



THE ORIGINS OF TREE NAMES IN CELTIC

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ABSTRACT

This paper deals with the long-debated question of the origins of tree names and the methodological problems related to PIE etymologies. It aims at putting forward some basic principles of etymology, and at applying these principles to the analysis of twelve tree names. It also seeks to demonstrate the relevance of substratic pre-IE languages' influence on the lexicon, and at isolating geographic areas corresponding to pre-Indo-European lexical stocks lying behind modern Celtic languages.

Keywords: pre-Indo-European, substrata, tree names, language contact, creolization.

1. Substrata and creolisation

1.1. Substratum and lexication

The influence of linguistic pre-Indo-European substrata (pre-IE) on the genesis of IE languages is an idea which has pervaded the 20th century. Among many others, Edward Sapir had already suspected in 1921 the influence of a pre-Germanic substratum (1921:101), and a few years later, Meillet suggested that the Gaulish substratum of French could be the cause of substantial linguistic changes (Meillet 1927). The question of substrata extended well beyond the field of historical linguistics, to creolization and language contact studies, and has raised a continuously growing interest in recent decades (Odlin 1992), (Beekes 1995), (LaPolla 2009), etc. The issue is of the utmost relevance since considering the possibility of a substratic influence tends to imply that language

birth is a process of hybridization between a substratum and a superstratum (i.e. creolization) rather than a mere phylogenetic continuity whereby a single language can generate entire subsequent families by way of internal linguistic changes.

If we are to consider language birth as a creolization process (Quentel 2018: 17), then the key issues are the impact of the four fundamental linguistic features, i.e. phonetics, morphology, syntax and lexicon of the sub- and superstratum on their creolized offspring. In other words: those features and those feature subtypes which are inherited by the creolized language. Generally, the lexicon is inherited from the superstratum (De Graf 2001), (Migge 2003: 23), (Ansaldo 2007: 9), as is obvious not only in the Carribean creoles but also in Romance languages. Still, some lexical roots seem to survive through a series of creolizations, as is seen for example in the French words inherited from the pre-Celtic substratum of Gaulish (Quentel 2018: 26) like *chêne*, *alouette*, *ardoise*, etc. There is a well-known, although little studied, rule about lexical borrowing which claims that a language borrows what it lacks in its culture and environment (Deroy 1956: 57). Although this rule does not apply to many lexical items, the persistence or disappearance of which can hardly be explained this way, it seems to work particularly well for plant and animal names. Languages tend not to borrow these lexical items because they already exist in their environment. This is unlikely to be the single cause of substratic lexemes persistency, nor the lack of centrality of these words in the communication between substratic (indigeneous) and superstratic (exogeneous) speakers.

One of the most obvious hindrances to the study of a lexical substratum influence concerns the methodology. Since the heavy tendency throughout the 20th century has been to look for PIE cognates and to analyse word roots from this perspective (see especially Pokorny 1948), it is now vital to reconsider the methods of etymologization, including the potential for a substratic influence in the spectrum of cognate possibilities.

1.2. Methodology

Some pre-IE European substrata are attested, the most documented case being Basque, which has been especially studied from a substratic perspective by Vennemann (2003). There are also some scarce attestations of Iberian, Tartessian, Etruscan, Minoan Greek, and a few others. In the areas where no direct attestations of substrata are available, as it is the case of the Celtic-speaking areas, there are two possible ways to spot the remains of these ancient pre-IE languages. The first involves the study of proper names: toponyms, ethnonyms, and even people's names, generally through Greek and Roman

texts, as was done first in Hans Krahe's famous (albeit contested and IE-oriented) study on Europe's hydronyms (1964). The second consists of analyzing the lexicon of those languages which can be suspected of having substratic origins.

