CELTO-GERMANIC
Later Prehistory and Post-Proto-Indo-European vocabulary in the North and West

John T. Koch
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by

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Fór svá sú orrosta hvern dag eptir annan at allir þeir er fellu ok ǫll vápn þau er lágu á vígvelli ok svá hlifar urðu at grjóti. En er dagaði stóðu upp allir dauðir menn ok börðusk ok ǫll vápn váru á nýt.

[Snorri Sturlusson, Skáldskaparmál ~AD 1220]

In this manner the battle continued day after day. All who fell were turned to stone, together with all their weapons and shields lying on the field. But at dawn of the new day, all the dead men stood up and began to fight again, while all their weapons became like new.


‘A very important book. The most interesting and convincing about the shared linguistic-archaeological-genetic splits I have seen.’

KRIStIaN KRIStIA NSEN
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Cover image: Bronze Age rock carving depicting an adder slinking: Järrested, Skåne, Sweden.
INTRODUCTION

§1. Context, subject matter, and method

The full-genome sequencing of ancient DNA (aDNA) is rightly called the ‘archaeogenetics revolution’. It changes everything in the study of the human past. However, this new knowledge has not shifted historical linguistics’ centuries’ long preoccupation with the enigma of the homeland of the common ancestor of all the attested Indo-European languages, Proto-Indo-European. As a potentially decisive resolution for this question, seminal studies now focus on the aDNA evidence for mass migrations expanding widely from what is now Ukraine and South-west Russia about 5000 years ago (especially Allentoft et al. 2015; Haak et al. 2015; Reich 2018).

Against this backdrop, this book falls into the middle ground—between Proto-Indo-European and the attested languages of North and West Europe during the two thousand years that can be called the Greater Bronze Age, roughly 2500 to 500 BC.1 The method is cross-disciplinary, which, for research on later prehistory, has become inevitable due to the breakthroughs with aDNA. This new synthetic approach can be labelled ‘LAG’, linguistics–archaeology–genetics. Would-be LAG researchers face the challenge of re-educating themselves in a second and third discipline and will do well to contemplate smoothing the way for coming generations.

Linguistics leads the LAG triad here. This book’s core subject is a set of 173 inherited words or developments of words shared exclusively between two Indo-European branches, the Celtic and Germanic language families. A larger set is also considered. Totalling 276, these include the 173 Celto-Germanic words and, added to them, examples found also in one or both of the other North-

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west Indo-European families, Balto-Slavic and/or Italic. Examples of the latter are known mostly from Latin, fewer occurring in the fragmentarily attested South Picene, Oscan, Umbrian, and Venetic.2

The following terms and abbreviations are used for the subgroupings of languages studied here:

a. **Celto-Germanic (CG)** = words or developments in the forms and/or meanings of words unique to Celtic and Germanic;

b. **Italo-Celtic/Germanic (ICG)** = words or developments in words unique to Italic, Celtic, and Germanic;

c. **Celto-Germanic/Balto-Slavic (CGBS)** = words or developments unique to Celtic and Germanic and Baltic and/or Slavic;

d. **Italo-Celtic/Germanic/Balto-Slavic = attested in all North-west branches (ANW)** = words or developments unique to Celtic and Germanic and both Italic and Baltic and/or Slavic;

e. **CG+ = all words combining sets a–d inclusively**;

f. **North-west Indo-European (NW)** (as defined by Mallory & Adams 2006, 109) = words attested in any two or more of Celtic, Germanic, Italic, Slavic, and Baltic, but not attested in Anatolian, Indo-Iranian, Greek, Armenian, Tocharian, or Albanian. So NW is broader than CG+, as it also includes words that lack Celtic and/or Germanic comparanda.

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2 It is not universally agreed that Venetic, attested in ~300 inscriptions from near the head of Adriatic, should be classified as an Italic language. There is, however, no doubt that it is an Indo-European language of the western or centum type, showing affinities with both Celtic and Italic (Clackson & Horrocks 2007, 86; Wallace 2008, 126). It is generally recognized that Latin is more closely related to the Sabellian languages (South Picene, Oscan, and Umbrian), than either Sabellian or Latin is to Venetic. De Vaan includes Venetic as Italic in his Etymological Dictionary of Latin and the other Italic Languages, though acknowledging this uncertainty (2008, 1–2). In both Hamp’s (2013) earlier and later Indo-European family trees, Venetic is grouped with Italic. In the tree model for Italo-Celtic of Schrijver, Proto-Italo-Celtic first divides into Proto-Celtic and Proto-Italic. After that, Proto-Italic splits into Venetic and the common ancestor of Sabellian and Latino-Faliscan (Schrijver 2016, 499–500).
§2. A research project

Recent discoveries in the chemical and isotopic sourcing of metals and aDNA have transformed our understanding of the Nordic Bronze Age in two ways. First, we find that Scandinavia and the Iberian Peninsula were in contact within a system of long-distance exchange of Iberian copper and Baltic amber, datable approximately to the period 1300–900 BC.3 At earlier stages, copper had come to Scandinavia from Wales—from mines in Ceredigion ~2000 BC and then from Great Orme on the north coast ~1500 BC.4 It is after Great Orme declined ~1400 BC, that copper from South-west Spain was imported into Scandinavia.

Much remains to be explained about this previously unrecognized sequence of contacts between Scandinavia and the metal-rich Atlantic façade. What were the exact dates and volume of this trade? Which specific localities and communities were involved? Did people and ideas move with valuable raw materials? To answer these questions, we launched in 2019 a research project: Rock art, Atlantic Europe, Words & Warriors (RAW), based at the University of Gothenburg and funded by the Swedish Research Council. RAW uses new technologies and crosses between the LAG disciplines. Its syntheses seek to advance understanding of the formation of Atlantic Europe’s languages, cultures, and populations.

Second, within the period ~2800–1900 BC, mass migrations emanating from the Pontic–Caspian Steppe had reached both Scandinavia and the Atlantic West, transforming their populations and probably bringing Indo-European languages with them.5 In other words, between the two sets of discoveries, we now know not only that these regions were in contact through metal exchange in the Bronze Age, but also that early Indo-European languages were probably in use at both ends of the network.

A significant negative finding of archaeogenetics is that many regions, including Northern and Western Europe, underwent no comparably large or abrupt in-migration subsequently, that is, after the Neolithic–Bronze Age Transition and before historical times. While it remains possible that genetically undetectable or slightly detectable groups brought new languages to these countries later in the Bronze Age and/or during the Iron Age, such hypothetical prehistoric migrations are no longer needed to explain why Germanic and Celtic languages are where we find them at the dawn of history. Therefore, the more economical working hypothesis is that these two Indo-European branches evolved in situ from Proto-Indo-European in their historical homelands over the course of the Bronze Age.6

The RAW Project is undertaking an extensive programme of scanning and documentation to enable detailed comparison of the strikingly similar iconography of Scandinavian rock art and Iberian ‘warrior’ stelae.7 A linguistic aspect of this cross-disciplinary project is to re-examine the inherited word stock shared by Celtic and Germanic, but absent from the other Indo-European languages, exploring how these words might throw light onto the world of meaning of Bronze Age rock art and the people who made it (Ling & Koch 2018). This book presents early findings of this aspect of the RAW Project (cf. Koch 2019a).

Parallels between Iberian warrior stelae and Scandinavian rock art were noted years ago (Almagro Basch 1966; Harrison 2004; Koch 2013a). Only recently have shared motifs (e.g. shields, spears, swords, bi-horned helmets, mirrors, bows and arrows, chariots with two-horse teams and spoked wheels, dogs, &c.) begun to be recognized in fuller detail and dated closely to the span 1300–900 BC (Ling & Koch 2018; cf. Mederos 2008).

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5 Allentoft et al. 2015; Haak et al. 2015; Cassidy et al. 2016; Anthony & Brown 2017a; Olalde et al. 2018; Reich 2018; Valdiosera et al. 2018; Koch & Fernández 2019.
7 On the application of digital scanning technology to Bronze Age rock art and stelae, see Díaz-Guardamino & Wheatley 2013; Díaz-Guardamino et al. 2015; Bertilsson 2015; Horn et al. 2018.
A preliminary look at 1) rock-art motifs shared by these regions at this time and 2) the earliest layer of vocabulary shared by Germanic and Celtic (but not Indo-European as a whole) suggests that seafaring warriors were the primary agents of this trade. RAW is investigating these data fields and this hypothesis.

For example, the Herzsprung shield shows how varieties of evidence gathered through different disciplines can be drawn together to reveal a pattern of long-distance contacts. This shield type is found in Ireland, Southern Scandinavia, the Iberian Peninsula, the Aegean, and Eastern Mediterranean. They were made in various materials: leather, wood, bronze, and representations in ceramics or carved in stone. In its full or ‘classic’ expression, the shield is circular or nearly so, with three concentric ribs around a central convex boss, and a V- or U-shaped notch cutting across the rim and through the ribs towards the boss. Where the inner side is preserved or represented, there is a grip, sometimes in the form of a wide H, a longer piece between two perpendicular pieces fixed to the interior behind the boss. A leather Herzsprung shield from Cloonbrin, Co. Longford, Ireland, of 61cm diameter is dated 1194–934 cal BC. Wooden forms for shaping Herzprung shields were found at Churchfield, Co. Mayo, and Kilmahamogue, Co. Antrim, and wooden U-notched shields at Annadale, Co. Leitrim, and Cloonlara, Co. Mayo (Uckelmann 2012; 2014). Date ranges for the wooden examples span back as early as ~1600 BC, supporting Ucklemann’s proposal that the type originated in Ireland then spread by sea to the Iberian Peninsula and Scandinavia. 70 shields are represented on Iberian Late Bronze Age stelae, most densely concentrated in South-west Spain. The stelae with these motifs probably began ~1300 BC then continued to the 9th century. 40+ of the shields on stelae are shown with V-notches and ~30 have concentric rings. In Scandinavia, similarly portrayed shield motifs often accompany armed warriors on Bronze Age rock art.

18 of 24 sheet-bronze shields found near Fröslunda by Lake Vänern in Southern Sweden were of U-notched Herzprung type. These date ~1100–800 BC (Uckelmann 2012). The bronze of two of the Fröslunda Herzprung shields closely matches copper from the Ossa-Morena massif of South-western Iberia (Ling & Uhnér 2015), in and near the densest zone of stelae. By ~1200 BC, Iberia had become a significant supplier of copper to Scandinavia. From the perspective of language, the word for ‘SHIELD’ in the Bronze Age ancestor of Germanic was *skeltus, while in the forerunner of Celtic it was *skelto-. These two words have different etymologies, but their forms sounded so much alike, as well as meaning exactly the same thing in coeval neighbouring languages, that coincidence would be implausible. In this case, as in many investigated here, the combined evidence suggests a pattern of intense cultural and economic interaction enabled by warrior-led sea journeys in the Bronze Age. The RAW Project is building an online library of 3D images of rock art to allow researchers world-wide to compare remote immovable objects in fine detail (web portal: https://www.shfa.se/).

8 1110–1010 cal BC at 68% probability, close therefore to the dates of the Huelva horde, i.e. 1110–910 cal BC at 68% probability (Díaz-Guardamino et al. 2019a).


10 The ‘star’ * preceding these words is the linguistic convention marking an unattested reconstruction.

11 MLH IV; Hoz 2010; Koch 2013b; 2019; Brandherm 2016.
§3. On the RAW Project’s linguistic dimension

Not all Celto-Germanics (CGs) are similar cases. In the most straightforward examples, the item occurs in Celtic and Germanic languages, it is based on the same root, the word is formed in the same way, has the same meaning, and can be reconstructed phonologically as equivalent Proto-Celtic and Proto-Germanic forms. In most cases, obvious earmarks of a prehistoric loanword are absent. In fewer, borrowing is certain. In some examples, the root is found in other Indo-European languages, but the word has been formed in the same way (with the same suffix(es) for example) only in Celtic and Germanic, thus the word for ‘AXLE’, where the suffix with -l- with that meaning is unique to Celtic and Germanic (Proto-Germanic *ahsula-, Proto-Celtic *aχsilā). There are some words with unique histories associated with long-distance exchange of precious commodities, such as the Germanic ‘SILVER’ *silubra-, probably of non-Indo-European origin and found also as Celtiberian silabur. In some cases, it is a distinctive secondary meaning that is uniquely Celto-Germanic. For example, Proto-Indo-European *bhr̥gh- meant ‘height, hill’, but came to mean a fortified settlement in both Celtic and Germanic. The development through Celtic Brigā ~ *brīxs meaning both ‘hill’ and ‘hillfort’, later ‘town’, shows what happened to this word and points to the age of hillforts as the era when the change of meaning probably occurred.12 So when was that? In the traditional account, hillforts figure as an integral element of an Iron Age Celtic package, and for Britain evidence for hilltop fortifications points mainly to the 1st millennium BC (Cunliffe 2013, 301–3). However, recent research shows an earlier and diverse history of hilltop fortifications in other regions. For example, ‘The available evidence points to the emergence of the hillfort as a new phenomenon in Ireland during the Middle Bronze Age, 1400–1100 BC’ (O’Brien 2016, 222). Whether or not that is also the key date range for the shift of meaning, ‘height’ to ‘hillfort’ appears to have occurred when the word was still *bhr̥gh-, the common ancestor of Proto-Germanic *burg- and Proto-Celtic *brig- (cf. §44a below).


As shown in earlier work, warfare and ideology are heavily represented in the meanings of the CG words (especially Hyllested 2010).13 One of the recognitions that motivated the RAW Project is that several of these same meanings were also represented in the iconography shared by Iberian stelae and Scandinavian rock art of the Late Bronze Age (Ling & Koch 2018; Koch 2019a). These correspondences are suggestive of both a metaphorical and a literal common language shared by a mobile class of trader-raiders operating along the Atlantic seaways in the Late Bronze Age. Something analogous to a lingua franca can be seen in the visual code of carvings on stone used to express common elements of a cultural ideal. But in factoring in the correspondences with CG words, we recognize the likelihood of a true common language that defined the essential characteristics of the mobile groups who crossed cultural frontiers between Bronze Age Scandinavia and the metal-rich Atlantic West and/or Central Europe.

In the most straightforward examples, a CG word corresponds to a man-made object repeatedly carved on stones in both Late Bronze Age Scandinavia and Iberia: for example, *ghaiso- ‘spear’. But we can go beyond these obvious correspondences to the structure of societies that produced rock art, as recently investigated from an anthropological perspective (Ling & Uhnér 2015). The socio-economic cornerstone of this ‘Maritime Mode of Production’ model is the Bronze Age chiefdom amassing

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12 The recurring Hispano-Celtic town name Uxama derives from what was originally the suppletive superlative of *brig- ‘high’, cf. Welsh uchaf ‘highest’. This word has shared the semantic development of the basic word. Thus, towns called Uxama are claiming to be more important than the many towns named -briga. See Figure 43.

13 For a comparison, the thesis of van der Heijden (2018) collects a corpus of 138 words shared by Germanic with Baltic and/or Slavic, 88 of which ‘possess specific enough semantics to be categorized’. Of these, 29 forms describe nature, 12 describe wooden tools, 23 types of labour, 3 are ‘typically agricultural’.
agro-pastoral surpluses to finance long-distance expeditions in seaworthy vessels. Key elements of this society anticipate the Viking Age 2000 years later (Ling et al. 2018).

Anthropological analogies lead also to understanding the carving and re-carving of rock art as ritual activity, accompanying transmission of secret knowledge and oath-taking initiations into the sodalities of seafaring bands (Hayden 2018; Ling 2019). Compare CG *oitos and *leugho- ‘OATH’. For almost every essential facet of this system, one finds a CG word. CG *rūn- ‘SECRET KNOWLEDGE’ of course comes to signify in Germanic a script and messages usually carved on stone whose meanings were accessible to an initiate in-group.

§5. A new cross-disciplinary approach to later prehistory

By the end of the first decade of the 21st century, historical linguistics and archaeology both had records of systematic research stretching back over a century and half. Both disciplines had uncovered extensive details of human activity in periods before the earliest surviving written records. One might imagine that it should have been possible to put these two sciences together, more-or-less from their outsets, to determine which prehistoric archaeological cultures were used by speakers of which reconstructed languages. But the key for doing this in a reliable and broadly convincing way proved elusive (cf. Kristiansen 2017). The surprise which greeted the decipherment of Linear B as Greek (Beattie 1956; Chadwick 1992)—and the disparities revealed between Mycenaean Greek as deciphered and Proto-Greek as previously reconstructed (Garrett 2006)—shows how wrong inferences linking philology and text-free archaeological evidence can be.

An obvious potential anchor point for a reconstructed proto-language in an archaeological time and space grid is the case of the homeland and dispersal of the ancestor of the Indo-European languages. But factors frustrated the resolution of this problem in a universally acceptable way. First, there was more than one high-profile theory. Of the archaeologists and linguists who had expressed a view of the subject, many favoured the so-called ‘Steppe’ or ‘Kurgan Hypothesis’, as anticipated by Schrader (1883), then Childe (1926), formulated by Marija Gimbutas (1970; 1981), and subsequently elaborated by her student J. P. Mallory (1989; 2013; Mallory & Adams 1997; 2006) and David Anthony (2007). In this view, the common ancestor of the attested Indo-European languages belonged to a society at approximately a Late Neolithic to Copper Age stage of development, so about 5000 years ago, and was situated in the grasslands north of the Black and Caspian Seas. Archaeologically, this would mean the Yamnaya culture, probably together with its immediate predecessor and descendants.

