

Proto-Indo-Europeans and the Squirrel, *Sciurus vulgaris*

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The various Indo-European forms meaning ‘(European red) squirrel’ are based on a substantized e-grade adjective, derived from the root **A,uer-* ‘raise up, lift, suspend’ and refer to common habits of the squirrel. The multiplicity of forms reflects the use of this adjective to designate a number of smaller, woodland mammals with arboreal traits, of which the European red squirrel, *Sciurus vulgaris*, was the type specimen.

The analyses and reconstructions of Indo-European ‘squirrel’ have been inadequate. Building on earlier investigations, Pokorny assumed a root designated by him as *I3 uer-* (1959:1166), which is reduplicated in as many as five ways (**uer-uer-*, **ue-uer-*, **uai-uer-*, **ui-uer-*, **uā-uer-*) with no explanation for the unusual multiplicity we see in the surface forms. Gamkrelidze and Ivanov reconstruct **we(i)wer-* (1995:441) with no explanation for the sporadic appearance of the **i* or disappearance of the alleged **e* and, despite the fact that cognates stretch from Great Britain to Iran, conclude “in view of the late, dialectal nature of the words for ‘squirrel’, ‘weasel’, and ‘ermine’, no corresponding semanteme can be reconstructed for Proto-Indo-European” (1995:442). The *American Heritage Dictionary of Indo-European Roots (AHDIR)* treats the underlying form as “an expressive, reduplicating” **wīwer-* from a root *wer-*⁷ (Watkins 2000:100), but because of the intentionally limited scope of that work, it does not fully address all of the attested forms or the attendant problems such as the long vowel in the reduplicating syllable. The accounts given by Mallory and Adams are based on a total reduplication, **ueruer-* (1997:540) and **werwer-* (2006:137). Again, no account or explanation of the variety of proto-forms, the apparent long vowels in the reduplicative syllable, or the absence of the reduplicative [r] in all forms but Indo-Iranian is attempted. Other works such as Schrader’s *Prehistoric Antiquities of the Aryan Peoples* (1890), Buck’s *Dictionary of Selected Synonyms*

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in the *Principal Indo-European Languages* (1949), or Fortson's *Indo-European Language and Culture* (2004) neglect the squirrel entirely. Hirt, on the other hand, is intensely interested in the squirrel as a diagnostic for locating the Indo-European homeland and falsely asserts "Das Eichhorn ist für die Bestimmung der Urheimat wichtig, weil es ein Waldtier ist und in der Steppe absolut nicht leben kann" (1907:621).¹ Hirt's claim is mistaken on two points. While squirrels make their nests or dreys in trees, they are not exclusively forest animals but are quite at home in parklands with thinly scattered trees. Moreover, during the Neolithic, the forest and parkland zones extended much farther south than it now appears; consequently, the Bronze-Age south Pontic Steppe was not the treeless prairie of the nineteenth century. As the abundant remains of the Srubnaya (Timber-Grave) culture demonstrate, the steppe once was the home for many more trees than currently appear. A further point to be considered is that knowledge of squirrels does not demand that the Indo-Europeans lived among them, merely that they lived in a region where one might reasonably hear of or occasionally see a specimen. Beyond these theoretical objections, excavations of kurgan sites on the steppes have empirically demonstrated the presence of squirrels at sites such as Mikhailovka, Ukraine (Gimbutas 1970:160, 190).

Most investigators of Indo-European squirrels offer an array of forms from five stocks; Lat. *viverra* 'ferret' is perhaps a loan from Gaulish. If the geminate trill is not a Roman adaptation, it probably reflects assimilation of the stem-final [r] with an adjectival suffix. The ferret would be the 'squirrely' creature. Today, the term ferret, *Mustela putorius furo*, is properly restricted to domesticated (or feral) varieties of the European polecat, *Mustela putorius putorius*. Some of these domestic ferrets are often cross-bred with their eastern relatives, the steppe polecat, *Mustela eversmanni* (Macdonald 1984:114-15), and the original animal may have been domesticated from varieties of either the steppe polecat, *Mustela eversmanni* or the common European polecat, *Mustela putorius*.² That this small, aggressive carnivore was confused

¹"The squirrel is important for the establishment of the homeland because it is a forest animal and absolutely cannot live on the steppe,"

²Because the European and steppe polecats are cross fertile, some classify them both as races of *Mustela putorius*, namely *Mustela putorius putorius* and

with a curious, almost exclusively herbivorous,³ rodent suggests that the Indo-European taxon ‘squirrel’ was applied to a range of small woodland mammals perhaps including the polecats (*Mustela putorius* and *Mustela eversmanni*), wild cats (*Felis silvestris*) or the beech and pine martens (*Martes foina* and *Martes martes*) and not to *Sciurus vulgaris*, the European red squirrel, exclusively. All of these animals, with the exception of the polecats, commonly climb trees.