Recent papers have already addressed the question of pre-IE influence upon Celtic languages, among which Hyllested (2010) and Matasović (2012). The research on the lexicon has been made considerably easier especially by the publication in the last few decades of two major works: Xavier Delamarre's *Dictionnaire de la langue gauloise* (2003) and Ranko Matasović's *Etymological Dictionary of Proto-Celtic* (2009), both of which pay special attention to the question of pre-IE substrata. In another paper, I have suggested a set of basic principles to deal with the detection of possible substratic items within a given lexicon, in order to distinguish the pre-IE roots from the proto-IE ones (Quentel 2012b:169). In summary, the conditions for a word to be considered as pre-IE are:

1. It pertains to the historical core lexicon (names related to nature: animals, plants, landscape features, body parts, basic verbs etc.) and therefore cannot be the product of a later neology (Duhoux 2007: 224).
2. It is not related to any PIE root or the relationship with the alleged PIE root is too speculative to be reliable (see also Beekes 2010: I-850).
3. It is not related to any historically attested neighbouring language family other than IE, which could be in this case either Basque or Afro-Asiatic (Matasović 2012), (Charencey 1902).
4. It belongs to a restricted geographical area (Quentel 2018:30 & 2012 a-b).

To these principles could be added phonotactics constraints, in virtue of which the pre-IE roots should not abide by the rules of the IE etymons which are expected to be CVC with regulated degrees of sonority surrounding the ablaut vowel. However, a non-IE root could coincidentally fall within this category, and the result would be wrongly inconclusive, even more so when the play with the laryngeals gives many PIE roots a shape which they did not originally have. Finally, it is essential to make the difference between pre-Celtic items from the alleged area of Proto-Celtic (i.e. Central Europe around the Hallstatt and La Tène archaeological cultures) and with pre-Celtic roots from the areas where the Celtic languages came to be spoken after later migrations, i.e. Gaul, the Iberian Peninsula, Northern Italy and the British Isles.

1.3. Theoretical Problems of PIE etymology

Point 2 of the aforementioned set of rules is not without subsequent problems inasmuch as the degree of variability of what is considered PIE or not is

significantly wide. The problem of etymology in general is the level of analogic correlation between two words, and the tolerance to such correlations (Malkiel 1993:22). Hence, we should consider as most likely IE a word which:

1. is phonetically the regular reflex of a PIE root.
2. is semantically the direct continuity of a PIE root

However, these principles are rarely followed: the mechanics of PIE phonetics, and especially the use of laryngeals, metathesis, multiple roots with ablaut and thematic variations, affix permutations and analogic interferences, not mentioning the frequent invocation of exception rules, facilitates greatly the possibilities to model fitting etymons “on demand”. These features are not incorrect *per se*, but their generalization and systematic use certainly is. That being said, the most concerning issue is certainly the widespread tendency in PIE reconstruction to use analogic (metonymy, hyponymy, metaphorization, semantic extension etc.) and neologic (derivation, endocentric composition with missing heads, apocopes) devices at will, not to mention other etymological artifices like noa words and onomatopoeic/expressive etymons which are in most cases speculative or inconclusive. The possibilities of manipulating the meanings of a word offer the etymologist an infinite spectrum of tools to connect a word to its putative root if the two forms are fitting.

Finally, another bias of PIE etymology has to be emphasized: the tendency to consider IE a root which has cognates in a restricted geographic area which was much smaller than the one of the PIE extension. A word which has cognates in a few European languages only can barely be considered IE. All this will be exemplified in the analysed cases below. We have tried to take a critical look at the following etymologies, and to adopt a “minimalistic” policy as far as what should be considered PIE or not. And the fact emerges that very few tree names should be considered so.

2. Most Common tree names in Celtic

Following the tradition of IE studies, Paul Friedrich, in a major work devoted to Proto-IE tree names (1970), struggled to rebuilt a PIE “arboreal system”, i.e. an inventory of the trees present within the PIE homeland and composing its “natural habitat”. In this scope, using the old linguistic palaeontology method, he analysed 33 tree names. Although the method in itself has long proved ineffective (see the famous *beech line theory* which lead Kossinna to believe that the PIE homeland lay in Germany, among others) (Winn 1997:28), credit should be given to Friedrich’s work for its attempt to isolate lexical stock within