Amongst the approaches favouring the Steppe Hypothesis was what is called ‘linguistic palaeontology’. This means the principle that if a family of related languages descending from common proto-language share words for particular things (technological items, social institutions, or natural species), it follows that the speakers of that proto-language knew those things. Proto-Indo-European has reconstructable words for the horse, wheeled vehicles and parts of wheeled vehicles, wool, and much else. The Yamnaya culture had all of these things. But, if we go back much earlier, to the time of the first farmers or hunter-gatherers who preceded them, we come to cultures that did not have them.14

Despite linguistic palaeontology, a widely supported alternative hypothesis identified the spread of Proto-Indo-European with the spread of farming from Anatolia 3000+ years before Yamnaya. The leading proponent of this Anatolian Hypothesis has been Colin Renfrew (1987; 1990; 1999; 2000; 2013). This model had in its favour a trend in archaeological thinking, also considerably indebted to Renfrew, in which migration came to figure less in explanations of prehistoric culture change wherever parallel

development without mass movements of people appeared a plausible (cf. also Clark 1966). Within this influential line of thinking, the transition from hunter-gatherer subsistence to agriculture was recognized as an exception in probably involving a significant shift in population and hence probably also in language.

Another factor usually remaining beneath the surface of the Indo-European homeland question was that the mood of the times in the later 20th century was set strongly against tidy one-to-one correspondences of archaeological cultures, languages, and peoples. Such simplistic equivalence had figured in Kossinna’s obsolete culture-historical approach and its tragic misuse as applied to nationalist idealization of Indo-Europeans central to Nazi ideology. An expansion of Proto-Indo-European with agriculture enjoyed a more decisive break with this tainted past than a model centring on aggressive horsemen.

However, to see this intellectual stalemate in purely political terms would be a copout. On its own, linguistic palaeontology could be suggestive but not sufficiently conclusive to push the Steppe Hypothesis over the line. Early loanwords between related dialects can be hard to distinguish from vocabulary inherited from their common ancestor because cognate sounds will be substituted in the borrowing dialect. Arguments about the rate of language evolution and credible time depth for Proto-Indo-European—~9000 years or ~5000 years—have been made for both hypotheses.

The key principle that makes archaeogenetics more illuminating than unaided archaeology for situating reconstructed languages in prehistory is that the most usual means in which a first language is transmitted is parent to child (cf. Thomason & Kaufman 1988; Ringe et al. 2002). There are of course exceptions. Sometimes parents, under one kind of circumstance or another, learn a second language as adults and then choose to pass it on as a first language to their children. Many examples will come to mind from the modern world and, for many of us, even the lives of our immediate ancestors or ourselves. But parent-to-child transmission is the norm and a quasi-universal (Koch & Fernández 2019). Therefore, for example, when we’re told of genomic evidence leading to the conclusion that 90% of the population of Britain was replaced between the Neolithic and Bronze Age and that the resulting genetic make-up was virtually indistinguishable from that in the Netherlands (Olalde et al. 2018), it is a defensible conclusion that the newcomers changed Britain’s language at this time (~2500–2000 BC) and that that new language was also spoken in the Netherlands.

§6. Some Indo-European background

The Indo-European sub-families or branches are usually reckoned as ten: (in order of dates of attestation) Anatolian, Indo-Iranian, Greek, Italic, Celtic, Germanic, Armenian, Tocharian, Balto-Slavic, Albanian (Mallory & Adams 1997; 2006). There are several fragmentarily attested ancient Indo-European languages (such as Phrygian, Thracian, and Lusitanian) that cannot be certainly affiliated with any of the ten branches. It is possible that there were other Indo-European branches that died out completely unattested.

To gain a sense of the significance of 173 CG words and the total of 276 CG+ words, it is useful to compare these figures with Indo-European as a whole. Mallory and Adams identified 1,364 Proto-Indo-European lexemes (1997; Mallory 2019, 36). They assigned a word to Proto-Indo-European if it met either or both of the following criteria:

16 Cf. Mallory 1996. This, incidentally, has been one chief argument supporting the Anatolian Neolithic Hypothesis, despite shared Indo-European vocabulary for a later, i.e. Copper Age, material culture (Renfrew 1987; 1999; 2000; 2013).
cognates occurred in at least one European branch of the Indo-European macro-family and at least one Asiatic (i.e. Tocharian and/or Indo-Iranian), or, alternatively, in Anatolian and at least one other branch.

With criterion (2) there can be little dispute that the guidelines are theoretically correct. If the possibility of an early loanword between Anatolian and the other branch can be ruled out (and there is little or no evidence for such borrowings into Hittite or Luwian), the word would have to go back to Proto-Indo-European itself, as it is agreed that Anatolian was the first branch to split off from the proto-language (§11). Therefore, words found on either side of that split must be attributed to the earliest stage of Proto-Indo-European.

On the other hand, with criterion (1) the inherited word might have originated in a Post-Proto-Indo-European commonality. As the best available scheme for the first-order subgroupings of Indo-European, that of Ringe et al. 2002 is adopted here. Those authors apply a robust methodology with diverse criteria for successive linguistic innovations, considering phonological and morphological changes, as well as loss and preservation of Proto-Indo-European vocabulary. That paper is the basis of the tree model of Figure 4 here. In this model, Balto-Slavic and Indo-Iranian and the dialect that gave rise to Germanic were closely linked in a continuum at an early stage in the diversification of Proto-Indo-European (Ringe et al. 2002; Ringe 2017, 6; Figure 15 below). Other models similarly show a close relationship between Indo-Iranian and Balto-Slavic, sharing a unified parent language (e.g. Kortlandt 2018; cf. Mallory & Mair 2000, 285). If we accept this finding, it is theoretically possible that a word or other linguistic development found only in Balto-Slavic (attested in Europe) and Indo-Iranian (attested in Asia) could have arisen at a Post-Proto-Indo-European stage, even the proto-language or dialect group ancestral only to those branches.

With that caveat, we proceed with the figure of 1,364 Proto-Indo-European lexemes as an approximate baseline for comparison. The 173 CG and 276 CG+ words are mostly not included within the list of 1,364. That is because by definition they do not occur in Anatolian or any Asiatic branch of Indo-European. However, it is not quite that simple, because the present collection includes not just words altogether absent from Anatolian, Tocharian, and Indo-Iranian (as well as being absent from Greek, Albanian, and Armenian), but also words sharing differences in meaning or patterns of word formation not found in Anatolian, Tocharian, Indo-Iranian, &c.

To further appreciate the significance of 173 CG and 276 CG+ words statistically, as an order of magnitude, we list Mallory’s numerical totals and percentages for how many of 1,364 words attributed to Proto-Indo-European are attested in each branch or major sub-branch, from most numerous to least (2019, 36):

<table>
<thead>
<tr>
<th>Branch</th>
<th>Words</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indic</td>
<td>925</td>
<td>68%</td>
</tr>
<tr>
<td>Greek</td>
<td>772</td>
<td>57%</td>
</tr>
<tr>
<td>Germanic</td>
<td>761</td>
<td>56%</td>
</tr>
<tr>
<td>Italic</td>
<td>705</td>
<td>52%</td>
</tr>
<tr>
<td>Iranian</td>
<td>675</td>
<td>49%</td>
</tr>
<tr>
<td>Baltic</td>
<td>601</td>
<td>44%</td>
</tr>
<tr>
<td>Celtic</td>
<td>539</td>
<td>40%</td>
</tr>
<tr>
<td>Slavic</td>
<td>503</td>
<td>37%</td>
</tr>
<tr>
<td>Tocharian</td>
<td>465</td>
<td>34%</td>
</tr>
<tr>
<td>Anatolian</td>
<td>354</td>
<td>26%</td>
</tr>
<tr>
<td>Armenian</td>
<td>289</td>
<td>21%</td>
</tr>
<tr>
<td>Albanian</td>
<td>226</td>
<td>17%</td>
</tr>
</tbody>
</table>

This list puts into perspective the significance of a cognate being attested or not being attested in a particular branch. For example, Sanskrit *comparanda* are so often cited not only because it is one of the most archaic Indo-European languages (especially Vedic Sanskrit) and has been closely studied by western philologists for
over 200 years, but also because its literature survives copiously. That 68% of the words attributed to Proto-Indo-European are attested in Indic also means that it is potentially more significant when a cognate is not found in Sanskrit than would be the case for such an absence from, say, Albanian (see further §23).

Regional subsets of Indo-European, such as NW, are a recognized phenomenon, but their implications are rarely teased out in detail. Such subsets can be defined as groups of words occurring in two or more geographically contiguous Indo-European branches, but failing to meet criteria to be attributed to Proto-Indo-European. Since all words are subject to loss over time, an individual word attested only regionally may do so by accident. Furthermore, some words have been considered cognates on the basis of questionable etymologies. In other instances, an Anatolian or Asiatic cognate may have escaped notice or occurs in a text yet to be discovered. Nonetheless, when regional subsets number in the hundreds, the overall picture and percentages are not likely to change drastically through new work.

As a whole, the 1,364 Proto-Indo-European lexemes can be regarded as earlier than the regional subsets. That large group reflects the stage before the Indo-European dialect continuum became geographically overextended and the migrations from the homeland had significantly slowed down or stopped. After that, it was no longer common for linguistic innovations originating in one part of the Indo-European world to spread to all others. Regional dialects had become isolated from one another by great distances, natural barriers, ways of life adapted to distinct environments, and diverging Bronze Age cultures (cf. Garrett 1999; 2006; Koch 2013a).

§7. Iron Age contact, Bronze Age contact, or both?

For the languages under closest scrutiny here, when it is borne in mind that 761 Proto-Indo-European lexemes were found in Germanic and 539 in Celtic, the 173 inherited words or developments of words that these two language families share exclusively with one another must be recognized as an imposing chunk of their respective proto-languages. It is simply an intriguing fact that these two Indo-European branches share this sizeable body of inherited vocabulary absent from the other branches (Schmidt 1991; Hyllestedt 2010; Ringe 2019). It has not been clear whether the Celto-Germanicisms (CGs) reflect a lengthy and evenly spaced continuum over many centuries or peak with a denser cluster as the result of a specific episode of intense interaction. A more defined absolute chronology is desirable and may now be possible.

The evidence motivating the RAW Project shows that there was intense interaction between probably Pre-Germanic-speaking Southern Scandinavia and the Atlantic West during the Bronze Age. There are two reasons that maritime contacts between the Nordic Bronze Age and Atlantic Bronze Age have not been considered previously as a context for the CG phenomenon.

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It is only the chemical and isotopic sourcing of Bronze Age artefacts from 2013 onwards that has shown that copper was imported on a large scale into metal-poor Scandinavia from metal-rich Wales and Iberia during the Bronze Age.\(^\text{19}\)

It is likewise only recently that aDNA sequencing has revealed mass migration by groups with steppe ancestry transforming the gene pools of the British Isles and Iberian Peninsula by ~1900 BC, resulting in populations closely related to those of other regions that were Indo-European-speaking at the time of first written records.\(^\text{20}\) Palaeohispanic scholarship has long recognized that Celtic in Iberia had to go back to the Bronze Age. Many of these researchers favoured influences traceable to the Urnfield Late Bronze Age of Central Europe as the leading vector.\(^\text{21}\) Nonetheless, these ideas registered only minimally on Celtic studies outside Spain and Portugal (Koch & Fernández 2019). Chronologically, at least, a date ~1200 BC would come close to that of Iberian-Scandinavian contact indicated by metal provenancing and parallels shared by rock art panels and Iberian stelae. However, most of the Urnfield evidence in Iberia occurs in the North-east, Catalonia, whereas metal sourcing and rock art motifs point to the Western Peninsula.

There had been proposals that the Indo-European that became Celtic had reached the Atlantic façade by the Early Bronze Age or earlier.\(^\text{22}\) However, before the recent archaeogenetic findings, it had remained defensible to propose that there had been no Indo-European spoken along Europe’s Atlantic façade until the Urnfield Late Bronze Age (~1250–800 BC) or the Hallstatt Iron Age (~800–475 BC) or—for Ireland and North Britain—even the La Tène period (~475 BC~), possibly not long before Roman times. An equation of the Proto-Celtic homeland with the earliest Hallstatt Iron Age near the source of the Danube (Hallstatt C1a ~800–750 BC) effectively remained the default doctrine and is still often presented with an iconic map in introductions to Celtic studies (Koch 2013c; 2014). The subsequent expansion of the Celts and their language was seen as then running together with the spread of La Tène style metalwork and the historically attested movements of peoples called Κελτοί/ Celtae by the Greeks and Romans into Northern Italy and down the Danube into the Balkans and on to Central Asia Minor.\(^\text{23}\) To argue for this late date for the Indo-Europeanization of the West today amounts to defending a case that had been less than conclusive on the basis of linguistic and archaeological evidence previously and now faces genetic evidence more consistent with an earlier scenario. Note, for example, regarding aDNA evidence from France, conclusions of Brunel et al. (2020):

This [evidence] could indicate that the transition from the Bronze Age to the Iron Age in France was mostly driven by cultural diffusion, without major gene flow from an external population. This would be consistent with an archeological and linguistic hypothesis proposing that the Celts from the second [i.e. La Tène] Iron Age descended from populations already established in western Europe, within the boundaries of the Bell Beaker cultural complex.

Similarly, aDNA evidence sustains, regarding Ireland with broader implications, the hypothesis advanced by Cassidy et al. (2016):

At present, the Beaker culture is the most probable archaeological vector of this steppe ancestry into Ireland from the continent …. The extent of this change, which we estimate at roughly a third of Irish Bronze Age ancestry, opens the possibility of accompanying language change, perhaps the first introduction of Indo-European language ancestral to Irish.

.... This turnover [in population] invites the possibility of accompanying introduction of Indo-European, perhaps early Celtic, language.


\(^\text{23}\) More recently, the Celtic from the West idea has stood this traditional idea on its head. This newer model sees the formation of the language and group in the Bronze Age (or possibly earlier in the context of the Anatolian theory of Indo-European origins) along the Atlantic façade, with subsequent expansion into West-central Europe, perhaps nearer the date of the Bronze–Iron Transition (Cunliffe 2001; 2008; 2010; Gerloff 2004; Koch 2016).
As a matter of absolute dating, the Beaker period began in Ireland ~2450/2400 BC and brought with it the earliest metallurgy and copper mining at Ross Island, near Killarney, Co. Kerry.\(^{24}\)

When historical explanations for the CG words have been suggested in the past, these have tended to look to the Iron Age, at which time it is known that Germanic-speaking groups were expanding from Southern Scandinavia and the Western Baltic, towards the Rhine and Danube, through Celtic-speaking La Tène Central Europe.\(^{25}\) K. H. Schmidt set out an attractively simple doctrine: the fact that Italic and Germanic shared a word for ‘copper, bronze’ (Latin \textit{aes} \thickspace \textit{~} Gothic \textit{ai}z, Old Norse \textit{eir}, Old High German \textit{ēr}), whereas Germanic and Celtic uniquely shared *\textit{isarno-} ‘iron’, shows that Italic-Germanic contacts belonged to the Bronze Age and the Celtic-Germanic ones came later. However, in the light of Sanskrit \textit{āyas–} ‘copper, iron’, Avestan \textit{ayah–} ‘metal’, it is evident that *\textit{Heyes-} or *\textit{ayes} ‘copper, metal’ was simply a widespread Indo-European word that the Celtic languages had unremarkably lost before any were fully attested. Therefore, the word is not strong evidence for uniquely close contact between Germanic andItalic in the Bronze Age.

It should be noted that Schmidt dissented from the widely held view that Celtic and Italic descended from a common Post-Proto-Indo-European ancestor, the homeland of which was in the West of the Indo-European world (§13). Rather, he argued that Celtic was an ‘eastern Indo-European language’ that had only relatively late in prehistory migrated into contact with Italic and Germanic.\(^{26}\)

Therefore, interpretations indicating that the prehistoric contacts between the ancestors of Celtic and Germanic were as early as the Bronze Age would tend to falsify his ‘Celtic from the East’ theory.

A focus on the pre-Roman Iron Age in Central Europe as the background to Celto-Germanic phenomenon is set out lucidly by Schumacher (2007). He defines the period as ~500 BC to the Zeitenwende. Rather than a sharp boundary between the two language areas, he envisions a contact zone where both languages were in use. This corridor appears on the accompanying map as ~100km deep, stretching across Middle Europe from the Rhine delta, then along the lower course of the river before turning eastward across the middle of present-day Germany, then through what is now the Czech Republic to Western Slovakia—over 1200km all told—with \textit{Kelten} to the south and west and \textit{Germanen} to the north and east (Figure 3).\(^{27}\) For present purposes, this formulation is useful in providing a clearcut basis for comparison. In considering the CG and CG+ Corpus as a whole (§§38–50) and individual items of vocabulary, does the background more probably lie at some time in the Greater Bronze Age ~2500–500 BC or the following half millennium, i.e. the pre-Roman or La Tène Iron Age ~500 BC–1 AD/BC?

In deciding between these alternatives, the question often boils down to whether diagnostic sound changes between Proto-Indo-European and the latest common ancestor of all the attested Germanic languages occurred after 500 BC? If they did not, Celtic loanwords in Germanic showing one or more of those changes are hard to explain as being of Iron Age date. On the other hand, if we conclude that relevant Germanic sound changes are later than 500 BC, that would not necessarily rule out the possibility that loanwords showing these changes had been adopted in the Bronze Age: the words could nonetheless have been in Germanic for centuries before Grimm’s Law, and so on, had taken place.

