lïa, lia) 'stone' goes back to a stem with an etymological *-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

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 laqrisa 'covered passage, dromos', compared to the Milyan word by evorokin (1977:135) and Eichner (1993:145). Since laqrisa clearly designates an element of a tomb and is therefore something made of stone, this word may be based on *lehuro - '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 - (< *lehu-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.

Cf. Greek 'hill'. In view of the paucity of reliable examples no fixed rules can be written; nevertheless, it has been plausibly argued that a Proto-Anatolian 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- - 'spring' or arwn < *esar - < *hesar - '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 *l Xnk - (where X = *s or *u).

Armenian lea n and Old Irish lie thus show a reflex of initial *l- as opposed to *l- (< *lehz-) in Greek and *l- - (< *leh2u -) 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- ~ *l- ablaut by reconstructing a root *l hs -/*lahs -. Hamp’s protoform *l s ren - was revised by Rasmussen as *l h22srm - (with a blend of two heteroclitic stem formants, as in Latin itineris ), and for Old Irish lie he reconstructed *l h2snk -, while Greek was supposed to go back to *leh2s -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 *peh22s - ‘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 *l h2s -r-n -. Even more disturbing is the fact that if we reconstruct a root *leh2s -, following Eichner and Rasmussen, there is no way to integrate into this analysis the extended allomorph *leh312u - 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’ < *te₂ænt < *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 *l h2-s-r-n - would then be an instance of a stem with a complex suffix *sr- sen - backformed to a s-stem, presumably based on a locative *leh-s-en . The endocentric meaning ‘stone’ would be compatible with the back-formation approach. However, an acrostic *l h22-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. *huuñnkos > *uæñnkos > Primitive Irish *ouegnah > Early Old Irish oäc, Old Irish oäc ‘young’.
problem with reconstructing *I ḥ₃₂. Likewise, a protoform *I hunk - > *I unk - as a proto-form for Old Irish lie . urno - > *I urno - is possible for Armenian le a n : compare *sneh₁₂₃₄urti > *sn urti - > neur. ‘tendon’. Under the reconstruction *I hur₁-n - , both the Armenian and Celtic words can be compared with the *I ḥ₂u - 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 *leh₂ 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 - , Lithuanian skelù , Greek ‘I split’;
• Latin saxum ‘rock, boulder’: OCS s₃ ‘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 ḥ - in Celtic may tip the scale in favor of the derivation of Old Irish lie from *I ḥᵢ₂u - (even though it cannot of course be excluded that Celtic, just like Greek, inherited both *leh₁-es- and *I ḥ₃₂ - , *I hur₁-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 *lausiae ‘pebbles in a stone quarry’.

34 The root is that of Greek , Tocharian B ṇor, Avestan sn uuar (see Eichner 1978:154). 35 It should be noted that we find quite a few other *ur₁ -stems attested beside u -stems, e.g., *sneh₁ur₁-n - in Avestan sn uuar, Vedic sn van - ‘sinew’ vs. *sneh - found in Avestan sn uu(iia-) ‘made of sinew’ (Nussbaum 1998:535; for other examples see Nikolaev 2009:479–81). It is tempting to see in such *ur₁-stems back-formations to loc. sg. forms in *-en of the respective bare u -stems. Accordingly a *ur₁ -stem *I ḥ₃₂ur₁-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 ḥ₂u - with -grade in the root (namely, Proto-Greek *lu - in aer. - and Hsch. †), *I hu₁-n - would have an immediate morphological advantage over a putative *I ḥ₂u-aer₁-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 *leh22su- 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 jāsu - ‘exhilaration’, Greek *‘ruination’, or Old Irish riuth ‘running’.38 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- 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.42 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 Averbo; the verbal adjective (-)lna - 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 -āse, 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 , Latin genus and Vedic jānas- 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 *preh- ‘blow’ (Hittite p rai) or from *klih- ‘sieve’ (Attic (-), Hittite kinaizzi).
can be seen in the noun laví- ‘sickle’. 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. *luh24u-). 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 *keh24u - 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. *luh246-tó ‘cut’ would be an i-stem *luh247-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 *luh2-ti - is *luh248-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 */luh249-to -. As in the case of *kuh2- , the zero-grade */luh- might be a result of a laryngeal metathesis that converted original */lh2uC - to */luh2C -; it is thus not unreasonable
to speculate that the real full-grade in this case is 

\[ *leh_2 \]

\[ 2 \]

\[ 251\text{u} - 'stone'. \]

\[ 2 \]

\[ 2 \]

\[ 2 \]

\[ 2 \]

\[ 52 \]

\[ 53 \]

\[ 52 \]

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\[ 52 \]

\[ 53 \]

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

proposed: granted a possible preservation of

\[ *luh_2 \]

\[ ti 'make clean' = l\ tā - 'cut' : X, \text{ where } X \text{ is resolved as lun} \]

\[ *d\ enh_2 \]

\[ 1 \]

\[ 52 \text{ See Nussbaum 1997:117, where the scenario for } *\text{terh}_2, *\text{truh}_2 \]

\[ 53 \text{ Overall, the system of derivatives from the root } *\text{leh}_2 \]

\[ *\text{geh}_2 \]
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 *truhs- 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 l tk-, a root *lehn- ‘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 l 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 t˘ - ‘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 *gieh-u - as the precursor of the verbal stem *berh-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 
*gieh-u - 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 *"hu- 'cutting; cut, split stuff' were relegated to the productive s-stem *lehu-es, while *"hu- itself became lexicalized in the meaning 'rock, stone' (cf. Latin saxum). *"hu- and its derivatives *"hu-r- and *lehu-ro-gave rise to such forms as Armenian ˌla:n and Old Irish lie, Greek (.DataGridViewTextBoxColumn: 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 *lehu-es: its late PIE collective *lehu similarly changed its lexical meaning from 'split/cut substance' to 'mass of stones' and as a result was no longer paradigmatically associated with *lehu-es-h: A new singular with the meaning 'single stone' was needed and this is the reason *lehu-s > was created.

References


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54 Compare Mod. French vivre ‘to live’ vs. plural les vivres ‘food and drink’ (Wackernagel 1927:270).

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.
Alexander Nikolaev 204


Time to Gather Stones Together 205


———. (to appear). Indo-European *de₄m(h₂)*- ‘to build’ and Its Derivatives. HS.


Reichert.