the IE domain, and especially within Europe. He also explains in very clear terms the basic principle of linguistic palaeontology, claiming the primacy of the form (phonetics) over the meaning (semantics): when the form fits, the meaning has to follow at any costs. This led also to numerous errors, among which the connection *birch/fraxinus* which is now discarded by dictionaries, including the prestigious *Robert Historique de la langue française* (II-1429), among others. In order to make the meaning of the PIE root fit with its alleged reflex, Friedrich insists upon the necessity of accepting a very loose concept of "connotation", legitimizing along the way all kinds of semantic distortions: "The value of connotation in proto-semantics should not be obfuscated by the timidity or reticence of contemporary ethnographers and semanticists in dealing with it" (ibid, 19). This stance could be qualified as "maximalist", i.e. accepting every kind of analogy and using all possible tools in order to prove an IE etymology. Ours will be, on the contrary, a much more "timid" (or minimalist, as we posited above) approach, according to Friedrich's qualification. No more than a simple doubt is indeed required to show that few of these tree names can convincingly be considered IE, or at the very best be considered more IE than anything else.

The main flaw of linguistic palaeontology lays in the etymological method: if there is any doubt about the solidity of a semantic connection (and such doubts are numerous) between a root and its proposed reflex, then the whole construction collapses. To this problem, we may add the fact that we obviously do not know who exactly the Indo-Europeans were, of which original groups they were composed and which degree of creolization their ethnogenesis and language had reached. There is no agreement either on the localization of their homeland, which has been put in as many different places as there are authors (Renfrew, 1988:97). We will focus on 10 common European tree names. These names have been classified according to their linguistic distribution.

2.1. Names of IE origins

Oak 1: Gaulish has *deruos*, attested in the toponymy (DLG 2003:140) and continued in Fr. *dervée* and Occ. *Drouille* "oak wood". Insular Celtic has two competing roots which are identical, save the vocalism: Brittonic has a root *derwo (Br. *dery*, OBr. *daeru*, Welsh *derw*, Corn. *derow*), while Gaelic has *daru (Ir. *dair*, OIr. *daur*, Scot.Gae. *darach*) (McBain), (Matasović 2009: 91 & 96), (Deshayes 2003: 179) cognate with Gaulish *deruos*. *daru is also attested in O.Bret. *dar*. PCelt. *derwo- and *daru- are undoubtedly the reflexes of a PIE root *deru- "tree", with a direct cognate in Greek *δρῦς* "oak", and many superordinates: PSl. *dervo "tree" (Pol. *drewno*, Rus. *депево*, etc.), (Derksen 2008: 99), PGmc *trewa- (Eng. *tree*, Dan. *tre*, etc.) (Kroonen 2013: 522), Hittite

tāru- "wood, tree" (Kloekhorst 2008:849), Skt. *dāru*, *drōh* "tree, wood", etc. The connection with PIE **deruə-* "strong" is speculative.

Yew 1 [unsure]: culturally one of the two typically "Celtic" trees with the oak, considering their place in religion and culture. The root is the same for all Celtic languages: Gaulish **ivos* (from which Fr. *if*), Br. *ivin*, Corn. *hiuin*, gall. *ywen*, OIr. *éo* (DLG 2003: 193). Scottish Gaelic uses a different root *iubhar*. There is agreement to derive this root from a PIE **eyw-* (Matasović 2009: 173) with cognates in Germanic (OHG. *īwa*, OE *īw*, from which yew, ON *ýr*). Outside Celtic and Germanic, the most interesting is a possible Hittite reflex *eian* denoting an "evergreen tree", hence probably a coniferous essence which could be a yew, but Kloekhorst (2008: 234) considers that this etymology is "far from assured" from a formal perspective, as well as the connections with suggested Balto-Slavic cognates. In this area, we find words denoting other trees, among which Lith. *ievà* "bird-cherry", Rus. *Ива*, Pol. *iwa*, Cz. *Jíva* "willow". The idea according to which a unique PIE root could point to different trees is hazardous, both semantically and culturally, and in spite of the above-mentioned case of *φηγός* (see *beech*), there are few conclusive cases formally and/or semantically. Even if from our contemporary perspective mixing trees is nothing particular, it seems highly unlikely that people of these times would use the name of a tree for another.