The Celtic origins of the Latin word are confirmed by the similarities between *viverra* and the antecedent of the Brythonic cognates. The Welsh feminine noun *gwiwer* ‘squirrel’⁴ and Bret. *gwiber* apparently continue the unsuffixed base-form, **wīwerā*, from which the Gallo-Latin noun was derived; Scots Gael. *feòrag* is usually glossed ‘(red) squirrel’, but Dwelly observed that this word was “sometimes applied in error to the ferret” (1911:429a). Though Hirt, following W. Meyer (*KZ* 28:169), also derived this form from an earlier **vēver*, he failed to delineate the developments involved. The final *g* recorded in Scots Gael. *feòrag* suggests a loan from Brythonic, where voicing of an original intervocalic *-qo-*suffix would have been regular.

Though the similarity between the Latin and British words is often explained by assuming that the British term was borrowed from Latin, this view is unlikely for two reasons. First, it is inherently unlikely that early Celts, living as they did among the oak forests of Gaul and Britain, would need to borrow a term for such a ubiquitous creature from the urban Romans. Moreover, as the vast majority of Latin animal names can be shown to be loans from some suburban dialect, it is much more probable that the reverse occurred, that is that it was the Romans who borrowed the name of this wood and parkland animal from some rural population.

OE *āc-weorna* and OHG *eiħh-urno* point to PG **wernan-*, an

Mustela putorius eversmanni respectively; a closely related North American wild species, *Mustela nigripes*, is commonly called the ‘black-footed ferret’ by populations no longer aware of the earlier terminological distinction between ferret and polecat; the latter term is now most often used in North America as a synonym for ‘skunk, *Mephitis mephitis*’.

³The preferred food of squirrels consists of nuts and seeds, but they are known to consume insects and from time to time, small reptiles and birds (Macdonald 1984:614).

⁴This is the form given in *Y Geiriadur Mawr*, beginning with Hirt (1907:621), German etymological dictionaries give the form as *gwywer*.

n-stem noun compounded with ‘oak’, a reference to the acorns which are among the most common of squirrels’ foods; this fact suggests that there were other *weornan* that did not feed on acorns, and the Germanic referent may have again included a variety of small, active, and possibly arboreal, mammals. Beside these n-stems, both English and High German have simple a-stem forms, OE *ācweorn* and OHG *eihhorn*. OIc. *ikorni* may be an adaptation from a Middle German reflex of *eihhurno*. If the diphthongization of OHG *i* to *ei* began around the twelfth century as Wells believes (1987:112), it is possible that the Scandinavian forms are ultimately mediaeval loans from the continent, with the German diphthong falsely equated with the Icelandic long vowel. Witczak, on the other hand, accounts for the Scandinavian forms by postulating a substrate reflex in Germanic (1996:176).

Baltic is especially rich in variant forms, but these can be sorted out with relative ease. Lith. *voveris* ‘squirrel’ and its feminine *voverė* and the corresponding Latvian pair *vāveris*, *vāvere* ‘squirrel’ point to reduplication with long **ā*, while Lith *vėveris* (and presumably OPruss *weware*) has long **ē*, and Lith *vaiverė* has a diphthong.

A similar diphthong appears in PS **waiwer-* [Pol. *wiewiorka*, Cz. *veverka*, OR *věverica* ‘squirrel’]. On the basis of the Baltic and Slavic forms for ‘squirrel’ and eight other forms, Brugmann set up a *παι-πάλλη* type of reduplication (1906[2.1]:128). The majority of these words, like the type specimen, are roots with a-vocalism and ending in a liquid; they may be interpreted as dissimilations of total reduplication; thus, Gk. *παι-πάλλη* < **παλ-πάλλη*. This explanation, however, will not work for ‘squirrel’ where the stem vocalism is demonstrably not [a]. The a-vocalism of the reduplication is an artifact of the initial a-coloring laryngeal, predictably lost in other stocks, but vocalized as the so-called prothetic vowel of Greek and providing the long-*ā* coloring of the Baltic forms.