A block of early historical evidence pointing towards contact between speakers of Germanic and Celtic in the Late La Tène Iron Age centres on the documented activities of a group known as


The recorded names of the Cimbri’s leaders—Lugius, Boiorix, and Gaesorix—are all unambiguously Celtic. The first can be related to the prominent Celtic god Lugus (Koch & Fernández 2017) and the second to the people known as Boii, who also gave their name to Boiohaemum ‘Bohemia’ as recorded by Velleius Paterculus (§2, 109) early in the 1st century AD. A further detail of their language is preserved in the Naturalis Historia (§4, 95) of Pliny the Elder (AD 23/24–79): Philemon Morimarusam a Cimbris vocari, hoc est mortuum mare, inde usque ad promunturium Rusbeas, ultra deinde Cronium ‘Philemon [† ~AD 5–50/60] says that it is called Morimarusa, that is “dead sea” [or “sea of the dead”], by the Cimbri, up to the promontory of Rusbea, and then Cronium beyond that’. It is not certain where Rusbea or Cronium were, but some part of the North Sea or Baltic is meant. Whereas Germanic has the word *mari- ‘sea or lake’, mori is Celtic in both its form and primary meaning, i.e. ‘sea’ (§40d below). On the other hand, *marw- is the regular Celtic word for ‘dead’ (Old Irish marb, Middle Welsh marw), and there is no corresponding Germanic word. In sum then, the meagre trove of Cimbric lexemes suggests that they spoke Celtic and cannot support any alternative interpretation that these examples reflect an archaic Pre-Germanic predating the sound changes that produced a language resembling Gothic.29

On the other hand, the name Cimbri itself has no obvious Celtic analogues. The persistence of Κιμβροι and Himmerland vouches for the name’s longstanding attachment to the people of Jutland and their language. If the Celtic spoken by followers of the Cimbri had acquired this name before the Germanic change of *k to *χ then to *h (see §§16–17 below), there would be no reason for them to update its pronunciation when the Germanic sound changed.

29 A similar example recorded in connection with events about a century later is the name Marobodus borne by the leader of the Marcomanni at the time they took control of lands formerly ruled by the Celtic Boii in latter-day Bohemia and Moravia. As Schumacher emphasizes, this Latinized spelling stands for *Mārōbodwos, a purely Celtic name, and there is no basis to see in it a Celtization of an unattested Germanic *Mērābodwaz. Nonetheless, the Marcomanni themselves, at least most of them, were probably Germanic speakers (2007, 171).
Furthermore, Proto-Celtic and Gaulish had no phoneme */h/ and the sound */χ/ occurred only immediately before */t/ and */s/. Therefore, Celtic speakers would probably have said */kʰimbroi/, later */kʰimbriː/, even if they learned it from Germanic speakers who said */χimbriz/. Once again, this evidence is consistent with the Cimbri names having reached the Romans and Greeks through Celtic, rather than directly from Germanic, even if the group name had originally been Germanic.

In their turbulent movements and regroupings, the Cimbri interacted with several known Celtic-speaking groups, including the Boii, Scordisci, Taurisci, and Volcae Tectosages. Therefore, as widely recognized, the Cimbri were probably a linguistically mixed horde by the time they met the Romans and were then finally crushed by them at Vercellae in 102/101 BC. The Romans had by then been in close contact with Celtic-speaking groups in Northern Italy, Southern Gaul, and Alpine Noricum for many years. So there was probably no shortage of Latin-Celtic bilinguals. But there had as yet been far less direct contact between the Romans and Germanic speakers. Therefore, Celtic speakers amongst the Cimbri were in a better position to tell the Romans what they called themselves, their leaders, and the northern sea, than were their monoglot Germanic comrades.

§8. Borrowing, mutually intelligible dialects, or lingua franca?

Having framed the question of dating the CG material chronologically as ‘before or after ~500 BC’ and archaeologically as ‘Bronze Age or Iron Age’, is there a corresponding linguistic question? In historical times, there are Celtic languages and Germanic languages. They are different. Words that pass between them do so between idioms that were foreign languages to one another and usually involve bilinguals as intermediaries. However, going back in time, we reconstruct a common ancestor for these languages, Proto-Indo-European. At the time the CG vocabulary formed, or some of it, were these still basically the same language: the Proto-Indo-European dialects that became Celtic and those that became Germanic? In that case, we would not need to think of bilingualism per se, to the extent speakers of Pre-Celtic and Pre-Germanic could still communicate using their own first languages. Another possibility would be a special case of bilingualism and borrowing between separate (non-mutually intelligible) languages. One of the two languages, Celtic being the more likely for earlier times, possibly had the status of a lingua franca within the regional Bronze Age system, so that the native Pre-Germanic speaker was obliged to learn Celtic to ‘get on in the world’. We do not have to assume that only one of these scenarios applies to the entire CG Corpus.

The state of Indo-European speech and the Indo-European-speaking world would not have remained unchanged between ~2500 and ~500 BC. To put the matter into context we should bear in mind what the situation was, or can be inferred to have been, at the end and beginning of this span.

At its end, the Celtic and Italic branches were attested in writing: Lepontic and the Celtic of the South-western inscriptions (Morandi 2004; Eska 2006a; 2006b; Koch 2013b; 2019); Old Latin, South Picene, Oscan, and Venetic (De Vaan 2008). Other languages of the Indo-European macro-family were also written by ~500 BC: Anatolian (Hittite, Luwian, Lycian, Lydian, Carian), Indic (Sanskrit), Iranian (Avestan and Old Persian), and Greek.30 From the degree of diversity evident amongst the attested Indo-European languages—even neighbouring languages in contact—we must conclude that the ten branches were separate and no longer dialects within a continuum by that time (cf. Garrett 2006). This was also the case for the branches not attested until after 500 BC: Germanic, Armenian, Tocharian, Balto-Slavic, and Albanian. Any residual Post-Proto-Indo-European unity ancestral to more than one branch had broken up.

30 In the cases Hittite, Luwian, Greek, and Sanskrit attestation in writing goes back to the Bronze Age, the 2nd millennium BC.
As to the linguistic situation ~2500 BC, implications follow from the archaeogenetic studies tackling the Indo-European problem. The general drift of these can be summarized as follows. The common ancestor of the Post-Anatolian Indo-European languages was spoken on the Pontic–Caspian Steppe about 5000 years ago. This language’s territory then expanded by mass migration. There is a significant correlation between speakers of this proto-language and the Yamnaya material culture and a genetic ‘steppe’ cluster, which reflects a mixture of two earlier discreet populations: approximately 50% Eastern European Hunter-Gatherer (EHG) and 50% Caucasian Hunter-Gatherer (CHG, also known as ‘Iranian-associated’). These incomers introduced double-digit percentages of steppe ancestry and so transformed populations derived largely from the first farmers who had expanded from Anatolia across wide areas of Europe ~7000–4000 BC with European hunter-gatherer admixture (Omrak et al. 2016; cf. Malmström 2014).

In this light, we start from the expectation that, towards the beginning of the Greater Bronze Age, something like a later Indo-European proto-language still existed. Anatolian had split off as had, according to most Indo-Europeanists, Tocharian, isolated far off in eastern Central Asia (§12 below). But in Europe, though already widely spread geographically by the beginning of the Bronze Age, Indo-European probably still resembled a continuum of dialects with a high degree of mutual intelligibility between them (cf. Garrett 1999; 2006; Koch 2013a).

Before proceeding, it will be good to clarify this scenario and its basis. If it is understood that there was a Proto-Indo-European language and that an early stage of this language probably expanded rapidly and widely by mass migration from the Pontic–Caspian Steppe, why did this not result in the same language being spoken in all these places? Why do we assume linguistic diversity? Why dialects? It used to be common for philologists to suppose that the diversity that eventually manifested in the branches of Indo-European had been inherent in the parent language. So, for example, in the homeland, wherever that was, there would have been a dialect ancestral to Greek spoken by a group ancestral to the Greeks. This language and people then remained coherent as they migrated to the Aegean, and likewise with Proto-Baltic and the Balts, and so on. But this way of thinking is now obsolete.

Partly, the diversity of early Indo-European dialects is a simple matter of time and space. Languages always change over time. And Post-Tocharian Indo-European had spread over too much territory for all innovations to reach everywhere. But still, several generations would have to pass to turn a unified proto-language into a continuum of dialects. Another factor is that Europe was inhabited before the Indo-Europeans arrived and they did not displace or kill off all the indigenous people. Contact with non-Indo-European languages affected incoming Indo-European in two ways: borrowing and interference (Thomason & Kaufman 1988).

Borrowing occurred when the native speaker of Indo-European came into contact with non-Indo-European natives. The Indo-European keeps his or her language, but modifies it by adopting words from the other language, such as names for unfamiliar flora and fauna of the new land, previously unknown artefacts, and proper names of natural features.

Interference works the other way round. The speaker of the non-Indo-European language adapts to new realities by learning Indo-European as a second language. Like most adult learners, he or she will not learn the language to a native competence. The syntax and phonetics of a first language are often especially tenacious and interfere with the new language. In Iberia, South Asia, and most recently recognized amongst a Corded Ware group in Poland and CWC’s Battle Axe Culture realization in Southern Scandinavia, aDNA evidence shows that the incomers with steppe ancestry were mostly males. That would have created a situation in which generation after generation of wives and mothers had Indo-European as their second language, probably meaning that there was generation after

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31 E.g. Allentoft et al. 2015; Haak et al. 2015; Reich 2018.

generation of interference from the same indigenous language or related or typologically similar languages, for example, Palaeo-Basque and Iberian in South-west Europe, Dravidian in South Asia.

It is highly unlikely that a single undifferentiated non-Indo-European language was spoken across all of Europe. We find several in historical times: Basque, Iberian, Etruscan, Rhaetian, Saami. Secondly, the pattern of Indo-European advance was not uniform across all areas. Although the migrations from the steppe were, relatively speaking, rapid and massive, they spanned centuries and brought about admixture rates varying from low to high double-digit percentages. In some areas some women with steppe ancestry were amongst the founders, in others, hardly at all.

Despite reasons to think that Post-Tocharian Indo-European gave rise to dialects soon after it spread across Europe, speakers from widely separated communities in Europe could probably have understood one another using their native languages in the period ~2500–2000 BC. Simply not enough time had passed for the dialect continuum to have broken up into fully separate languages. Their ancestors had not so long before come from the same region and followed the same specialized way of life, namely the pastoralist Yamnaya culture on the Pontic–Caspian Steppe.33

Over the next thousand years, the Indo-European world underwent a process that might be imagined as a slow-motion Babel. The great migrations from the steppe had long-since tailed off then ended. There was therefore no longer that natural mechanism by which linguistic innovations, such as sound shifts and newly coined or modified words, could spread across the Indo-European world from the homeland to expansion zones, allowing local varieties to co-evolve. In the more settled, but complex and stratified societies of the later Bronze Age, long-distance travel had become an elite activity, imparting special status and requiring specialist knowledge and skills,34 including the ability to deal

with far-flung communities essential to the international bronze economy. This raises the question, had the clock already run out on Post-Tocharian Indo-European as a natural lingua franca by the Late Bronze Age? Or did intensity of interaction prolong mutual intelligibility between Indo-European dialects in contact? If so, which dialects and for how long?

§9. Dialects, languages, and mutual intelligibility in Bronze Age Western Eurasia

In this book, the term dialects means genetically related forms of speech (i.e. having a common ancestral form of speech, nothing to do with genetics per se) retaining a high degree of mutual intelligibility. Such a relationship may be the case when the communities speaking the dialects have lost contact with each other more-or-less abruptly and completely, but at a relatively short time previously, say eight generations or fewer, so that linguistic entropy has not set in to such a degree to become a barrier to communication.

On the other hand, the related speech forms may be distinct for far longer than eight generations and still be dialects rather than separate languages in the senses used here, for example the Greek dialects or the largely mutually intelligible national ‘languages’ of Norway, Sweden, and Denmark. Similarly, Scots and the dialects and educated standard in England have been distinguishable for many centuries but retain high mutual intelligibility with a spectrum of mixed dialects between them. In these examples, mutual intelligibility has been sustained by prolonged intense contact, in which speakers habitually used their own dialect—rather than switching or using a lingua franca—in communicating with speakers of another dialect. A degree of ‘advergence’ is observable in all of them, sharing innovations and becoming, in some respects, more alike over time through contact (cf. Renfrew 2000).

Related languages, on the other hand, will refer here to genetically related varieties of speech with relatively low, or even virtually no, mutual intelligibility. Such cognate speech forms will usually have been separate from one another longer with less regular contact. Communication will require a speaker from one language to learn the second or use a shared lingua franca. Borrowings between separate related languages will more often be detectable as such by linguists because they are less likely to involve assimilative substitution of cognate sounds. For example, Norse loanwords in English and place-names in England can usually be detected, because Old Norse and Old English had diverged sufficiently in their word stock and phonology by the Viking period.

In this light, the evolution of Indo-European over the Greater Bronze Age will have observable implications for the 276 CG+ words and the 173-word CG subset studied here. We can expect to find chronological layers. Those words that arose nearer the beginning of the Bronze Age belong to a stage when their isolation in the North-western languages reflects a geographically over-extended Post-Tocharian Indo-European beginning to separate as regional dialects, increasingly isolated from the homeland and other, more remote, zones of expansion. We expect earmarks including the following in words belonging to this layer:

1. to be more widely distributed within the North-west, i.e. to occur in Balto-Slavic and/or Italic as well as Celtic and Germanic;
2. not to show the sound changes defining one of the Indo-European branches; i.e. the words of the older stratum will not look like loanwords, but resemble inherited Indo-European words, but with limited geographic distributions;
3. to have meanings appropriate to the technological and social development of the Copper Age and Early Bronze Age.

Those words dating later in the Bronze Age or Iron Age can be expected—as a group rather than each individual item—to exhibit the reverse attributes:

1. narrower distributions (i.e. more exclusively CG words, fewer found also in Italic and/or Balto-Slavic);
2. more words showing sound shifts occurring in one branch before it was transferred to another (that is to say, words from this layer will more often resemble early loanwords, as opposed to looking like shared inheritances from Proto-Indo-European);
3. meanings more relevant to the technology and society of the later Bronze Age than earlier times.

The same principles help us to screen from the Corpus loanwords transferred between Celtic and Germanic during the Iron Age or post-Roman Migration Period. Words borrowed between branches in early historical times will show:

1. even narrower distributions (such as, only Brythonic and Old English);
2. showing the effects of more and later sound changes, so as to resemble fully developed Celtic or Germanic transferred to the other branch;
3. meanings appropriate to Iron-using technology and societies.

On the level of individual words, few will be obligingly informative in all three ways, and many will prove opaque on all counts. However, the Corpus is sufficiently large for patterns to emerge in overview. In almost all cases one or more diagnostic feature will indicate beyond doubt words transferred between Celtic and Germanic as late as the Post-Roman Migration Period. These are excluded from the Corpus.

§10. Tree models and linguistic continua

In a simplified version of the tree model of first-order subgroupings of Indo-European, akin to Figure 4 below, Ringe uses the following, now not uncommon names for successive nodal points (2017, 7; cf. Mallory 2013, 23):
• after Anatolian splits from Proto-Indo-European, the residual unity that remains is called 'Nuclear IE';
• after Tocharian splits from Nuclear Indo-European, the remaining unity is 'Core IE';
• after Italo-Celtic branches off from Core Indo-European, ‘Central IE’ remains.

The following terms are used here, intended to be self-explanatory:
• ‘Post-Anatolian Indo-European’ = ‘Nuclear IE’;
• ‘Post-Tocharian Indo-European’ = ‘Core IE’;
• ‘Post-Italo-Celtic Indo-European’ = ‘Central IE’.
• The residual unity or continuum that remains after the branching off of Greco-Armenian is called ‘Proto-Germanic/Balto-Slavic/Indo-Iranian’.

After Pre-Germanic unlinks from this last unity, Proto-Balto-Slavic/Indo-Iranian remains and undergoes the satəm and RUKI linguistic innovations (changes that did not reach the then reoriented, westward-facing Pre-Germanic).35

35 The satəm and RUKI linguistic innovations. In the ‘satəm’ branches of Indo-European (Balto-Slavic, Indo-Iranian, Albanian, and Armenian) the reflexes of Proto-Indo-European *k *g *gh merge with those of *kw *gw *gwh, as *k *g *gh, and the palatal series *k *g *gh become s-like sounds. In the opposed category, the centum branches (Italic, Celtic, Germanic, Greek, Tocharian), the palatal series merges with *k *g *gh as *k *g *gh, and labiovelar *kw *gw *gwh are preserved. Satam and centum, used to name these contrasting outcomes, are respectively the Avestan and Latin words meaning ‘100’ < Proto-Indo-European *kŋtóm. Though the satam pattern is widely recognized as an innovation, it is not relevant for the present subject whether the centum is explained as an innovation or retention from the Proto-Indo-European consonant system (cf. Forston 2009, 178). In the ‘RUKI’ branches (once again Balto-Slavic, Indo-Iranian, Albanian, and Armenian), Proto-Indo-European *s becomes *š (similar to that in English fish) when following *r, *w, *k, *g, *gh or *y.

Figure 4. First-order subgroups of Indo-European: simplified adaptation of the Indo-European family tree of Ringe, Warnow, and Taylor (2002), indicating the close association of Italic and Celtic and the anomalous position of Germanic.
One of the most familiar ways of representing the history of a
ing language family is with a tree model, such as Figures 4, 6, and 10
here. Such models invariably oversimplify, concealing or glossing
over much synchronic and diachronic linguistic complexity. Within
linguistic family trees the main focus is the nodes, drawn as points
in the model representing languages. The lines between them
symbolize only the relationship between the nodal points, rather
than intermediate evolutionary stages between the languages.
Theoretically these nodes are conceived of as undifferentiated and
unchanging languages, not broken up by regional dialects, linguistic
stages over time, or registers belonging to different social domains

This way of viewing things is largely an artefact of the long-
standing core procedure of historical linguistics, namely the
historical-comparative method. In this method attested words or
other linguistic features from two or more related languages are
compared to reconstruct that word or feature in the unattested
common ancestor of those related languages. This procedure is
aptly likened to algebra, and for each such calculation it yields a
single solution, solving for X. Scores or hundreds of such calculations
then accumulate into reconstructed proto-languages, such as Proto-
Indo-European or Proto-Germanic. That these will appear—in the
absence of further adjustments—to be devoid of chronological
stages, regional dialects, and registers is an unavoidable by-product
of this algebraic method.