2.2. Names of pre-IE origins

beech: [European]. Gaulish has the single Celtic type for this word, i.e. *bagos*. Insular Celtic was borrowed from Latin *fāgus*, the **b^h* → *f* evolution being impossible in Celtic, (Bret. *faou*, Wel. *faw*, Irl. *feá*), all of them from PIE **b^heh₂ǵos*, *b^hāǵos* "beech". Cognates in Germanic (PGmc **bōko*, Kroonen 2013: 71): Eng. *beech*, Dan. *buk*, etc. There has been a general agreement to consider Greek *φηγός* "oak" as a cognate, since the form matches the reconstructed root **b^hāǵos* (Beekes 2009: II-1564), which is somewhat puzzling since there are beeches in Greece (*οξιά*), hence no necessity for borrowing. But Friedrich (1970: 10) points out that Greek shows a general tendency to shift the denotations of IE tree names. However, Kurdish *būz* "elm", Rus. *Бузина* and Pol. *bez* "elder" have been rejected as possible cognates (Eilers and Mayrhofer 1962). The Old Church Slavonic *bukŭ* is likely to be a borrowing from Germanic (Rejzek 2001). The root is remarkably absent from the Indo-Aryan speaking area, and it seems therefore more European than Indo-European. The root is remarkably present in Finno-Ugric too: Fin. *pyökki*, Hun. *bükk*, N.Sami *beaika*, which could possibly be borrowings from Germanic, as in Slavic, since the tree is not historically present in the Uralic-speaking areas, nor in the estimated location of the first speakers of Slavic. However, the P/B evolution in

Finnish and Sami respectively, tends to point to an inheritance rather than a borrowing, hence the Germanic source is unsure. In Basque the word is originally *bago* (mod. *pago*, see Trask 2008: 52, 123), probably a Gaulish or a Latin borrowing with a f→b assimilation in the latter case.

Willow: [West-European] All neo-Celtic forms are derived from an original *salik- (Matasović 2008: 320), attested in Gaulish *salico* (DLG, 2003: 264). The Brittonic languages show the regular aspiration s → h: Br. *haleg*, Corn. *helyk*, Welsh *helyg*, while the [s] is continued in Gaelic: Ir. *saileach*. Scot. *seileach*. The word is clearly west-European (Quentel 2012: 184), cognate with lat. *salix*. OHG *salaha* is probably an early borrowing from Celtic (Matasović ibid.), but the vocalism remains problematic. In other Germanic languages, the root has reflexes in OE *sealh* and ON *selja* (DLG 2003: 265). Outside IE, the root appears in Uralic: Fin. *saliva* and Hun. *szil*, for which the DLG suggests an early IE borrowing. The proto-Uralic root *siābo “willow” (Starostin 2003: 1263) with N.Sami *siedga*, mansi *sajxuwa*, evenk *sekta*, etc. is difficult to connect with the Finnish and Hungarian words. However, with the willow being of northern Eurasian origin, the word can hardly be IE since it cannot be found in the alleged areas of the PIE homeland (north or south of the Black Sea). The DLG suggests a connection with PIE *sal “grey”, which seems speculative. Moreover, the reconstruction of PIE *sal- is itself highly problematic, with few alleged cognates ranging from “dirty” to “willow” through “saliva” (EDPIE 2554). Another (unconvincing) attempt to connect the etymon with PIE is found in Quattrocchi (2012: 3295) with Celtic *sal* “near” + *lis* “water”, but none of these roots seem Celtic. Basque has *sahatz*, from an earlier form **sanats*, for which Trask (2008: 335) rejects the correlation with Latin for unknown reasons (probably the [l]/[n] distinction). Interestingly enough, the vocalism is similar to OHG. However, the similarity between Basque, Latin and Gaulish is striking, and points to an early indigenous western European root.