Finally, complete reduplication is found in Farsi *varvarah*, most commonly glossed ‘squirrel’ though Steingass notes that the word also denotes ‘Pontic mouse’.

In addition to these obvious cognates, Hirt suggested (1907:621) that the suffix found in Gk. *σκίουρος* ‘squirrel’, and

αἰέλουρος ‘cat, weasel’ is also based on this etymon,⁵ though most investigators regard the second element in each as ‘tail’, and they may be analyzed as ‘shadow-tail’ and ‘wavy tail’ respectively. The second etymology relies on a similarity to *αἰολός* ‘swift, wriggling’, but the explanation for the e-grade in the animal name beside the o-grade adjective is problematic. Although that is the preferred etymology of Frisk (1960.1:36) he mentions the possibility that the second of these terms may reflect **φαιφέρουρος* through dissimilation. Though Frisk’s reconstruction is flawed, relying too much on the Baltic and Slavic forms, it legitimately belongs here, and, despite Hirt’s opinion, it is the first, not the second element that is cognate. In fact, this Greek cognate, **ἄφιαφέλο-οἴηρος* ‘cat, weasel’, makes it possible to properly reconstruct the underlying root in the Indo-European terms for ‘squirrel’.

The characteristic feature of all of these forms is the e-grade root vocalism. Animate, e-grade thematic nouns (or their \bar{a} -stem counterparts) are rare, if not actually non-existent, and many thematic e-grades are often adjectives. Such constructions are PIE **sén-o-* ‘old’ [W. *hen*, Lith. *sėnas*, and OInd. *senā-*] and PIE **néu-o-* ‘new, young’ [Lat. *novus*, OCS *novŭ*, Gk. *νέος*, Hitt. *newa-*, OInd. *náva-*]. PIE “squirrel” may well have been in origin such a substantized adjective. The task then is to identify the root from which this substantized e-grade adjective, PIE **A₁uér-o-*, was formed.

Though Pokorny gives the root as 13. *uer-* (1959:1166) and the *AHD* offers a similarly unique *wer-*⁷ (2000:100^a), the creation of a single root to refer only to an animal of such small economic and cultural consequence as the squirrel is a rather expensive solution. For my part, the etymon for ‘squirrel’ must relate to some characteristic or action of the squirrel, and that may be found in the root meaning ‘raise up, lift, suspend’, a view first suggested by Ernout and Meillet (1939:1118). This explanation is quite reasonable, for, as anyone who has taken the time to observe them will recall, in the course of their daily activities, when on the ground,

⁵Hirt also includes in his discussion *ἵππουρος* ‘horsetail’, which refers to both the plant *Equisetum spp.* and the physical horsetail worn by satyrs. Inclusion of that form makes it clear that the second element is, as others have always taken it, the common Indo-European noun **E₁orso-* ‘rump, tail’ and not any reference to squirrels.

squirrels will often stop, raise themselves up, and survey their surroundings before returning to their activities; moreover, when they are in trees, squirrels often pause while climbing, especially during descent. While descending, a squirrel will often hesitate and momentarily hang from its hind legs as if deciding on the next move before proceeding down the trunk.

Both of these characteristic forms of squirrel behavior can be described by the root $*A_1\text{uer-}$ given as wer-^2 in the *AHDIR* (2000:99^a), as *I. uer-* in Pokorny (1959:1150), and as $*h_2\text{uer-}$ ‘hängen’ in *LIV* (2001:290). Semantically, these meanings can be united in the concept ‘become vertical’. With this root as the basis, the cognates may now be reinterpreted in a much simpler manner.