In some instances, such as sometimes occurred in the peopling
of Oceania, the picture achieved by the historical-comparative
method does not diverge so severely from the facts. In such
cases, we start with a smaller community in a relatively confined
and isolated territory, such as a small island, and without great
social complexity or occupational specialization. That community
then sends off a band of settlers to a previously uninhabited
island a great distance away, and contact between the two island
communities falls off steeply afterwards (Mallory 1996, 8).

Even so, the migration does not immediately make one language
into two separate languages. Over several generations, words would
be lost differently in the two communities, other words coined
independently, the sound systems and grammatical structures
evolve divergently, and so on. But this entropy would take place
gradually, so even in the absence of any continued contact during
the intervening period, any individual travelling between the two
islands, say for as long as eight generations afterwards (§9), would
still find a high degree of mutual intelligibility. But if a longer period
was involved, ten generations, then twenty or more, the mutual
intelligibility would decrease to the point that a hypothetical
traveller would effectively have to learn a second language to
communicate competently.

With the spread of the Indo-European languages, the
 correspondence to the family-tree model would be more inexact
than in this simplified island-hopping scenario. Perhaps the closest
parallel in Indo-European prehistory would be the offshoot of the
Yamnaya cultures of the Pontic–Caspian Steppe that settled ~2000
km to the east to form the Afanasievo culture of the Siberian Altai
and Minusinsk Basin ~3300–2900 BC (see §12 below). More usually,
the migration involved less distance, and there was a less abrupt
and complete break from the language, culture, and population of
the homeland.

If we could zoom into the Indo-European tree model of Figure 4
to view the nodal points in detail, we would experience something
analogous to using a powerful telescope to reveal that what
appeared to be stars actually to be galaxies. The nodes that appear
as points would expand into vertical and horizontal continua, with
finely graded chronological stages, regional dialects, and variation
in speech according to social domains. With the lines between the
nodes, we would find more mutual intelligibility when the spreading
lines first diverge from their ancestral node, gradually decreasing
as these continue down towards the next tier of nodes presenting
separated daughter languages. On the other hand—and usually
not represented in tree models—dialects in contact could undergo
convergence (sometimes called in this connection ‘advergence’), not only perpetual divergence and outward momentum (cf. §9).

A starker view of the disparity between the reconstructed proto-states of the Indo-European branches and the reality in prehistory is to call the former mirages.36 This idea is that the branches formed through a secondary process of convergence of contiguous mutually intelligible dialects within a shallow continuum formed through rapid expansion across a large territory (cf. Nichols 1997). This idea is not only applicable to the linguistic evidence, but also easily harmonized with what we have since learned about the mass migrations from the Pontic–Caspian Steppe in the 3rd millennium BC. Applied to this evidence, the model would also explain why the early separateness of Anatolian and Tocharian is more clear-cut. The crystallization of branches within emerging regional networks also resonates with the socio-cultural rise of the Bronze Age as reflected in archaeology (cf. Kristiansen & Larsson 2005; Koch 2013a). According to this ‘mirage’ theory, the way proto-languages are usually thought of not only conceals the diversity of the Bronze Age dialects that became Celtic, Germanic, &c., but also fosters two further unrealistic concepts: 1) the early formation of sharp and impermeable boundaries of dialects that led to each Indo-European branch and 2) the anachronistic attribution to undifferentiated proto-languages innovations that actually spread later between the dialects that converged to form a branch. To a large extent, this line of thinking was inspired by the decipherment of Linear B in the 1950s and ’60s and the disparities this revealed between the reality of Mycenaean Greek and Proto-Greek previously reconstructed. I remain broadly sympathetic to this critique of the traditional approach, but to bring more realistic sophistication to the proto-language concept, rather than abandoning it altogether despite its proven strengths. With this approach, when we speak of the breakup of a proto-language, we should not imagine a beginning state with no dialect variation, but rather groups of dialects sharing innovations permitting sustained mutual intelligibility, but then ceasing to do so. By adopting this understanding, we can sidestep such unresolved controversies as the nature of Insular Celtic37 or Italo-Celtic (§13).

What was the situation for the dialects that became Celtic and those that became Germanic during the later Bronze Age period that the RAW Project focuses on (~1400/1300–900 BC)? The mass migrations from the steppe had ended several centuries or even 1000 years before. Fewer people—certainly fewer whole communities—had experienced long-distance journeys in their lifetimes or within living memory. By 1400 BC both Old Indic and Mycenaean Greek are found in writing.38 It is plain that these two were then fully separate and could not have been mutually intelligible. In the terminology used here, they were two languages and no longer two dialects of one language (§9).

Looking at the family tree model in Figure 4, at the time when Indic and Greek were separate languages, must Pre-Germanic likewise have been fully separate? The striking feature of this model is that Germanic is bilocated. In the earliest detectable arrangement of Indo-European dialects Pre-Germanic was part of a dialect continuum with Balto-Slavic and Indo-Iranian. At a later prehistoric stage, that continuum faltered and Pre-Germanic moved closer to

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36 Cf. §9 above; Garrett 1999; 2006; Koch 2013a. Cf., for example, the argument of Garrett (1999) for ‘a model that does not require us to impose a historical classification in which every language in the [Italic] family either does or does not originally belong to a single “Italic” daughter of Indo-European’.

37 Old Indic occurs by 1400 BC in the records of the kingdom of Mitanni in present-day Northern Syria, and probably near that time also as the earliest Vedic Sanskrit. Undifferentiated Proto-Indo-Iranian had by then ceased to exist, and its ancestor, Balto-Slavic/Indo-Iranian, had long since ceased to exist. In work by Witzel (2019), the composition of the Rgveda is dated ~1400–1000 BC. The latter limit is set by Bronze–Iron Transition, which had yet to occur in the material reflected in the Rgveda. However, the basis for the earlier limit might be reconsidered: this is that the Indo-Iranian form mazda- is found in Mitanni Indic of ~1400 BC, but, having undergone a sound change, this has become meda- in the language of the Rgveda. The dating inference would be correct if we could be sure that the Indic of Northern Mesopotamia and that of the North-western Subcontinent still formed an undifferentiated speech community as late as 1400 BC. However, given the geographic distance involved, it is possible that mazda- > meda- had occurred in the Indic of South Asia (or Old Indic on its way to South Asia) before 1400 BC, but that this innovation never reached Mitanni, with whom contact had already been lost.
Italic and Celtic (§22). Some of us who have considered the evidence for the dialect position of Germanic and puzzled over it will find this explanation a compelling aspect of Ringe et al. 2002. The question it raises for the present study is what it means for the relationship between what became Celtic and what became Germanic in the later Bronze Age. Is it the older alignment that is more significant or the later one for determining mutual intelligibility or lack of it ~1400/1300–900 BC? If it is the earlier situation, then Germanic as a close sister of Balto-Slavic and Indo-Iranian would be farther from Celtic in the tree than Old Indic and Greek. The latter two have a later common ancestor: Post-Italo-Celtic Indo-European.

Must that imply that Pre-Germanic and Pre-Celtic were also fully separate languages, with negligible mutual intelligibility by ~1400 BC, like Mycenaean Greek and Old Indic? Five other points are relevant.

1 One basic feature of the CG word set in the Corpus is that most lack obvious earmarks of Celtic-to-Germanic or Germanic-to-Celtic loanwords. The straightforward interpretation of this fact is that the relevant phonological changes had simply not occurred yet, that most of the CG words arose and spread when Pre-Celtic and Pre-Germanic were still related as dialects rather than separate languages (§9).

2 Another basic attribute of the CG set is that many of the word meanings more easily line up with a cultural stage of ~1500 BC onwards rather than with the Neolithic, Beaker period, or Early Bronze Age (§32).

3 As well as having the cladistic distance reflected in Figure 4, Mycenaean Greek and Old Indic were geographically distant. It is not likely that their ancestors had been in contact for many centuries. The identification of Proto-Indo-Iranian with the Sintashta culture of Transuralia ~2100–1800 BC is accepted here, with subsequent expansion south-eastwards through Central to South Asia (§23). Although the location of Pre-Greek is uncertain (FN 72), there is no reason to think that the recent ancestors of Mycenaean Greek had been contiguous with Transuralia or Central Asia. Speakers of what became Greek and what became Indic had ceased talking to each other long before 1400 BC. There would be no reason or way for Proto-Indo-Iranian and Proto-Greek to have shared innovations, except through a long and tenuous chain of intermediaries.

4 On the other hand, Pre-Celtic and Pre-Germanic were probably geographically close.

5 In the model adopted here, the speakers of Pre-Germanic ‘switched teams’ from a continuum with Balto-Slavic/Indo-Iranian to Italo-Celtic (§22). As a general principle, the earlier grouping of a dialect can be important for recovering the formation of its vocabulary and grammatical structures, but the more recent contacts would establish and sustain a framework for mutual intelligibility going forward.

All told, these five points suggest that Pre-Celtic and Pre-Germanic still retained a high degree of mutual intelligibility around the time Mycenaean Greek and Vedic Sanskrit appear as fully separate languages.

§11. Revising the Steppe Hypothesis in the light of the ‘Archaeogenetic Revolution’

In its unrevised, meaning its ‘pre-archaeogenetic’, form, the Steppe Hypothesis is that the parent language of all Indo-European, including the Anatolian branch, came from the Pontic–Caspian Steppe. Thus far, the archaeogenetic evidence—including that published in the two seminal papers of 2015—has supported the Pontic–Caspian Steppe as the homeland of all the Indo-European languages after Anatolian branched off, what can therefore be called Post-Anatolian Indo-European.39 On this basic matter, the new evidence has yet to confirm the Steppe Hypothesis. Damgaard et al. 2018, publishing evidence of full genomes of 74 ancient individuals, including five deemed probably to be speakers of Hittite. These five

had no steppe cluster, nor any EHG ancestry. Of course, these are only five individuals. The Hittites came to rule a large and diverse empire, so their culture and language were probably taken up by native speakers of non-Indo-European languages. Therefore, this evidence requires further confirmation, but for now represents a falsification of the Steppe Hypothesis (cf. Lazaridis 2018).

The proposal made by Reich (before Damgaard et al. 2018 was published) appears viable, as we await further evidence to fill in gaps and reinforce (or not) preliminary findings:

Ancient DNA available from this time in Anatolia shows no evidence of steppe ancestry similar to that in the Yamnaya (although the evidence here is circumstantial as no ancient DNA from the Hittites themselves has yet been published). This suggests to me that the most likely location of the population that first spoke an Indo-European language was south of the Caucasus Mountains, perhaps in present-day Iran or Armenia, because ancient DNA from people who lived there matches what we would expect for a source population both for the Yamnaya and for ancient Anatolians [i.e. CHG]. If this scenario is right the population sent one branch up into the steppe—mixing with steppe hunter-gatherers in a one-to-one ratio to become the Yamnaya ... —and another to Anatolia to found the ancestors of people there who spoke languages such as Hittite. (Reich 2018, 120)

For purely linguistic reasons Anatolian has always been a vulnerable point in the hypothesis. Not only is it universally recognized as the first branch to separate—and therefore the most relevant for dating and locating the ultimate ancestor of all the Indo-European languages—but also the reason why it is universally agreed to be the first branch is that it is so different and most often viewed as being so much more archaic than the rest. For example, it is the only branch to retain the laryngeal sounds directly; their former presence must be deduced to explain features of the other branches, but they have not survived in any of them, even the non-Anatolian Indo-European languages attested in the Bronze Age, i.e. Mycenaean Greek and Old Indic. Anatolian is also the only branch lacking a feminine gender, which is also usually understood to be an archaism retained from Proto-Indo-European rather than a later loss. Tense and aspect in the verbal system of Anatolian is also significantly simpler and can be seen as reflecting a state of affairs preceding rising complexity shared in all the languages descended from Post-Anatolian Indo-European. In other words, there is a big gap between Proto-Indo-European (reflected in Anatolian) and Post-Anatolian Indo-European. It is hard to imagine that there could be less than 1000 years between the first split and the second or that both Proto-Indo-European and Post-Anatolian Indo-European could be assigned to a single archaeological culture.

This same point is now made more concretely by Kroonen et al. 2018, presenting personal names recorded ~2500/2400 BC, relating to a country somewhere in Anatolia, which is called Armi in the ancient texts. These names appear to be in an early Anatolian, leading to the conclusion: ‘... since the onomastic evidence from Armi is contemporaneous with the Yamnaya culture (3000–2400 BCE), a scenario in which the Anatolian Indo-European language was linguistically derived from [Proto-]Indo-European speakers originating in this culture can be rejected.’ These names from Armi are provisionally accepted here as including archaic Anatolian at the proposed date, though the matter requires further study.

Since the work of Sturtevant (1933), most linguists have not called the common ancestor of all the Indo-European languages (including Anatolian) ‘Indo-Hittite’. Hamp was an exception (e.g. Hamp 2013), and some resurgence has been evident recently (Oettinger 2013–14). To a degree the choice between ‘Proto-Indo-European’ and ‘Proto-Indo-Hittite’ or ‘Proto-Indo-Anatolian’ is arbitrary, if there is no confusion about which node on the family tree we’re talking about. However, it is at least somewhat misleading simply to list Anatolian as one of ten branches, when all the others share major innovations. If the present archaeogenetic picture holds up as new data comes in, ‘Indo-European’ as a term including the Anatolian branch starts to become cumbersome as well as misleading, as so many provisos are required. The rest of the family also shared a homeland (the Pontic–Caspian Steppe), cultural background (Yamnaya), and an associated
genetic type (~50% CHG : ~50% EHG), not shared by Anatolian. Be all that as it may, ‘Proto-Indo-European’ means here, as it usually does, the ancestor of Anatolian as well as the other the branches. There is potential for great confusion—irrelevant to the present subject—if some writers use ‘Proto-Indo-European’ to mean what other writers call ‘Post-Anatolian Indo-European’ or ‘Nuclear Indo-European’.

In the light of recent genetic evidence, the dynamic and influential Maykop culture of the north-western foothills of the Caucasus ~3700–3000 BC does not look promising as a context for the common ancestor of both Anatolian and the Post-Anatolian Indo-European languages. Like the genomes of sampled Yamnaya individuals and subsequent related populations of Europe and Western Asia, EHG ancestry has been found in sampled remains from Maykop sites, unlike the five Hittite individuals mentioned above (Damgaard et al 2018; Kroonen et al. 2018).

§12. Post-Anatolian Indo-European and the position of Tocharian

While there is no doubt that Proto-Anatolian was the first branch to split off from the common ancestor of the ten branches, there is less consensus about the second branch and other aspects of the configuration of the tree. Although Tocharian and its position are mostly marginal to the present subject, it was once a common view that Italo-Celtic and Tocharian or Germanic and Tocharian shared an especially close relationship (Mallory & Mair 2000, 286–8). Hamp’s Indo-European Family tree of 2013 had Tocharian descending from a node labelled ‘Northwest Indo-European’, which was also ancestral to Italo-Celtic, Germanic, Balto-Slavic, and Albanian. On the other hand, Anatolian, Greek, Armenian, and Indo-Iranian do not descend from Hamp’s Northwest Indo-European.40

40 Hamp’s root node is Indo-Hittite, and the first split produces Anatolian on
On the basis of purely linguistic evidence, the Ringe et al. 2002 tree model adopted here has Tocharian separating second (also Ringe et al. 1998; cf. Ringe 2017, 6–7); likewise what Gray and Atkinson call the ‘consensus tree of Indo-European’ (2003, 437). Based on a phylogenetic methodology significantly different from Gray and Atkinson’s, Chang et al. also produce a Tocharian-second tree (2015, 199), similarly Kortlandt (2018) using conventional linguistic methods.

Archaeological evidence has been used to identify Pre-Tocharian speakers with the Afanasievo culture of the Siberian Altai and Minusinsk Basin. That Copper Age pastoralist culture appears to be a far-flung offshoot of Yamnaya on the Pontic–Caspian Steppe (Mallory & Mair 2000; Anthony 2007; Mallory 2015). The dates for Afanasievo (~3300–2500 BC) fit: staggered before the Corded Ware cultures (CWC) and the Bell Beaker phenomenon in Europe, but later than the time depth usually thought to be required for the separation of Anatolian.

Ancient DNA evidence for Afanasievo is also consistent with this model. The six Afanasievo individuals sequenced by Allentoft et al. 2015 were virtually indistinguishable from their Yamnaya samples; both showing very high percentages of ‘steppe ancestry’. This result was subsequently replicated in 20 of 23 Afanasievo individuals sequenced in Narasimhan et al. 2018, as well as further Yamnaya individuals. In other words, it looks like a Yamnaya population migrated ~3300 BC some 2000km eastwards, to a suitable steppe environment, undergoing minimal admixture with other groups in South Siberia or along the way.

In light of the above, the best current working hypothesis is a three-way equation: Pre-Tocharian=Afanasievo=the second branch to separate from Proto-Indo-European. However, there is room for caution. The Afanasievo culture and the attested Tocharian languages in the Tarim Basin ~AD 500–1000 are separated by three millennia and 1000 kilometres. Against these counter-arguments, there is no viable alternative scenario for how a centum language became established—and seemingly stranded—on the far side of a vast area of Central, South-west, and South Asia, dominated by satam Indo-Iranian languages from the time the earliest of them was attested (as the closely similar Mitanni Indic and Vedic Sanskrit). The publication of a high-coverage genome of typical Yamnaya/Afanasievo type, dating to ~2900 BC from Karagash in central Kazakhstan, bridges the geographical gap between the main Afanasievo territory and the culture’s suspected Yamnaya homeland (Damgaard et al. 2018).