Elm [West-European]: the word has two reflexes in Celtic: a Latin borrowing (*ulmus*) and an original Celtic form in *lim-/lem-*. Both go back to a single substratic etymon *ulm. Breton has a singular form *evlec’h* for which Henry (1900: 118) suggested the metathesis *elv- → *evl-, the former being derived from either OE *elm* or Lat. *ulmus*. This scenario is taken by Deshayes (2003: 223) who proposes an original form **ulm-acc* → **ulv-ec’h*. The spirantisation –*lm-* → *lv-* is documented in Breton (Lat. *palma* → Bret. *palv*) and the insular Celtic/Latin –*ml-/lm-* metathesis, although not described by Pedersen (1989:63), has been studied by Schrijver (1997). The antiquity of the –*IVm-* form is confirmed by the Gaulish word *lemo-* or *limo-* (found for ex. in Limoges in the toponymy) (DLG 2003:198). Concurrently, Breton has the form *oulm*, borrowed from either Old French (Deshayes 2003:549) or Latin. These two concurrent forms exist in Irish and Scottish Gaelic with respectively

laimh/leamh and *ailm* (in both), the latter being a Latin borrowing, the former an original Celtic form showing the –IVm- sequence described above. The Welsh form *llwyff* derives from an earlier **leimá* (McBain at *leamhan*) continued in English *lime*. Ultimately, the root does not seem IE, and limited to western Europe (de Vaan, 2008:637).

Yew 2: [Western European/ Pre-Celtic] There is a second root **eburo-* (Matasović 2009: 112), with reflexes in Gaulish *eburos* (from various proper names, see DLG 2003: 159). The DLG points that the original semantic relation with the root **ivos* is unknown, but the reflexes of this root raise once again the problem of confusion over trees. It is indeed unclear at which tree this root is pointing, and the fact that we are dealing with a yew is not without subsequent doubts. In this case, it could explain the problem emphasized by the DLG (2003: 159). The Gaelic reflexes are in fact the only ones denoting a yew (OIr. *ibar*, Mod.Ir. *iúr*, Scot. *iubhar*). The Breton reflex *evor* points at a rowan, the Welsh *efwr* at hog weed. A possible OHG *eberesche* also points at a rowan, and is probably a Gaulish loanword. French *bourdaine*, possibly from Gaulish, denotes a rowan too, although the question whether the word comes from **eburo-* or not remains unclear. Hence, the meaning of the Gaulish word would be "rowan" rather than "yew", an opinion already supported by Schrijver (2015). The Welsh reflex is semantically puzzling, to say the least, since it does not point to a tree but at a variety of field grass, although being formally identical to its Breton cognate. Different etymons could be at the origins of these words, with later analogic phonetic developments. In any case, the root **eburo-* is not IE. An attempt to connect it to the PIE root **erb^h* "dark, brown" is considered speculative by Matasović (2009: 112).

tree: [North-West European/ Germano-Celtic] Br. *gwez*, vx. Br. *guid*, Corn. *gwyth*, Welsh *gwydd*, Ir. *fiodh*, OIr. *fid*, Gaul. *vidu* (in various toponyms and anthroponyms: Uiducus, Uidula, see DLG, 2003:318), PCelt. **uidu* (Matasovic 2009: 420). Cognates: eng. *wood*, ohg.*witu*, OE *wudu*, (Deshayes 2003: 308). Connected in Breton with *gouez* ("wild") by Henry (1900: 153) (see also Matasovic 2009: 408), incorrectly spelled "gouez" instead of "gwez". The PIE root **wid^hu* cannot be supported: the only alleged cognate outside Germano-Celtic, Lith. *vidùs* "interior", is semantically unrelated. Vendryes' suggestion that "la forêt constituant un hinterland, une région intermédiaire à deux territoires habités" (the forest constituted a hinterland, an intermediate region between two inhabited territories) (1914) is unrealistic. The DLG (2003: 318) states that the word is a "correspondance surtout germano-celtique" (a particular Germano-Celtic correspondence) (see also Quentel 2012a).