Germanic preserves an e-grade of this root in $*A_1\text{uer-on-}$, which forms the second member, PG $*\text{-wernan-}$, in the compounds OE *āc-weorna* ‘squirrel’ and OHG *eihh-urno*). The additional [n] that follows the [r] has been copied from the zero-grade of the suffix, a pattern that is fairly common in other Germanic n-stems, particularly those showing “expressive gemination.” The retention of this copied nasal suggests that the thematic variants also seen in Germanic were later, secondary developments, rather than reflexes of the unattested $*A_1\text{uer-o-}$, though Germanic n-stems are often substitutes for original thematic nouns. Other forms employ reduplication, a device that in noun-formation often implies habitual or characteristic actions or states; thus the wrap-around garment of Greek women, the *πέπλος* is in fact, ‘the thing wrapped or folded’ PIE $*pe-pl-o-$, from the root $*pel-$ ‘fold’. The Lithuanian feminine *voverė* and Latv. *vāvere* ‘squirrel’ point to a reduplicated $*A_1\text{ue-A}_1\text{uer-}i\text{oA}_2$, which may be an adaptation of $*A_1\text{ue-A}_1\text{uer-iA}_2$. That form seems to be a common feminine derivative of an unattested masculine $*A_1\text{ue-A}_1\text{uer-o-s}$. Lith. *voveris* and Latv. *vāveris* ‘squirrel’ are then back-formed masculines from the original feminines. The Lithuanian long *ō* is a perfectly regular reflex of the laryngeal sequence $*eA_1$.

To judge from the gemination seen in Gallo-Lat. *viverra* ‘ferret, weasel’, Celtic forms exhibit i-reduplication,⁶ with an

⁶PIE ‘beaver’, which Hamp (1972) cleverly explained not as a rather non-descript ‘brown’ animal but as the ‘carrier [of branches for the construction of the dam and lodge]’ shows a similar variation in the reduplicative vowel;

so-derivational suffix, $*A_1\mu i-A_1\mu er-so-$; however, W. *gwīwer* ‘squirrel’ and Bret. *gwiber* may reflect a simple thematic type with an e-grade stem with no suffix. This formation is typical of such reduplicated nouns, and it is possible that the Latin geminate is a Roman innovation reflecting a difference in the articulation of the Italic and Gaulish rhotics. The initial laryngeal of the stem again accounts for the length of the reduplicative vowel seen in the first syllable and assures antiquity, for the reduplication must have been made when the laryngeals were still present. As I currently understand the situation, an initial $*A_1$ before a sonorant would have vocalized in Latin as we see in *argentum* ‘silver’ < PIE $*A_1r̥ǵ̑ntom$ (cf. Av. *arəzatəm*). If this view is correct, it is a strong reason to suppose that *vīverra* was borrowed from some non-Italic language, most probably Celtic.

Certainly such an e-grade stem with i-reduplication is preserved as the first member of a compound in Greek. The proto-form $*A_1\mu i-A_1\mu er-o-$ ought to have given PGk. $\acute{\alpha}\phi\iota\alpha\phi\acute{\epsilon}\rho\omicron-$, which after metathesis of the [wj] sequence gave PGk. $*\acute{\alpha}\lambda\phi\alpha\phi\acute{\epsilon}\rho\omicron-$; subsequent haplology reduced the form to $*\acute{\alpha}\lambda\phi\acute{\epsilon}\rho\omicron-$, which when compounded with *οὐρά* ‘tail’ induced dissimilation of the first liquid resulting in attested Ionic *αἰέλουρος*, which Herodotus applies to the wild cat,⁷ but is occasionally applied to weasels as well. Like Latin *vīverra*, earlier Greek $*\acute{\alpha}\lambda\phi\acute{\epsilon}\rho\omicron\varsigma$ (< $*\acute{\alpha}\lambda\phi\alpha\phi\acute{\epsilon}\rho\omicron\varsigma$) must have included a range of small mammals. Subsequent Attic changes resulted in *αἰλουρος*. All of the Greek forms can therefore be related by attested, if special, sound changes to the other Indo-European etyma. This same reduplicative syllable has been metathesized in Baltic and Slavic as $*\mu Ai-A\mu er-$ which fact accounts for the diphthong of Lith *vaiverė* and PS $*waiwer-$, whose fate will be discussed below.

The Slavic form, $*waiwer-$, later underwent monophthongization which accounts for the front vowel seen in Pol.

we see i-reduplication of the root $*b^h er-$ ‘carry’ in Lat. *fiber* < $*b^h i-b^h r-o-$ but e-reduplication in OE *beofor* (< $*b^h e-b^h ros$) and Av. *bawri* ‘she-beaver’ (< $*b^h e-b^h r-iA_2$).