§13. Italo-Celto-Germanicisms (ICGs) and Balto-Slavic/Celto-Germanicisms (BSCGs)

To recap, the 173 Celto-Germanic words are either altogether absent from the other branches of Indo-European or show differences, usually innovations, in meaning and/or patterns of word formation unique to Celtic and Germanic. Smaller groups of Celto-Germanicisms occur also in Italic (44), or Baltic and/or Slavic (34), or occur in Italic as well as Baltic and/or Slavic (26), giving an inclusive total of 276 CG+ words.

That there are ICG words is unsurprising, as a close relationship between Celtic and Italic is widely recognized. Going back to August Schleicher (1861/1862), many linguists have argued for Italo-Celtic as a primary subgrouping (i.e. a node on the family tree) of Indo-European. On the other hand, Watkins (1966) argued strongly against an Italo-Celtic proto-language, countered by Cowgill (1970). More recently Mallory and Adams (2006, 78) accept Indo-Iranian and Balto-Slavic as Post-Proto-Indo-European unified languages, but favour treating Italo-Celtic as a contact phenomenon. Similarly, Clackson and Horrocks conclude: ‘Latin shares more features with

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41 See Mallory & Mair 2000; Anthony 2007; Mallory 2015; Kroonen et al. 2018. On the centum and satam branches of Indo-European, see above FN 35.
Celtic than any other IE language branch outside Italy. The links to Celtic do not, however, seem sufficiently close to allow us to reconstruct an “Italo-Celtic” proto-language...’ (2007, 32–4).

We may be coming close to the proverbial ‘distinction without a difference’ in attempting to decide whether the evidence for Italo-Celtic is better explained as Post-Proto-Indo-European unity or intense contact between mutually intelligible dialects before the sound laws of Pre-Italic and Pre-Celtic had operated. For most purposes, recognizing that Pre-Italic and Pre-Celtic were close sisters at a very early stage will suffice. However, a general reluctance to accept common nodes between Proto-Indo-European and the ten branches presents challenges in any attempt to align the linguistic evidence with that for archaeological cultures and genetic populations.

Phylogenetic tree models are as a rule structures of binary splits—rarely and dubiously three-way, no four-way or ten-way (!) splits. In the absence of intermediate unified languages like Proto-Italo-Celtic and Proto-Greco-Armenian in the model, we must ask what scheme of descent produced a set of ten primary members, in which none began as more related or less related to any other member than any other member. If each recognized Indo-European branch emerged by one split after another from a core, one would expect it to be possible to determine the order in which the nine Post-Anatolian branches individually separated and which branches at each stage the shrinking residue was ancestral to. The more important question is whether, in trying to put the linguistic evidence together with archaeology and genetics, this actually seems to be what happened: a succession of nine separation events, leaving behind a core socio-cultural area and population. Below it is argued that the combined evidence lines up better with the Ringe et al. tree model, which features an Italo-Celtic node. For the present study, the key point is that the Italo-Celtic commonality—whether we regard it as a unified proto-language or an episode of close contact predating the operation of the diagnostically Italic and Celtic sound laws—sits at a level earlier than main body of the Celto-Germanic phenomenon.

Their argument hinges on the principle that shared morphological innovations are a more significant diagnostic for common ancestry than shared lexical or phonological features. They explain that the replacement of the Post-Anatolian Indo-European o-stem genitive *-osyo byItalic (including Venetic) and Celtic -ī can be shown by early written evidence to have occurred when early Italic and Celtic were in contact during the Iron Age, rather than at some earlier stage of common development.
It is remarkable that there are far fewer ICG words (44) than CG (173) (Figure 11). This distribution could be claimed as a falsification of the Italo-Celtic hypothesis. Alternatively, the distribution could be explained if the bulk of the Celto-Germanicisms date from a period of contact after the Italo-Celtic commonality had ended and new vocabulary was being generated within the independent Celtic branch. This scenario might be especially apt if it occurred in a period of rapid cultural innovation, such as the rise of social complexity from the middle of the 2nd millennium BC. At about this time, we might also expect that Italo-Celtic speakers situated around the Mediterranean were becoming more culturally different from those in Inner Europe and facing the Atlantic. If sustainable, that conclusion could potentially help in narrowing the chronological horizon at which the contact took place.

It may be that many Italo-Celtic words found in Latin—which is abundantly attested from ancient times, as well as in diverse registers and local varieties—had once occurred also in Celtic, but died out before Celtic languages were fully recorded in the Middle Ages. If that were the case, one would expect that, as well as the 173 CG and 44 ICG words, there would be a significant set found only in Germanic and Italic, most of which had once also occurred in Celtic, but disappeared before attestation. However, comparison of Kroonen’s *Etymological Dictionary of Proto-Germanic* and De Vaan’s *Etymological Dictionary of Latin and the Other Italic Languages* does not reveal a large category of exclusively Italo-Germanic vocabulary. The following 8 examples are the most unambiguous representatives of this small set, which predate the earliest stratum of Latin borrowings into Germanic.

BE SILENT *takē- < *tHk-eH1-. • Proto-Germanic *þagai- ~ *þagja- < [PRE-VERNER] *þaxē- [PRE-GRIMM 1]: Gothic þahan, Old Norse þegja, Old Saxon thagian, thagon, Old High German dagēn, cf. Old Norse þagga ‘to silence’ < *þaggōn-; • Proto-Italic *takē-: Latin tacio, tacēre ‘be silent’.
INTRODUCTION

With such a small collection, it is unsurprising that no particular domains of meaning emerge as especially well represented.

Amongst possible additional examples, some have less than straightforward derivations: for example, Gothic hneiwan ‘to bow down’ and Latin cōniveō ‘shut tightly’ can be reconstructed as *(kom-)knēīg“h-ē-*, but, if these are the same word, what was its original meaning? Latin raia ‘a sea fish, ray’ is probably related to English ray, Dutch rog, but the word is not widely attested in Germanic or easily reconstructed, leading to the suspicion of a non-Indo-European substrate word borrowed independently in both branches.

There are relatively few words found in Baltic and/or Slavic as well as Italic and Germanic that lack a comparandum from Celtic, such as the following three examples:

BEAN *bhabh*: ● Proto-Germanic *baunō*: Old Norse baun, Old English bean, Old Frisian bāne, Old Saxon bōna, Old High German bōna; ● Proto-Italic *fafa*: Latin faba ‘bean’, Faliscan haba ‘bean’; ● Balto-Slavic: Old Prussian babo ‘bean’, Russian bob. It is possible that this word was borrowed from a language of Pre-Indo-European farmers of Neolithic Europe. Even so, if Greek φακός ‘lentil’ and Albanian bathë ‘horse-bean’ are related, the word is not confined to the North-west of the Indo-European world. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] Cf. Iversen & Kroonen 2017.

BEARD *bhardhā*: ● Proto-Germanic *barda*: Crimean Gothic bars, Old Norse bardō ‘rim, edge, prow, beard’, Old English beard, Old Frisian berd, Old High German bart; ● Proto-Italic *farfa*: Latin barba; ● Balto-Slavic: Old Prussian bords ‘beard’, Lithuanian barzdą, Russian borodà. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

In cases like the above, it is again possible that these words had once existed in Celtic, but were never attested and are now lost from the living languages. With BEARD, there might have been a reason the word fell out of use: the culturally loaded Proto-Celtic *bardos ‘poet, &c.’ possibly displaced its homonym. It is less likely that Celtic ‘poet’ in fact derives from ‘beard’.

A further category that is relatively small, possibly significantly so, are words attested in Celtic and Balto-Slavic, but not Germanic: for example,

SERVANT *slou(h)o-.

- Proto-Celtic *slougo- ‘warband’: Gaulish group name Catu-slugi ‘battle-host’, Old Irish slóg, slúag ‘army, host, throng, company, crowd, assembly’, Middle Welsh llu ‘host, large number of people or things, army, flock’, Old Breton mor-lu ‘great army’, Old Cornish luu listri glossing ‘classis’ ‘army’;
- Balto-Slavic: Lithuanian slaugà ‘servitude’, Old Church Slavonic sluga ‘servant’.

With this word, it is more understandable that Balto-Slavic preserves the older meaning and that Celtic reflects a social change in which the most important function of a leader’s followers came to be service in the warband. This scenario is also consistent with the Insular Celtic *tego-slougo- ‘household, retinue, family, following’ (Old Irish teglach, Old Welsh telu), a compound of Proto-Celtic words meaning ‘house’ and ‘following’. But these two words lack an inherent military sense in their most basic meanings, and today teaghlach and teulu are the principal words for ‘family’ in Irish and Welsh. As there are relatively few such exclusively Celtic/Balto-Slavic isoglosses, contrasting with the 173 CG words, it is not necessary to seek a special episode of intense prehistoric contact involving these two branches only.

§14. Germanic linguistic chronology

With the exception of the Indo-European enigma, historical linguists have tended to focus relatively little attention on specific time and space co-ordinates of unattested languages. With BEARD, there might have been a reason the word fell out of use: the culturally loaded Proto-Celtic *bardos ‘poet, &c.’ possibly displaced its homonym. It is less likely that Celtic ‘poet’ in fact derives from ‘beard’.

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§14. Germanic linguistic chronology

With the exception of the Indo-European enigma, historical linguists have tended to focus relatively little attention on specific time and space co-ordinates of unattested languages. The where and when of Proto-Germanic and the course of descent from Proto-Indo-European are challenging questions owing to the late attestation of the Germanic languages.

What is widely viewed as being the earliest example of written Germanic is the inscription, usually called Negau B, in a North Italic script found on one of 26 bronze helmets of Negau type discovered in a cache in 1811 in Ženjak in what is today Benedikt municipality, North-east Slovenia. The helmet dates to ~500–400 BC, but the inscription is assigned a later date, the 2nd or 1st century BC.

The script was probably obsolete by the time the client kingdom of Noricum in the region was annexed by Rome in 16 BC—so an approximate range of 200–50 BC. The Negau B inscription more probably reflects a Germanic-speaking warrior or warriors on the move, rather than a settled Germanic-speaking population so far south this early. The Cimbri defeated the Romans at Noreia in Noricum in 113 BC (see §7 above). The Negau B text is arranged right-to-left and reads in Romanized transliteration harigastiteiwa. This text can be understood as comprising one compound Germanic name hari-gasti(z) ‘WARBAND’+‘GUEST’ and the divine name ‘the god Ty̒r’ or simply the word ‘god’, teiwa(z). The grammatical cases of these two forms and whether we are dealing with two individuals or one, mortal or divine, are not directly relevant here. The first element of hari-gasti < *koryo- ‘ARMY, TRIBE’ shows the prior operation of Grimm 1 and the Pre-Germanic convergence of ó and ā. -gasti < *ghostis ‘guest’ also shows the latter change. teiwa- < Proto-Indo-European *deiwos ‘god (of the shining sky)’ shows the

45 Even for Indo-European, many of the most productive and influential researchers entered through archaeology: e.g. Gimbutas (1970; 1981); Renfrew (1987; 1990; 2000; 2013); Mallory (1989; 2013); Anthony (2007).
operation of Grimm 2, as well as a third instance of ā < ō. There is no indication in the represented features of either name that the language of the inscription had diverged towards one of the main Germanic sub branches: East Germanic, North Germanic, or West Germanic.  

Another relatively early example in which Grimm 1 and Germanic *ō > *ā have operated is the second element *haima- < *koimo- ‘HOMESTEAD’ of Ancient Germanic Boiohaemum ‘Bohemia, i.e. ‘homeland of the Boii’, as found in Velleius Paterculus (§2, 109), a source which predates AD 30. -haem- ‘homeland’ is fully Germanic both phonetically and in its meaning and usage, as the second element of a place-name. The first element Boio- is wholly Celtic and has participated in no Germanic sound laws. Between them, the ancient forms of Bohemia and the Negau B inscription directly confirm that Germanic had fully formed before the Zeitenwende, but they do not by themselves tell us how much earlier the transition from Pre-Germanic to Proto-Germanic was complete.

When Tacitus finished his Germania in AD 98, Germanic-speaking groups were established widely across Central Europe up to the Roman limes at the Rhine and Danube. However, across much of this territory Ancient Celtic place- and group names are found, as well as La Tène and Hallstatt material (Koch et al. 2007), all suggesting that Germanic had expanded at the expense of Celtic a few centuries before Tacitus, as also confirmed by historical records concerning powerful Celtic groups in Central Europe in the last centuries BC, such as the Boii and Volcae. The earliest runic inscriptions date to the 2nd century AD (Antonsen 1975; Nielsen 2000; Faarlund 2008), followed by the Gothic Bible of Wulfila in the 4th century (Jasanoff 2008).

Earlier explanations of CG words have focused on Iron Age contact in Central Europe (§7). However, as we see here, this interpretation leads to difficulties, because there are many items in the Corpus in which the principal Proto-Indo-European to Proto-Germanic and Proto-Celtic sound changes had yet to operate. Therefore, we investigate the alternative hypothesis that the main body of the CG words goes back to stages of shared development and/or contact as early as the Bronze Age.

These alternative explanations lead to testable opposed predictions. For example, if most of the CG words are the result of contact in Central Europe during the Iron Age, we would expect more of them to be attested in Old High German (and then later German and its dialects), in the territory of the Iron Age contact, and fewer in Old Norse and the runes in the old futhark in Scandinavia, outside formerly Celtic-speaking territory (§35). A second prediction would be that words that entered the ancestor of the Germanic languages as the result of Bronze Age contact would have participated in more of the Proto-Indo-European to Proto-Germanic sound changes than those that entered as the result of contact during the Iron Age.

An example of a loanword from Celtic to Germanic showing earmarks of later borrowing, i.e. Iron Age or Roman Period, in Central Europe would be the German dialect word *Mucke ‘mother sow’, which can be explained as borrowed from the Gaulish equivalent of Old Irish *mucc ‘pig, swine’, Old Breton *moch, Middle Welsh collective *moch ‘pigs’, also occurring as the Gaulish divine name *Moccos and place-name Cato-mocus (S. Zimmer apud Matasović 2009, 275). This example exhibits key diagnostics for a late borrowing: attestation in Gaulish and a limited distribution in Germanic confined to what used to be Celtic-speaking territory in present-day West-central Germany. For these reasons, Celto-Germanic **mokku- ‘PIG’ can be excluded from the Corpus and statistical totals.

46 Therefore, in the statistics concerning the Germanic languages in which each of the CG words is attested (§35) the forms in the Negau B text are excluded from the count.

47 The existence of a fully Germanic or Germanicized *Baiaima is implied by Old High German/Middle High German Bēheim ‘Bohemia’ (Schumacher 2007, n. 33). A purely Celtic *Bo(w)yo-koimom probably never existed, as ‘homeland’ is not an attested meaning for reflexes of Celtic *koimo-.

A further illustration of a loanword into Germanic that shows earmarks for a later historical context is *paþa- ‘path’, the source of Old English pæð, pað, Old Frisian path, and Old High German pfad, meaning ‘path’. These words were probably borrowed from Iranian, cf. Avestan paθ- ‘path’. The borrowing occurred after the Germanic sound change known as the ‘first Germanic consonant shift’ or ‘Grimm 1’ (see §§15–16). Again the word seems never to have reached the Scandinavian languages. Therefore, it is most plausibly assigned to the period after Germanic had expanded southward from Southern Scandinavia and the Western Baltic and came into contact with Iranian-speaking Scythians, Sarmatians, and Alans on and near the Pontic Steppes.

The characteristics of later strata of borrowings into Germanic can also be seen in pre-literary loanwords from Latin, as summarized by Ringe:

These words [*pundq ‘pound’ < pondus and *katilaz ‘kettle’ < catillus] were clearly borrowed after Grimm’s Law had run its course; it is striking that all have something to do with trade. The fact that a number of fairly early Latin loans are found only in the southerly languages (typically Gothic and [Old High German]) strongly suggests that they were borrowed after the [Proto-Germanic] period... (2017, 329)

These principles can be adjusted, effectively inverted, to formulate diagnostic criteria for the present research. Specifically, CG words that are the result of contact in the Bronze Age will probably predate the operation of Grimm’s Law (§§16–18) and should not as group be absent from the Scandinavian languages. They should also have meanings more relevant to earlier times, such as names of items of material culture in use during the Bronze Age and depicted on Bronze Age rock art.

Within the Corpus, a high proportion of CG words are attested in Old and Middle Irish, 140 or 81% of the 173 words (§35). In almost all cases, contact as late as the Viking Age can be easily ruled out with linguistic criteria. This pattern would be expected if either or both of the following were true: that the contact with Germanic had taken place before Goidelic had emerged as a separate language from Proto-Celtic or the contact had taken place over the Atlantic seaways. But it would be unexpected if the contact had mostly taken place in the La Tène Iron Age, overland, in Central Europe. Although not an a priori impossibility, the latter scenario would imply that the Celtic that evolved into Irish was (still) situated in Central Europe some centuries after Lepontic and the Celtic of the South-western inscriptions were attested as separate languages in the Early Iron Age.