Birch: [Western-European/Pre-Celtic] Br. *bezv*, OBr. *bedu*, Corn. *besow*, Welsh *bedw*, Irl. *beith*, O. Irl. *beithe*, Gaul. *betua* and from this one lat. *betulla* and Fr. *bouleau*, all of them from PCelt. **betu* (Deshayes 2003: 108). allegedly

from PIE *g^wetu "pitch"(Matasovic 2009: 64), (EDPIE 1315) considered a cognate of Skt. *jātu* "gum", OHG *cuti* and OS *cwidu* "resin"(also lat. *bitumen*). The semantic gap is tentatively filled by the fact that birch-tar has been used as mastic in mesolithic Europe. Even if we admit this connection, which is far from obvious, other problems occur: a) the tree used to produce pitch in these ancient times seem to have been primarily pine rather than birch (Benozzo 2010: 32), (Regert 2010), (Bonfield 1997), (Gibby 1999). b) birch-tar is not produced from resin (*cuti* or *cwidu*), but by dry-distillation of (dry) wood or bark (Benozzo 2010); therefore, "resin" is unlikely to fit in this scheme. Hence, the connection birch/pitch lays on very thin ground, even more so if the Germano-Celtic root does point to a birch, while the others refer to a by-product (PIE *g^wetu) of a tree (not necessarily a birch) obtained through a complex process of dry distillation. We would have expected the semantic diffusion to occur the other way, i.e. from the natural referent to the processed product. For all these reasons, the pitch/birch PIE etymology should be considered as speculative, and a limitation of the root to the Celtic domain, where the word still means "birch", is more realistic.

Alder: [Central-European – pre-Celtic]. Br. and Welsh *gwern*, Ir. *feach*, Gaul. *verna*, from * PCelt. *werno- (Matasović 2009: 414). Fr. *vergne* "willow" is from Gaulish. The DLG (2009: 314) discards the connections with Armenian, Albanese and Sanskrit, but considers with Vendryes (1929) that the word derives from a PIE root *wer "water" (*wodr-) because the tree lives near water, and because *gwern* means also "swamp" in Brittonic. Yet, the word having the meaning "alder" only in Celtic, and the phonetic form being absent from the other IE languages, this connection seems unlikely. Here again, everything points toward a western pre-IE root.

Fir: [West-European – pre-Gaulish/pre-Insular-Celtic]. The Celtic languages disagree heavily on this word. In Gaulish the word is *sapo-* (Delamarre 266), continued in French *sapin*, of pre-IE origins. It is possibly connected with Cornish *sibuit* and Welsh *sybwydd* "pine tree" (in Welsh there is no basic distinction between fir tree and pine tree). Deshayes (2003: 644) considers Breton *sap* as a borrowing from Old French, but Henry suggests a direct continuation from Gaulish (1900: 276). There has been many attempts to connect this word to the classical PIE scheme "tree=resin" (see *birch*), with a *sok^wos root, but the lack of acceptable cognates, both formally and semantically, obviously discards this option. In Irish and Scottish Gaelic, the word is based upon the root *gis-*: Ir. *giúis*, ScG *giuthas*, an isolated root connected with OE *gyr* "fir tree" (McBain), probably borrowed from Celtic, the root *gis* being itself a borrowing from a more ancient, pre-IE language of the British Isles.

Oak 2: [West-European/ Pre-Gaulish] Gaulish has two words denoting the oak (see Oak 1 above): *cassanos* (from which Fr. *chêne*) is clearly not IE (DLG 2003: 108), and obviously not Celtic either. It witnesses a pre-IE substratum as do many other Gaulish words (*alauda*, *gilaros*, *taxos*, *tuto*, etc.), and it has no continuation in insular Celtic, implying an already suspected creolisation of Celtic with a substratum in Gallia.