⁷Frisk explains this Greek word as a compound of *αἰόλος* ‘swift, wriggling’ and *οὐρά* ‘tail’ but cannot account for the e-vocalism; moreover, unless they are upset, cats don’t wave or wag their tails. When startled, however, the hair on the tail becomes erect and fluffy, mimicking the tail of a squirrel, though some folk-etymologizing may have favored the changes outlined above.

wiewiorka, Cz. *veverka*, and OR *věverica* ‘squirrel’. This later Slavic form with its long monophthong was then borrowed back into Baltic, where the Slavic monophthongal reflex of the original diphthong was interpreted as the long vowel seen in Lith. *vėveris* (and presumably OPruss *weware*). Thus, the Baltic and Slavic forms attest the long and complex interaction between the two language groups and do not present any evidence of an Indo-European long **ē*.

Complete reduplication is found only in Indo-Iranian and may be a specifically Iranian innovation, creating **A₁uer-A₁uer-o-* from earlier **A₁ue-A₁uer-o-*. The developments of PIE **A₁uer-A₁uer-o-* in Indo-Iranian and Iranian are entirely regular: the loss of the initial laryngeal gave PII **warəwara-*, and loss of medial laryngeals is entirely regular for Iranian, giving PIr. **warwara-*, whose reflex in Farsi is *varvarah* ‘squirrel’.

From a single root, PIE **A₁uer-* ‘raise up, lift, suspend, become vertical’, whose semantics accurately describe the animal, we are able to derive all of the attested forms for ‘squirrel’ by regular sound laws or by such commonplace special developments as metathesis, dissimilation, and haplology. There remains one question, why would the words for ‘squirrel’ exhibit such varied forms? The answer to this question is complex and may have several intersecting answers.

The usual explanation for such varied forms is tabu, the practice of deliberately deforming words of sensitive social or cultural provenance. Though they are now known to be potential vectors of some serious diseases, unlike lions or bears, squirrels were probably not especially feared or dreaded by early Indo-Europeans. Nor is it likely that squirrels were a significant part of the Indo-European diet, for the Indo-Europeans are identifiable only at the end of the Neolithic when human reliance on subsistence hunting had waned considerably; therefore, while hunters and gatherers often impose naming tabus on food sources, such an explanation has little relevance for the Indo-Europeans. Nor is it probable that squirrels were serious pests for Indo-European farmers, for squirrels are not particularly harmful to crops although they are noted for the habit of stripping bark from particular trees. Squirrel behavior, however, includes two practices that might have made them noteworthy for Indo-Europeans. Squirrels feed on nuts and acorns; the latter were also employed along with beech nuts for the fattening of swine. Ann Hagen

estimates that “a single[,] well-grown oak tree would serve to produce well over 100 lbs[,] of pork per year” (1995:106). Swine-herding could well have brought Indo-Europeans and squirrels into contact in oak or beech groves, and the squirrels’ habit of chattering at the approach of intruders would have been striking. On the steppe, such groves are commonly found along river courses and such wooded stretches are boundary markers, a fact which is indicated by the derivation of Lat. *dividere* ‘divide’ from the same root that gives PIE **uidʰu-* ‘wood’ (cf. W. *gwŷdd*, OE *wudu*). The squirrel would then have been seen as a quintessentially liminal creature and have been imbued with occult significance.

At least in northern Europe, squirrels do so figure in folklore. The squirrels’ reliance on oak and pine trees as a food source, the Indo-European association of the oak tree with the Storm or Thunder God, and the fact that both the Thunder God and *Sciurus vulgaris* are characterized by red hair may suggest some religious significance for this otherwise harmless creature. The multiplicity of forms that is recorded suggests a homeland in which squirrels were occasional but not ubiquitous residents, an animal of momentary interest because of its behavior but of no striking economic or social importance. The parklands and riverine regions of the steppe which provided wood and trees for the Indo-Europeans and the occasional opportunity to meet these interesting rodents is both the best candidate for the Indo-European homeland on other grounds and the best explanation for the observed distribution of terms for squirrel.

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