§15. Pre-Germanic and Proto-Germanic: definitions and possible dates

In this book, a reconstructed language with a name beginning ‘Proto-’ will refer to the latest reconstructable stage of the common ancestor of all members of that family of languages. So, for example, ‘Proto-Germanic’ means the latest reconstructable common ancestor of Gothic, Old Norse, Old English, and Old High German. Sticking to this definition, ‘Common Germanic’ and ‘Proto-Germanic’, similarly ‘Common Celtic’ and ‘Proto-Celtic’, and so on, are interchangeable terms. On the other hand, a reconstructed ‘Pre-’ language, is the stage before that, before all the linguistic innovations resulting in, for example, Proto-Germanic were complete.49

For the present study a key distinction between Pre- and Proto-languages is that in the latter the changes that distinguish the family from the other Indo-European branches had taken place. In the Pre-language these changes were in progress. Therefore,

49 Even for linguists specializing in the history of the Celtic and Germanic languages, usages vary. For example, van Coetsem (1994) defined Pre-Germanic as a dialectal stage of Proto-Indo-European, i.e. before becoming a fully separate language, and few linguistic innovations separated this stage from Proto-Indo-European. On the other hand, almost all the changes found complete in the attested Germanic languages took place in the stage he called Proto-Germanic (many even in his ‘Late Proto-Germanic’). But this period and its innovations are ‘Pre-Germanic’ with the definition used here.
barriers to mutual intelligibility were present in Proto-languages that were, at least to begin with, absent from Pre-languages. On the Celtic side, loss of *p, *r̥ *l̥ *m̥ *n̥ > *ri *li *am *an, and *ē > *i would have interfered with mutual intelligibility with Pre-Germanic. On the Germanic side, *r̥ *l̥ *m̥ *n̥ > *ur *ul *um *un and Grimm 1 and 2 would have worked against mutual intelligibility with Celtic (§16). Inter-dialect borrowings predating these changes would be difficult—usually impossible—to detect as loanwords.

A further distinction between ‘Pre-’ languages from their ‘Proto-’ descendants is that a Pre-language is more likely also to have been the ancestor of dialects that died out without attestation. Such historical-linguistic dead ends might not have undergone all the changes which were shared by, and thus define, the Celtic and Germanic families. This property of Pre-languages is a direct consequence of the method: a reconstructed Proto-language must account for all the attested languages in the family, but a Pre-language is not constrained in this way. There are groups called Келтοί or Germani by Greek and Roman authors, whose languages are unattested, and therefore possibly descended from Pre-Celtic or Pre-Germanic, but had not participated in all the developments that the better attested languages imply for Proto-Celtic and Proto-Germanic. This theoretical possibility can be relevant when dealing with prehistoric loanwords, the source forms of which do not match exactly what is reconstructed for a particular proto-language.

For Proto-Germanic, an inception date of ~500 BC or the 5th century BC is often proposed (Mallory 1996, 8; Mallory & Adams 2006, 103). However, other studies suggest a date a few centuries later than this. For example, Penzl (1988): ‘A Proto-Germanic period [began] with the last centuries BC and [ended] in the first two centuries AD.’ Jasanoff (1994) says that by 100 AD ‘the Germanic dialects had been diverging for three or four centuries’, implying a unified Proto-Germanic down to 300/200 BC. According to Ringe (2017, 84–5), ‘Proto-Germanic ... is unlikely to have been spoken before about 2,500 years ago (ca. 500 BC)’ and ~650–600 BC (the date of the early Jastorf archaeological culture of Northern Europe) would have been impossibly early, and again ‘[Proto-Germanic] was spoken ... a few centuries earlier than the Zeitwende, but probably not earlier than about 500 BC’ (2017, 241). As to the subsequent divergence: ‘That there was still a single Germanic language (in any sense) [in the second and third centuries BC] is unlikely ...; the expansion of the Germanic tribes throughout central Europe was already underway, and it is very likely that at least substantial dialect divergence had already occurred’ (2017, 171).

A primary division is often recognized between North-west Germanic and East Germanic (e.g. Nielsen 2000; Ringe & Taylor 2014, 10). From this split onwards the dialects evolved separately towards the languages of the Ancient Nordic runes and Gothic Bible. The phylogenetic calculation of Chang et al. 2015 shows Gothic splitting off from the rest of Germanic at the turn of the 1st century BC/AD, thus closer to Penzl’s chronology. In sum, then, some consensus can be cited for a date ~500/400 BC for the beginning of Proto-Germanic, with views about its earliest split into the main attested divisions ranging more widely from ~300 BC to ~1 AD/BC.

As to the earlier date for Pre-Germanic beginning to evolve away from its closest Indo-European sister branch(es), this is a trickier question for two reasons.

1 The evidence is not straightforward for which Indo-European relative(s) Pre-Germanic was closest (see §22 below).

2 This separation process is deeper in prehistory and so farther removed from direct datable written evidence.

The phylogenetic calculation preferred by Chang et al. 2015 shows an independent Pre-Germanic branching off ~1900 BC. A different approach, results in a similar estimate, briefly sketched as follows. The first-order subgroupings of Indo-European of Ringe et al. 2002 has the ancestor of Germanic as originally part of a dialect continuum also ancestral Balto-Slavic and Indo-Iranian. In the light of aDNA evidence, this stage can now be identified with CWC of ~2800–2500 BC, situated approximately between the Rhine and
Upper Volga.50 The realignment of Pre-Germanic towards Italo-Celtic now suggests the spread of the Beaker phenomenon into Central Europe, where it overlapped and partly fused with CWC in the area between the Rhine, Upper Danube, and Jutland (§22; cf. Heyd 2007; Østmo 2009; Cunliffe 2010). This Beaker/CWC overlap occurred ~2500–2100 BC. Then, after ~1900 BC, the Beaker phenomenon lost momentum and began fragmenting into regional Early Bronze Age cultures (cf. Cleary & Gibson 2019). These realignments are a plausible context for Italic and Celtic separating and leaving Pre-Celtic in continuing close contact with Pre-Germanic.

As to the whereabouts of Pre-Germanic during the Nordic Bronze Age (~1700–600 BC), advances in recent years have not upset, as the least controversial view, a homeland in Southern Scandinavia extending into northernmost Germany along the Baltic.51 Therefore, Pre-Germanic would have been approximately coterminous with the Nordic Bronze Age. Its timespan as proposed here (~1900–500/400 BC) contains all of that archaeological period’s usual date range (~1700–600 BC) extended into the final metal-using stage of the Scandinavian Neolithic and the first 150 years of the Nordic Iron Age.

§16. From Proto-Indo-European to Proto-Germanic: what happened in Pre-Germanic?

It is not immediately obvious whether the linguistic changes of Pre-Germanic were spread more-or-less evenly over a period as long as ~1900 BC to ~500/400 BC or many were bunched together within a shorter span. The transition from the Late Bronze Age to Early Iron Age was a time of cultural stress and economic decline. Such episodes are often accompanied by major linguistic transitions.

These implications have been recognized for the prehistory of Germanic. For example, in the model of van Coetsem (1994, 140–5), the Nordic Bronze Age, which he dated ~1500–500 BC, was seen as a time of stability—culturally and linguistically—and the Iron Age, as a time of change. In the present context of the RAW Project’s investigation of Bronze Age maritime links, we recognize that the rapid decline of a social class of high-status specialists maintaining international metal trade is likely to have come together with the decline of the prestige speech forms once used by and identifying this mobile elite. A similar case is the rapid change of Brythonic and Gaelic in the 5th to early 7th centuries AD, coinciding with the decline of secular Latin and official pre-Christian religion in the British Isles (LHEB; Koch 1995; Charles-Edwards 2013, 73–5, 25–32).

Borrowings between Pre-Germanic and Pre- and Proto-Celtic may help to narrow down the possible date range, as there is Celtic evidence in writing by the 6th century BC, probably the 7th, and possibly the 8th (Morandi 2004; Eska 2006b; Koch 2013b; 2019b).

Chief amongst the developments that transformed a language that still closely resembled Proto-Indo-European to one more like Gothic is Grimm’s Law. This sweeping shift in the consonant system operated across all of Proto-Germanic (Faarlund 2008; Jasanoff 2008). Also known as the ‘Germanic consonant shift’, Grimm’s Law comprised three series of changes:52

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As a chain innovation, Grimm 1, 2, and 3 must occur in that order, otherwise the outputs of Grimm 3 would impinge on those of Grimm 2 and those of Grimm 2 on Grimm 1. However, it is not certain whether there had been a significant time lag between them or the three had occurred more-or-less simultaneously with rule ordering determining the priority Grimm 1 and so on.

Attaching a date to the word ‘hemp, cannabis’, Proto-Germanic *hanipa- (⟩ Old Norse hanpr, Old English hænep, Old High German hanaf, hanif), would, if convincing, be useful. It is universally agreed to be a loanword. The Greek κάνναβις shows us that the borrowing occurred before Grimm 1 (*k > *h) and Grimm 2 (*b > *p). The *b and two occurrences of *a in Pre-Germanic *kanabis make it likely that the word originated in a non-Indo-European language. The first extant occurrence of κάνναβις in Greek is (~440 BC in Herodotus’s Histories in his description of the cannabis ‘vaping’ of the Scythians (§4.75). Though Herodotus does not say explicitly that this was a Scythian word, he writes as though it would be unfamiliar to his readers, but also mentions that the plant was used by other non-Greeks, such as the Thracians. There is no reason to assume that speakers of Pre-Germanic first encountered hemp at nearly the same time as Herodotus did. Forms of this word are widely attested, including early examples qunnapu, qunnabu, qun(u)bu in records of the Assyrian Empire, a few centuries before Herodotus. Balto-Slavic cognates, such as Lithuanian kanāpēs, Old Prussian knapios, and Russian konoplja, support attribution to ‘the pre-Indo-

European agricultural layer in Germanic and related languages in Europe’ (Kroonen 2013, 209), implicating a language of the North European Neolithic encountered by the Indo-Europeans as they expanded from the steppe in the 3rd millennium BC (cf. Iversen & Kroonen 2017). Latin cannabis is a loanword from Greek. There is no occurrence in any Italic or Celtic language of an old word cognate with hemp/kάνναβις. On its own, that is one small piece of negative evidence, but one consistent with the possibility that the transformation of Proto-Indo-European into the Italo-Celtic group in Western Europe involved a different Pre-Indo-European substrate than the one that affected the formation of Balto-Slavic and Germanic in the North.

A second major change in the consonant system is known as Verner’s Law. Pre-Germanic *f [ϕ], *b [θ], *h [χ], *hʷ [χʷ] became *b [β], *d [δ], *g [γ], *gʷ [γʷ] in syllables that were not the first in the word and did not immediately follow the position of the word accent in Proto-Indo-European. For example, Proto-Indo-European *phHtēr became Pre-Germanic *fāðēr by Grimm 1, then *fāðēr by Verner’s Law, then Proto-Germanic *fāðer with the accent shift, Old Norse fāðir. Thus, this change depends on the position of the word accent in Proto-Indo-European, rather than what it later became in Germanic. Verner’s Law therefore must have occurred before the accent moved. As it transforms the outputs of Grimm 1, it occurred after Grimm 1. So both Grimm 1 and Verner’s Law must predate the accent shift. And those three changes were completed as part of the formation of Proto-Germanic (cf. Fulk 2018, 107–12). The CG words of interest to us participated in Grimm 1, Grimm 2, and Verner’s Law, where these are revealed in their phonology. They underwent these changes just like inherited native vocabulary attested more widely across the Indo-European branches.

Two pervasive changes affected the vowel system between Proto-Indo-European and Proto-Germanic. Germanic merged short

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53 *b is in parentheses because this sound was extremely rare in Proto-Indo-European.

54 Where the traditional notation for the Proto-Germanic consonants, which is that used in the reconstructions here, differs from the probable phonetics of the post-Grimm sounds, the phonetic notation in square brackets follows the traditional starred consonant in the series above.

55 Note that Proto-Indo-European *bh, *dh, *gh, *gwh > *b, *d, *g, *gʷ — i.e. Germanic Grimm 3 — also occurred in Pre-Celtic. So this change cannot provide a diagnostic for loanwords between these branches.
*ō and short *ā as *ā. This change might reveal a loanword, after it occurred, from Germanic to Celtic, as Celtic preserved short *ō. *ō > *ā is relatively early in the series of Proto-Indo-European to Proto-Germanic changes according to van Coetsem (1994), preceding Grimm 1–3. It is about halfway down the flow chart of Ringe (2017, 176), but far down in that of Kroonen (2013, xlii). The same change occurred in Balto-Slavic and Indo-Iranian, which would lead us to suspect that it probably happened early or at least began early as a tendency, when what became these languages still formed a dialect chain, i.e. before the period of Late Bronze Age rock art. We can see that *ō > *ā has happened in the written Old Indic from Mitanni ~1400 BC as well as the oldest Vedic Sanskrit.

Post-laryngeal long *ō and long *ā also fell together in Germanic, Balto-Slavic, and Indo-Iranian. In Germanic, before its earliest written records, the result of this merger had become Proto-Germanic *ā. It is likely that the result had in the first place been *ā, which would have been the same output as in Proto-Balto-Slavic and Proto-Indo-Iranian, and that this Pre-Germanic *ā later became *ō. Ringe (2017, 171) dates this last change after first contact between the Romans and Germanic speakers (probably in the 3rd or 2nd century BC) on the basis of Gothic Rūmoneis ‘Romans’ < *Rūmānīz < Latin Rōmānī, reasoning that Germanic speakers would not have borrowed Latin ō as *ū if their language had then had a vowel *ō (cf. Polomé 1994, 6–7; Fulk 2018, 48). It follows that Germanic *ā > *ō was probably so late that Proto-Germanic had already ended and the change then spread between the early separating dialects. If this explanation is correct—though it is earlier in the sequence of changes in Kroonen’s scheme (2013, xlii)—*ā > *ō had yet to occur when Pre-Germanic and Pre-/Proto-Celtic were in contact in the Bronze Age.

Those six changes—
2 *ō > *ā
3 *ō and *ā > *ā (> *ō)\(^56\)
4 Grimm’s Law (1–3)
5 Verner’s Law
6 the Germanic accent shift

—went a long way towards transforming Proto-Indo-European into Germanic phonologically. Of these changes, *f *l *m *n > *ur *ul *um *un, *ō > *ā, Grimm 1 and 2, and Verner’s Law would be evident in Germanic-to-Celtic loanwords if they had already occurred. Of these Grimm 1 and 2 occur in so many words that it would be impossible to fail to notice a large body of prehistoric loanwords that postdated this shift.

A seventh change, which was probably subphonemic in Germanic (i.e. a change in the articulation of a sound not modifying the structure of the sound system) was that Pre-Germanic long *ē came to be pronounced lower as *[ae:].\(^57\) In Proto-Northwest Germanic, Proto-Germanic *ē [ae:] > *ā became fully phonemic.

Van Coetsem (1994, 98–113, 194) treats the Germanic consonant shift (i.e. Grimm 1–3) as a unity, occurring more-or-less simultaneously ~500 BC. In his model, *f *l *m *n > *ur *ul *um *un, and the mergers of *a and *o and *ā and *ō, precede the consonant shift, taking place in the Bronze Age; Verner’s Law and the accent shift follow it, taking place in the Iron Age, which he dates to the second half of the 1st millennium BC. The Grimm 1 sound change is at the top of Kroonen’s Proto-Indo-European to Proto-Germanic flow chart (2013, xlii), as one of the earliest in relative chronology. Similarly, in the more detailed chart of Ringe (2017, 176), Grimm 1 is near the top, the first change in the consonant system after the Proto-Indo-European laryngeals had become the unrounded central vowel [a] between consonants.

\(^56\) Because, in non-final syllables, Pre-Celtic also merged *ō and *ā as Proto-Celtic *ā, this change could not result in detectable loanwords in either direction.

\(^57\) In van Coetsem’s model, a system of four short vowels and four long vowels arose in the Late Bronze Age: *ō *e *i *u and *ā *ē *i *ū. *ā *ē and *ō *ē were realized phonetically as *[a] *[ae:] and *[o:] *[ae:] (1994, 98–113, 194).