Pine: [Mediterranean/ pre-Latin]. The last word is a typical Latin borrowing, used in all the Celtic languages: Br. and Welsh *pin-*, Ir. *péine*. The latin word itself is not IE (de Vaan 2008: 467) and likely substratic too. There is also the Gaelic *ochtach* "pine", presumably from a PIE root **peuk* "to pierce" after the sharp needles (Sims-Williams 2018), but this is uncertain.

3. Conclusions

Among the twelve Celtic tree names studied here, only two can be confidently labelled "Indo-European", i.e. having a source in a lexical stock lying somewhere between Europe and India. None of the others offer convincing elements to support IE origins: either the geographic area is restricted to a small part of Europe or the semantic connection is flawed by speculative analogies, and more generally both. The fact that tree names are likely to have substratic origins is basically nothing new, but most studies have tried to demonstrate the contrary (including Friedrich). Since speakers generally borrow concepts which they are missing (Deroy 1956: 57), tree and animal names are unlikely to be borrowed whatsoever. Friedrich already pointed out that few tree names in Sanskrit could be considered IE (1970: 10). Hence, in order to connect tree names to PIE roots, it is necessary to use analogic biases, in other words, to connect tree names with items or characteristics which do not denote trees (tar, water, colour, to pierce etc.). Such assumptions are obviously impossible to prove, and emphasizes the aforementioned methodological biases. In fact, the problem affects a much wider array of lexical items than the small field of tree and plant names. There is a fundamental problem here which has rarely been dealt from a theoretical perspective (although it has from a practical one in many recent dictionaries), and which we have addressed by defining a few fundamental methodological principles.

Now, the question is what can we learn from this study and how can we go forward with the research? It is certainly unrealistic to believe that, by exhuming ancient substratic roots, we could reconstruct ancient pre-IE languages, as has been done for PIE. We neither know how many languages are behind the attested ones, nor what their isoglosses were. But some significant conclusions can nevertheless be drawn from such research.

The first is that we should be able to localize lexical stock which dictionaries name *Mediterranean, Western-European, Northern European substrata, pre-Celtic, pre-Gaulish, pre-Irish, Atlantic, Nordwestblock*, etc, and we have categorized the roots following these areal denominations in the present study. By collecting the possible substratic roots in all the primitive lexical fields of neighbouring languages, it will be possible to isolate some lexical stock more precisely. In the present list, most tree names have western-European origins, and we are beginning to glimpse that pre-Gaulish has a substratum different from pre-Celtic and from pre-British, and that there is a convergence between Celtic and Germanic (Quentel 2012a). Such convergence does not mean that they share the same substratum, but that a small array of roots has been borrowed from the same indigeneous source.

The second is that some already suggested hypothesis are not confirmed by the study of Celtic tree names, namely the Basque substratum hypothesis (Vennemann 1994 and 1996) and the Mediterranean Gaulish substratum hypothesis (Lansberg 1940), since no inherited tree name studied here could be connected with Basque nor Latin. The Italo-Celtic hypothesis (Dillon 1944) has by now been long discarded (Clackson and Horrocks 2007: 39).

The third is that from a contemporary lexicological perspective, it is interesting to observe that, although the lexicons of our modern languages have been massively influenced by stratifications corresponding to successive waves of conquests (Celtic, Roman, Germanic), we are still using a remaining core of indigenous roots. Given the significant quantity of unetymologised words in western European languages (about 16% of the roots of French have no known etymology, and the number is probably twice bigger for the Germanic languages, cf. Quentel 2018). Although they do not altogether go back to ancient substrata, there is a significant matter for investigation here.

ABBREVIATIONS

Br. : Breton	Ir. : Irish Gaelic
Corn. : Cornish	Lith. : Lithuanian
Cz. : Czech	N.Sami : Northern Sami
DLG : Dictionnaire de la Langue Gauloise (Delamarre,2003)	OE : Old English
EDPIE : Etymological Dictionary of Proto-Indo-European	OHG : Old High German
	OIr. : Old Irish
	ON : Old Norse

Fin. : Finnish	PGmc : Proto-Germanic
Fr. : French	Pol. : Polish
Hun. : Hungarian	Rus. : Russian
	ScG : Scottish Gaelic

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