Total: 136 examples (49%) of 276 CG+ words explicitly predate Grimm 1.

a. Celto-Germanic (CG) — 87 examples (50%) of 173 CG words

- ALL-FATHER, GREAT-FATHER (DIVINE EPITHET) *Olo-pate > PRE-VERNER *Ala-faþer > *Ala-fader
- AXE *bhei(a)tlo- > *biþla-
- AXLE *aks(i)l- > *ahsula-
- BATTLE, FIGHTING, VIOLENCE 1 *katu- > *haþu-
- 2 *weik- > *wīh-
- 3 *treg- > *þrakja-
- 4 *nīt- > *nīþa-
- 5 *nant- > *nanþjana-
- 6 *nant- > *nanþjana-
- BATTLE-WOLF > HERO *katu-wl̥kwo- > *haþuwulfaz
- BLAME *lok- > *lahana-
- BOATLOAD (OF PEOPLE, DOMESTIC ANIMALS, OR INANIMATE MATERIAL OF VALUE) *pluk- > *flukka(n)-
- BOILED > PASSIONATE *bhruto- ~ *bhrutu- > *broþom
- BUTTOCKS, THIGH, HIP *teuk- ~ *tuk- > *þeuha-
- CORPSE, DEAD BODY *kol- ~ *kl̥- > [probably PRE-VERNER *χulþa-
- *hulda-
- DISCUSSION (?) *trapto- > *þrafta-
- ENCLOSED FIELD *kaghyo- > *hagjö-
- ENCLOSURE *katr- ~ *kētr- > PRE-VERNER *hēþr- > *hēðr-
- EVIL *elko- ~ *elkā- ~ *elk̥yo- > *elhja-
- EXTREMITIES OF A LIVING THING *pinn- > *fin(n)ōn-
- FELLOW TRAVELLER, COMRADE *sentiyo- > *(ga-)sinþja-
- FEVER *kriþ- ~ *kriþ- > *hrīþan- ~ *hrittan-
- FLOOR *plōro- > *flōruz
- FOE *poiko- > *faiha- ~ *faiga-

FREE *priyo- ~ priyā- > *frija-
- GOD-INSPIRED *wātis > PRE-VERNER *wāþaz > *wōðaz
- GOOD, DESIRABLE *sweent- ~ *sunt- > *swinþa- ~ *sunþa-
- GREAT/FAMOUS IN BATTLE *Katu-mōros ~ -mēros > *Haþu-mēraz
- GREY *keiro- ~ *kiero-
- HAIR, STRAND OF HAIR *doko- > PRE-VERNER *taþla- > *tagla-
- HARBOUR, SHELTER FOR VESSELS *kapono- > PRE-VERNER *χαφana- > *habanō-
- HEAP, MOUND, PILE, RICK *krouko- > *hruakaz
- HOLLY *kuleno- ~ *kolino- > *hulba- ~ *hulisa- ~ *hulena-
- HORSE 1 *markos > *marhaz
- HORSE 2 *kankistos > *hangistaz ~ *hanhistaz
- HORSE+RIDE *ekwo-reidho- > *ehw̥a-riðaz
- JOKER, FOOL *drūto- > *trūþa-
- KING OF THE PEOPLE *teuto-rīg-s > *piuda-rið-s
- LEATHER *letrom > *leþra-
- LEFT, LEFT-HAND *kley- ~ *kli-
- LEPROSY *truts- > *bruts-
- LOAD, CARRY A LOAD *kleut- ~ *klat- > *hlaþan-
- LONG *sit- ~ *sei- > PRE-VERNER *sīþa- > *sīda-
- MILITARY COMMANDER *koryonos > *harjanaz
- MOUND, EARTHWORK *wert- > *werþa-
- NATURALLY OVERGROWN LAND *kaito- > *haþjana-
- NURTURER, PERSON ACTING AS A PARENT (?) *altro- > PRE-VERNER *alþra- > *aldra-
- OATH, BIND BY OATH 1 *oitos- > *aþpaz
- OATS, BROMUS *korkrö- > *haþram-
- OMEN, FORESIGHT *kail- > *hail-
- ONE-EYED, BLIND IN ONE EYE *kāiðs > *haih-
- OVERCOME IN BATTLE *uper-weik- ~ *uper-wik-
- PATH, ROAD, WAY, PASSAGE *sento- > *sinþā-
- PLEASANT, FAIR *teki- ~ *þakkja- ~ *þekka-
- POETRY, STORYTELLING *sketlo- ~ *skōtlo- ~ *skābla-
- PROSPER, FORTUNE *tenk- ~ *tonk- > *pinhan-
RELATIVE, FRIEND /priyânt-/ > *frijand-
ROD, STAFF, LONG SLENDER PIECE OF WOOD *(s)lat(t)- > *laba-
ROOF *togo- > *paka-
SACRED GROVE, SANCTUARY *nemet- > *nemiþa-
SETTLEMENT, FARMHOUSE treb- > *trb- > *þurpa-
SHAKE *skut- > PRE-VERNER *skup- > *skudjan-
SHIELD (?) 1 OF WICKER *kleibho- > *hlīf-
SIEVE, STRAINER 1 *sētlā- > *sēþla-
SKIN 1 *kenno- > *hinnō-
SKIN, HIDE 2 *sekýa- > PRE-VERNER *sexýa- > *segja-
SLING *telm- > *þelmi-
STONE MONUMENT *kar- > *hargu-
STREAM, LIQUID IN MOTION *sret- > *streþan-
STRENGTH, FORCE, VALOUR *nert- > *nerþu-
STRIKE (IN BATTLE) 1 *keltyo- > *hildja-
STRIKE (IN BATTLE) 2 *slak- > *slahana-
STRIVE, SUCCEED *pleid- > *flītana-
SUPERNATURAL BEING, PHANTOM 2 *skōk-slo- > *skōh-sla-
SWIFT *krob(h)- > *krb(h)- > *hrappa-
THICK, FAT *tegu- > *þeku-
THREAD, FATHOM *pot(a)mo- > *faþma-
THUNDER, THUNDER GOD 1 *ton(a)ros > *þun(a)raz
TROUGH, TUB, VESSEL *druk- > *truþa-
WEREWOLF *wiro-wulpo- > *wira-wulfa-
WILD DOG, WOLF *widhu-kō(n) > widuhundaz
WILD, WILDMAN *g*helti- > *wilþiz
WITNESS *weidwōts G2 G1 MI
WOLF, PREDATOR = WARRIOR OUTSIDE THE TRIBE
WORTH, PRICE *werto- > *werþaz
WOUND, INJURE 2 *knit- > *hnitana-
WOUND, INJURE 5 *koldo- > *halta-
WOUND, INJURE 6 *kre(n)g- > *krog- > *hrakjan-

ADDER, SNAKE, VIPER *natr- > *nētr- > PRE-VERNER *nabr-
BADGER *takso- > *þahzu-
BLOW, BREATHE *spei- > *fisan-
BOW AND ARROW *ark-o- > *arh-ó-
CURLY HAIR *krisp- > *hrisp-
DEVICE THAT LEANS AGAINST SOMETHING UPRIGHT, LEANTO
FISH *pisko- > *fiskaz
FREEZE, FROST *preus- > *freusan-
FRESH WATER 2 *akâ- > *ahw-
FURROW *porkâ- > *þakâ- > *þako- > *furh-
HARROW *okeþa- > PRE-VERNER *aþþa- > *agþo-
HATRED *kad- > *haz-
HEAD *kâput > PRE-VERNER *haþuþa- > *ha(u)bada- > *ha(u)buda-
HELMET OF TIN-BRONZE (?) *katst- > *kāt- > *hōda- > *hattu
HIDE, CONCEAL 2 *kele/o- > *huljan ~ *helan
LIGHTNING *louk- > *laþajan-
MADE CAPTIVE, BOUND, SLAVE *kapsós > *haþta-
NECK *kîlsos > *halsa-
NUT *khu- > *hnut-
OAK, TREE *perk-o- > *ferh-
REAPING, MOWING, HARVEST *met-e/o- > *mēþa- > *mēþa-
SAVAGE, OFFERING *dapno- > *dapo-
SHARP EDGE *akyâ- > PRE-VERNER *aχjâ- > *agjô-
SOFT *lento- > *lênto- > *linþa-
SPEAK 3 *yek- > *yok- > *jehan-
THINK (?) *tong- > *þankjan-

b. Italo-Celtic Germanic (ICG) — 26 examples (59%) of 44 words

Total: 50 examples of 276 CG+ words clearly predate Grimm 2. Thus, they were in the evolutionary stream leading to all the attested Germanic languages when that change occurred. Of those 50, a subset of 32 (12% of the CG+ total) do not also show explicitly their presence in Germanic since before Grimm 1. As the Grimm 2 sound change follows Grimm 1, any words already in Pre-Germanic at the time of Grimm 1 were necessarily already there for Grimm 2. Therefore, words with consonants susceptible to Grimm 1 and also consonants susceptible to Grimm 2 do not tell us anything we did not already know, apart from confirming that our reconstruction is internally consistent. We can therefore add the two totals together (49% of the CG+ total showing Grimm 1 + 12% showing Grimm 2, but not Grimm 1 too) to conclude that 61% of the Corpus was in Pre-Germanic since before Grimm 2. The actual percentage is surely higher, as the remaining 39% could not show either change.

a. Celto-Germanic (CG) — 35 examples of 173, 21 not also clearly pre-Grimm 1 (12%)

BATTLE, FIGHTING, VIOLENCE 4 *treg-* > *prakja-* [also pre-Grimm 1] BOOTY, PROFIT *bhoudi-* > *bhudi-* > *buti- CLUB, CUDGEL, STAFF, STICK *lurg-* > *lurkaz? COAL, CHARCOAL *gulo-* > *geulo-* > *gliwo-* > *kula-* > *kulan- DARK, BLOOD-RED *dhergo-* > *derka- DIGIT, FINGER, TOE, BRANCH *gwistiz* > *kistiz DRESS PIN, BROOCH *dholgo-* > *dholgo-* > *dalka- DROPLET, DRIP *dhrubh-* > *dhrubh-* > *drup(p)an- DWARFLIKE CREATURE, WATER CREATURE *aban-* > *apan- ENCLOSURE, ENCLOSED SETTLEMENT, HILLFORT 2 *dumnos > *tuna FOREIGNER *alyo-morgi-* > *alja-markiz HAIR, STRAND OF HAIR *doklo-* > *tagla-* [also pre-Grimm 1]
<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Celtic</th>
<th>German</th>
<th>Balto-Slavic</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>lēgi-</em></td>
<td>healer, physician, leech</td>
<td></td>
<td>*lēkijaz</td>
<td></td>
</tr>
<tr>
<td><em>mūg-</em></td>
<td>hide, conceal</td>
<td><em>mūk-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>drūto-</em></td>
<td>joker, fool</td>
<td><em>trūpa-</em></td>
<td>[also pre-Grimm 1]</td>
<td></td>
</tr>
<tr>
<td><em>rēg-</em></td>
<td>king, leader</td>
<td><em>rik-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*mūg-</td>
<td>hide, conceal</td>
<td>*mūk-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*gū-</td>
<td>joker, fool</td>
<td><em>trūpa-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*rēg-</td>
<td>king, leader</td>
<td><em>rik-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>teuto-rīg-</em></td>
<td>king of the people</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>mōng-</em></td>
<td>mane</td>
<td><em>mōk-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*gisnō-</td>
<td>pine</td>
<td><em>kizna-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>bend-</em></td>
<td>point</td>
<td><em>bēnd-</em></td>
<td><em>pint-</em></td>
<td></td>
</tr>
<tr>
<td><em>togo-</em></td>
<td>settlement, farmhouse</td>
<td><em>trēb-</em></td>
<td><em>purpa-</em></td>
<td><em>porpo-</em></td>
</tr>
<tr>
<td><em>Ghaiso-rīg-</em></td>
<td>spear-king</td>
<td>*rēg-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>splid-</em></td>
<td>split, splinter</td>
<td><em>splīd-</em></td>
<td><em>splītan-</em></td>
<td></td>
</tr>
<tr>
<td>*streibā-</td>
<td>stripe</td>
<td><em>strīpa-</em></td>
<td><em>strīpōn-</em></td>
<td></td>
</tr>
<tr>
<td><em>pleid-</em></td>
<td>striving, succeeding</td>
<td><em>flēd-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>nōd-</em></td>
<td>knot, knotwork, device of knotwork to catch fish, net</td>
<td><em>nad-</em></td>
<td><em>natja-</em></td>
<td>*nōtā-</td>
</tr>
<tr>
<td><em>raud-</em></td>
<td>ore, metal oxide</td>
<td><em>arud-</em></td>
<td><em>arut-</em></td>
<td></td>
</tr>
<tr>
<td><em>dapno-</em></td>
<td>sacrifice, offering, ritual meal</td>
<td><em>daphnā-</em></td>
<td><em>tafna-</em></td>
<td>[also pre-Grimm 1]</td>
</tr>
<tr>
<td><em>bhrag-</em></td>
<td>smell strongly</td>
<td><em>bhrēg-</em></td>
<td>*brēkjan-</td>
<td></td>
</tr>
<tr>
<td><em>bheud-</em></td>
<td>strike, beat</td>
<td>*bautan-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>tong-</em></td>
<td>think (?)</td>
<td><em>pantjan-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>angwen-</em></td>
<td>butter</td>
<td><em>ankwan-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>kobom-</em></td>
<td>luck</td>
<td><em>hap-</em></td>
<td>[also pre-Grimm 1]</td>
<td></td>
</tr>
<tr>
<td><em>gleina-</em></td>
<td>smear, glue, stick</td>
<td><em>glina-</em></td>
<td>*klīnjan-</td>
<td><em>klīnan-</em></td>
</tr>
<tr>
<td><em>snad-</em></td>
<td>wound, hafted metal-tipped weapon</td>
<td><em>snat-</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>bhled-</em></td>
<td>bleat (?)</td>
<td><em>blēd-</em></td>
<td>*blējan-</td>
<td>*blēatjan</td>
</tr>
<tr>
<td><em>gal-</em></td>
<td>call, shout, speak out</td>
<td><em>kalzōjan-</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary on the absolute chronology of Grimm’s Law and the Celto-Germanic phenomenon. The consensus date of ~500 BC is accepted here for this change, although an earlier date is possible. 87 items, or 50%, of 173 CG words clearly predate Grimm 1, and no examples clearly post-date it. A further 35 clearly predate Grimm 2 with no examples clearly post-dating Grimm 2. All the examples not showing these changes simply lack the relevant consonants. These results are consistent with the conclusion that the CG phenomenon mostly reflects contact in the Bronze Age, not the Iron Age.
§19. Celtic linguistic chronology

On the Celtic side, several Ancient Celtic Languages are attested in the Iron Age, including Gaulish and Celtiberian. The Lepontic language, which left inscriptions in Northern Italy and nearby parts of Switzerland, begins to be attested ~600 BC (Morandi 2004; Eska 2006b). The Celtic of the South-western or ‘Tartessian’ inscriptions of Southern Portugal and South-west Spain probably began by ~700 BC (Koch 2013b; 2019b; cf. Almagro-Gorbea 2004; 2008). Lepontic and SW Celtic, as well as being spoken 1500km distant from one another, as the crow flies, were distinct languages. In the following centuries, Gaulish and Celtiberian are better attested than Lepontic and SW Celtic. These two show significant differences and do not look like dialects of the same language. On the other hand, Gaulish, Galatian, and Ancient Brythonic appear more similar to one another (Koch 1992b). This evidence implies that the linguistic innovations common to all of Celtic, defining Proto-Celtic, were complete by the Bronze–Iron Transition.

It is likely that an important discontinuity arose in the Celtic dialect continuum when the Iberian Peninsula came under heavy Phoenician cultural influence ~900 BC and consequently left the Atlantic Bronze Age, joining the Mediterranean Iron Age. It follows that Proto-Celtic probably split at this time into Hispano-Celtic and Gallo-Brythonic-Goidelic (Koch 2016), also called ‘Gallo-Insular’ (McCone 1996). After that date, there would no longer have been a coherent socio-cultural area through which Hispano-Celtic could easily have shared linguistic innovations with the incipient Goidelic, Brythonic, and Gaulish beyond the Pyrenees.

Linguistic changes common to all the attested Celtic languages include, in approximate order (McCone 1996; Isaac 2007):

1. Syllabic *f* and *l > *ri and *li after any consonant and before a stop consonant;
2. *gʷ > *b;
3. *bh *dh *gh *gʷh > *b *d *g *gʷ;
4. *p > *φ (then disappearing altogether in most positions);
5. Long *ō > long *ū in final syllables;
6. Long *ō > long *ā in all other syllables;
7. Syllabic *m and *n > *am and *an;
8. Long *ē > long *ī.

At the point these changes were complete, the resulting language is called Proto-Celtic.

For the last two changes, there is evidence in Hispano-Celtic that has been seen as indicating that they were not fully complete in Proto-Celtic. Celtiberian teiuoreikis (K.6.1 — Luzaga, Guadalajara) has been interpreted as Deiwo-rēxs ‘god’+‘king’. However, this explanation is not certain and, even if correct, it would involve an inaccurate spelling of Pre-Celtic long ē as ei. The vowel in ‘king’ was never the same as that in ‘god’. ei could just as well be an inaccurate spelling for rī, the usual Celtic reflex. There is a less ambiguous example of this compound name from Galicia: DEVORI showing the expected Celtic vowels (CIL II 2473; Rodríguez Colmenero 1997, I2 78 — Outeiro Seco, Chaves, Ourense). aibůuris[ in the South-western inscriptions is probably an example of a Celtic *-rīxs name in the Early Iron Age. Note also the mythic Tartessian king Gargoris, often interpreted as a Celtic *-rīxs name (from Justin’s Epitome of the Philippic Histories of Trogus Pompeius §44.4; on the derivation see Koch 2013b, 173–4). Also in the Western Iberian Peninsula, it is likely that the frequently attested CATVRIS, CATVRICA, CATVRICE, and CATVRICO ultimately derive from *Katu-rīxs, -rīg- ‘battle’+‘king’ with the normal Celtic reflex of Proto-Indo-European *ē (cf. Villar & Prósper 2005, 267).

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§59 These are the 7 opening signs of the funerary inscription J.3.1 ‘Dobra’ — Monchique, Lagos, Faro, Portugal.
The transformation of the Indo-European syllabic nasals *m̥ and *n̥ into vowel-consonant combinations *am and *an was possibly still on the sub-phonemic level when the writing system of SW Celtic was devised. For example, the common SW formula word uar(n)b̥an can be interpreted as */u.ar.mām/*, the feminine singular accusative corresponding to Celtiberian VERAMOS/VORAMOS < Pre-Celtic *uper-mā/o- 'highest, supreme'. In other words, the reflex of the syllabic nasal is written as a single segment, not as a vowel plus nasal. The Gaulish names Cintusmus and Osismii, and Ancient Brythonic Belismius might also be evidence for the continuation of *m̥ as a single nasal consonant *, as opposed to seeing in these forms a syncope of the Celtic superlative suffix *-sam- to *-s’m- (Koch 2011, 116; alternatively Schrijver 1995, 21).

As explained above a coherent Proto-Celtic probably broke up at the Iberian Bronze–Iron Transition ~900 BC (Koch 2016). Thus, the Proto-Celtic stage coincided more-or-less with the Late Bronze Age, ~1200–900 BC. Following the discussion above about dating the separation of Italic from Celtic, the Pre-Celtic stage, preceding the Proto-Celtic, is provisionally assigned to ~1800/1500–1200 BC. This would be the period when the 8 sound laws listed above occurred.

§20. Relative chronology 3: synchronizing the Celtic and Germanic sequences of sound changes

Proto-Celtic and Proto-Germanic were not contemporary. Their dates probably did not even overlap. As explained above, Proto-Germanic is provisionally dated here to ~500/400–300 BC/AD 1 and Proto-Celtic ~1200–900 BC. The preceding Pre-Germanic and Pre-Celtic stages are provisionally dated to ~1900–500/400 BC and ~1800/1500–1200 BC, respectively. This disparity may feel counter-intuitive. If Germanic and Celtic were in close contact, then that contact declined, one might expect them both to have begun to change in divergent ways at that time, i.e. at the same time. One might also suspect that Proto-Germanic and the changes leading to it have been mistakenly dated later than the corresponding processes in Celtic merely because the Germanic languages are first attested later. If we had Germanic texts from the mid-1st millennium BC, might things actually have been further along than now reconstructed?

Concerning the ordering of the changes in Pre-Celtic and Pre-Germanic, there are some broad areas of agreement as well as remaining uncertainties in recent work.60 Most of the words in the Corpus can be derived phonologically as though they had evolved continuously from Proto-Indo-European through the branch in which they are attested. The numbers would of course be higher for Celtic loanwords in Germanic had the policy here not been to exclude Post-Grimm 1 and Post-Grimm 2 examples. Many words showing those features probably post-date the period of interest here, reflecting the Peri-Roman Iron Age, Post-Roman Migration Period, or Viking Age. For the majority of the Corpus, the only indicators for Post-Proto-Indo-European relative dating are their geographical restriction to the NW branches or, for fewer items, meanings referring to technologies and social institutions that had probably not yet existed in the Proto-Indo-European world.

Turning to that minority showing sound changes from one branch reflected in another, a larger number are Celtic-to-Germanic than the reverse.61 In most of these examples, changes that are reflected in all the Germanic languages subsequently affected the words with diagnostically Celtic sound changes after they were borrowed. This detail is consistent with the synchronized chronology here in which Proto-Celtic is earlier than Proto-Germanic.

61 Schumacher (2007) notes this pattern and suggests that it may reflect the circumstance that the Continental Celtic languages, with which Germanic had been in direct contact, died out without being fully recorded. This is speculative, but not unreasonable. If it were correct, however, one might expect more of these early loanwords to have reached Brythonic through Gaulish, particularly the Gaulish of the Belgae, owing to close cross-Channel contacts in the last centuries BC continuing into the Roman Period.
In the following examples, words were borrowed into prehistoric Germanic after Celtic sound laws.

**LEATHER** *pletrom > *leþra- [borrowed after the loss of *p in Celtic] [PRE-GRIMM 1], showing that Pre-Celtic *p > *φ > *ø in this position had occurred before *t > *b in Pre-Germanic.

**LEAD (metal)** *plobdho- > *lauda- [borrowed after the loss of *p in Celtic]

**KING, LEADER** *rēg- > *rīk- [borrowed after Celtic *ī < *ē] [PRE-GRIMM 2], showing that Pre-Celtic *ē > *ī had occurred before *g > *k in Pre-Germanic.

**KING OF THE PEOPLE** *teuto-rīk- (< notional *ṭhōtōk- ) > *þiuda-rīk- [borrowed after Celtic *ī < *ē] [PRE-GRIMM 1] [PRE-GRIMM 2], showing that Pre-Celtic *ē > *ī had occurred before *g > *k in Pre-Germanic. If the whole compound is taken at face value, this example also indicates that Pre-Celtic *ē > *ī had occurred before Pre-Germanic *t > *p, though in this case it is possible that the Germanic form of the first element *þiuda- ‘people’ was substituted. If the evidence of the first half of this compound is then ignored, that would eliminate the only example of a pre-Grimm 1 word showing Pre-Celtic *ē > *ī, raising the possibility that Grimm 1 had occurred before that change and thus before the formation of Proto-Celtic.

**KINGDOM, REIGN, REALM** *rīgyom ~ *rīgyā (< *rēgyā) > *rīkija [borrowed after Celtic *ī < *ē] [PRE-GRIMM 2], showing that Pre-Celtic *ē > *ī had occurred before *g > *k in Pre-Germanic (cf. Schumacher 2007, 173).

**PERSON ACTING ON BEHALF OF A SUPERIOR** *ambaxtos (< notional *ṃbhaktos) > *ambahtaz showing Pre-Celtic *ṃ > *am.

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ENCLOSURE, ENCLOSED SETTLEMENT, HILLFORT 2 *dūno- > *tūna-: if this goes back to earlier *dhūno-, that would show Pre-Celtic *bh *dh *gh > *b *d *g occurred before the resulting *dūno- was borrowed into Pre-Germanic then underwent Grimm 2 to become *tūna-. [Footnote: 62]

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¶ The following example was possibly borrowed into prehistoric Celtic after the operation of a Germanic sound law.

**ORE, METAL OXIDE** *arud ~ *raud > Pre-Germanic *arut- > Celtic (Ancient Brythonic) *rutu- [borrowed after Grimm 2].

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1 The sequence Pre-Celtic *p > *φ > *ø was probably complete before Grimm 1. Although the former change is sometimes viewed as defining the emergence of the Celtic branch, it is not the first change defining a course separate from Proto-Italic. Pre-Celtic *gw > *b must be earlier and probably also the convergence of *b *d *g and *bh *dh *gh, as Proto-Celtic *b *d *g (McCone 1996, 42–4). Although calendar years cannot be extracted from these details, it is argued here that Post-Italo-Celtic Pre-Celtic belongs approximately to the Middle Bronze Age ~1800/1500–1200 BC (§§19, 21), in which case the weakening of *p might fall within that span with the sound’s complete disappearance in this position probably before the breakup of Proto-Celtic ~900 BC.

2 Pre-Celtic *ē > *ī occurred before Grimm 2. [Footnote: 64]

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[Footnote: 63] In Isaac’s 25 innovations between Proto-Indo-European and Proto-Celtic, the weakening of *p to *φ is step 14, and its subsequent disappearance in most contexts is his step 16 (2007, 62). As *bh *dh *gh > *b *d *g in both Celtic and Germanic (where it is Grimm 3), the change is not detectable in borrowings in either direction.

[Footnote: 64] In Isaac’s list this is step 17, immediately after *φ (< *p) > *ø (2007, 62).
3 The fact that the possible prehistoric loanword from Germanic to Celtic (*arut-* > *rutu-*) occurs in Brythonic, but not Goidelic, is consistent with a relatively late stage, when Celtic dialects were becoming isolated and Ireland and Southern Scandinavia were no longer in direct contact. It may be significant that this word has to do with trade, rather than chieftains, warbands, &c.

4 Overall, the Corpus has few examples in which Celtic sound changes appear in Germanic words or vice versa. That suggests that most of the items reflect a period of contact before most of the sound laws had occurred. This pattern is also consistent with a high degree of mutual intelligibility. When speakers of cognate dialects communicate regularly and understand each other well, they can often make the necessary adjustments and avoid treating a newly acquired word as a loanword. It is only for the minority of detectable loanwords that we need to think of Pre-Germanic speakers learning Pre-/Proto-Celtic or vice versa. In other words, the evidence for the prolonged use of a lingua franca is not strong.

§21. Dating Italo-Celtic

As mentioned above (§8), by 500 BC four separate Italic languages are found in writing: Old Latin, South Picene, Oscan, and Venetic. By this time, these were different enough that mutual intelligibility was probably minimal. Therefore, estimating approximately, it is unlikely that a unified Proto-Italic could still have existed after ~1000 BC. By the same reasoning, Proto-Italo-Celtic—if we believe in such a thing—had probably broken up by ~1500 BC.

We can approach the same question from another angle. If we think of the cultural interconnections associated with the Beaker phenomenon as providing a probable context for the variety Post-Tocharian Indo-European that became Italic and Celtic emerging over wide parts of Western Europe (see §22), then the cultural fragmentation and regionalization at the transition from the Beaker Period to the Early Bronze Age ~2000/1800 BC might plausibly coincide with the breakup of Italo-Celtic. A third approach is the phylogenetic method as calibrated by Chang et al. (2015), which shows Italic and Celtic separating ~1800 BC. In other words, we come up with nearly the same date, centring on ~1800 BC, looking at the problem three different ways:

1 back from the earliest attested Italic and Celtic languages;
2 forward from the theoretical correspondence of Yamnaya culture (~3300–2400 BC) = Post-Anatolian Indo-European; and
3 ‘ancestry-constrained phylogenetic analysis’.

It is not theoretically necessary that all ICG words entered Germanic before Italic and Celtic separated. Celtic would have retained many words it had inherited from the Italo-Celtic phase and therefore could have passed these words to Germanic after separating from Italic. Because so much Ancient Italic has survived in Latin, many of the CG words not found in Italic are probably newer than the Italo-Celtic commonality; they are not attested in Italic because they never existed in Italic.

§22. The dialect position of Germanic and a possible explanation

Whether the Corpus is studied item by item, as a whole, or grouped in various subsets, a great question looming over it is chronology. This can be absolute chronology, i.e. calendar years: at what approximate date did words and groups of words arise and then pass between the branches in which they occur? Or it could be archaeological chronology: Beaker Period, Bronze Age, or Iron Age? There is also linguistic chronology, for which the form of the question is: to what extent can we understand this material as shared among mutually intelligible dialects of Indo-European and to what extent

65 Whether we model this a genetic node or contact phenomenon (§13).
is it due to borrowing between separate languages as known to us from historical times? If we focus on the activities of Bronze Age trader/raiders operating between Scandinavia and the Atlantic façade, we ask: could they communicate using their own language or did they have to learn a lingua franca? For answers, we need to know how closely related Celtic and Germanic are, how they fit into the Indo-European family tree, and whether they belonged to any Post-Proto-Indo-European dialect chain and how long that continued.

One important finding of Ringe et al. 2002 is the difficulty in placing Germanic within the first-order subgroupings of Indo-European. They offer the following explanation, which opens new possibilities in light of archaeogenetic evidence:

This split distribution of character states [i.e. points of agreement between branches] leads naturally to the hypothesis that Germanic was originally a near sister of Balto-Slavic and Indo-Iranian (possibly before the satem sound changes spread through that dialect continuum, if that is what happened); that at that very early date it lost contact with its more easterly sisters and came into closer contact with the languages to the west; and that contact episode led to extensive vocabulary borrowing at a period before the occurrence in any of the languages of any distinctive sound changes that would have rendered the borrowing detectable. (111; cf. Ringe 2017, 6)

An important implication of this formulation—especially its last clause—is that these shifting relationships between Germanic, Balto-Slavic, Indo-Iranian, Italic, and Celtic occurred at the stage when they were related to each other as dialects, not yet separate languages. The fact that innovations arising in one branch are not detectable as borrowings after spreading to another indicates a continuing high degree of mutual intelligibility.

In applying Ringe et al.’s trees (Figure 4) to archaeological evidence within a framework based on the Steppe Hypothesis, the present approach follows that of Anthony (2007, 56–8). He dates the splitting of Tocharian from Post-Anatolian Indo-European at ~3700–3300 BC and then Italo-Celtic from Post-Tocharian Indo-European at ~3000 BC. We have since learned that people of CWC and those of Beaker cultures in West-central Europe and the British Isles had high levels of steppe ancestry. But the two groups had had different histories after their ancestors left the Pontic–Caspian Steppe. This new information allows us to contextualize the realignment of dialects.

As purely a matter of geographic correspondence, an early Indo-European dialect bloc giving rise to Germanic, Balto-Slavic, and Indo-Iranian strongly suggests the territory of CWC, especially once we take into account the case for placing the origins of Indo-Iranian with Abashevo culture in Eastern Europe (§23). R1a Y chromosomes also line up suggestively with this subset of Indo-European branches.

It has many times been pointed out that the geographic distribution of the Beaker Phenomenon corresponds approximately, but strikingly, with that of the Ancient Celtic languages (cf. Cunliffe 2010). Within the CWC area, the dialect shift that Ringe at al. 2002 envision for Pre-Germanic on purely linguistic evidence has an analogue in archaeology. ~2500 BC the Beaker phenomenon entered the CWC area from the west and henceforth interacted and partly fused with CWC in West-central Europe, in a zone extending as far east as the Middle Danube. By ~2300 BC the Beaker package reached Jutland.67 These ‘Beakerized’ regions henceforth had more attenuated contact with non-Beakerized CWC to the east. They entered a cultural sphere with western neighbours, including the Iberian Peninsula, Northern Italy, parts of France, and Britain and Ireland (cf. Van der Linden 2007).

66 In light of the 34-word CGBS and 26-word ANW sets in the Corpus, as well as the geographical proximity of the Germanic and Balto-Slavic languages in early historical times, it seems unlikely that Pre-Germanic ever fully ‘lost contact’ with Balto-Slavic. Rather the contact with its eastern sisters became more attenuated as contact with Italo-Celtic became closer, and then Celtic alone. On the other hand, with regards Indo-Iranian, we can speak more accurately of Germanic losing contact (see §23).

67 Horn 2014; Artursson 2015; Iversen 2014; 2015a; 2015b; 2019.
Linguistically, these developments suggest an intensification of contacts towards Pre-Italo-Celtic and reduction of contacts with Pre-Balto-Slavic/Indo-Iranian. Now confronting the evidence that most CG words are not detectable as loanwords, it seems likely that Pre-Germanic and Pre-Italo-Celtic simply continued to be close long into the Bronze Age. That state of affairs continued to the time when copper from the Atlantic façade was traded to Scandinavia. That scenario would be more economical than supposing that contact between Scandinavia and the West ended in the post-Beaker Early Bronze Age then picked up again in the Late Bronze Age. A model of continuing contact with the post-Beaker West is also consistent with evidence of copper from Wales coming to Scandinavia in the period ~2000–1400 BC (Nørgaard et al. 2019).

§23. When did Indo-Iranian separate from the languages of Europe?

This question has special relevance for the present study. As discussed above (§6), the highest proportion of the 1,364 Proto-Indo-European lexemes reconstructed by Mallory and Adams (1997) found in a particular branch occur in Indic (925 = 68%). The preponderance of those are attested in Sanskrit. Also high on this list is Iranian, with 675 = 49%. Of course, some individual words will have died out in both Indic and Iranian, or their common ancestor, by chance. However, the 173 CG and 276 CG+ words, as two sizable collectivities, post-date the separation of Indo-Iranian. Looking at the tree model (Figure 4), the last common ancestor of Celtic and Indo-Iranian is ‘Post-Albanian Indo-European’, from which Italo-Celtic branched off as the fourth split. Germanic and Indo-Iranian have a later common ancestor, that is, Germanic/Balto-Slavic/Indo-Iranian, the residual unity left by the separation of Greco-Armenian, the fifth split. Note that Balto-Slavic and Indo-Iranian are seen as closely connected at an early stage in this model, as well as both with Germanic. This means that, considered as sets, ANW words...
and CGBS words, which are by definition absent from Indo-Iranian, can be interpreted as post-dating the separation of Indo-Iranian.

The hypothesis that the Sintashta culture, situated east of the southern Ural mountains ~2100–1800 BC, was the homeland of Indo-Iranian developed and gained considerable acceptance on the basis of archaeological and philological evidence (Witzel 2003; Anthony 2007; Kuz’mina 2007). Supporting aDNA data became available later. Anthony’s case for identifying this culture specifically with Proto-Indo-Iranian stage remains credible (2007, 408–11).

The relevant archaeogenetic datum is that the signature for most Sintashta individuals has ~68% steppe ancestry, ~24% European Middle Neolithic (EMN), and ~8% West Siberian Hunter-Gatherer. This profile is thus distinct from Yamnaya/Afanasievo, which lacks EMN. In this light, the Sintashta population cannot be explained as a result of a primary direct migration by Yamnaya groups on the Pontic–Caspian Steppe ~3300–2400 BC, as is the case with the migration giving rise to the Afanasievo population (§12).

This model finds further confirmation in archaeological evidence for the origins of the Sintashta material culture, which indicates sources in eastern CWC, such as the Fatyanovo culture ~3200–2300 BC, Middle Dnieper culture ~2800–1800 BC, and most especially the Abashevo culture between the Middle Don and southern Ural Mountains ~2500–1900 BC. This culture is epitomized by Anthony as ‘the easternmost of the Russian forest-zone cultures that were descended from Corded Ware ceramic traditions. The Abashevo culture played an important role in the origin of Sintashta’ (2007, 382). Abashevo is identified as the source of Sintashta metallurgical

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68 Allentoft et al. 2015; Damgaard et al. 2018; Narasimhan et al. 2018.
and ceramic traditions and stock-breeding economy, as well as the key detail of the disc-shaped cheek pieces characteristic of the distinctive horse gear of Sintashta chariotry. Sintashta is widely credited with invention of the light-weight war chariot, with a pair of spoked wheels and tightly controlled two-horse teams.70

The Abashevo people who moved eastward to found the Sintashta culture were attracted by abundant arsenic-rich copper ores in Transuralia (Cunliffe 2015, 131–2). This migration can be seen as a favourable context for breaking a dialect chain and crystallization of a separate language, both by putting more distance—and a mountain range—between the migrants and the probable homeland of Pre-Balto-Slavic and also bringing closer contact with a non-Indo-European Proto-Uralic language and that of the Bactria–Margiana Archaeological Complex (BMAC) in Central Asia (cf. Parpola & Carpelan 2005). That Abashevo was associated with an early stage of Indo-Iranian had been proposed on the basis of archaeological evidence together with ~100 Indo-Iranian loanwords in the Uralic languages and correspondences between Sintashta burial rites and Vedic religion (Anthony 2007, 385; Parpola 2015). As I write, there is no Abashevo aDNA to confirm or contradict the expectation that its gene pool was the source of the genetic type found at Sintashta (steppe + ~24% EMN ancestry).

That genetic signature can be traced forward to sampled individuals of the Sintashta-derived Andronovo horizon widely spread across Central Asia ~2000–1200 BC and, afterwards, to genomes of probably Indic-speaking groups in Iron Age South Asia (Damgaard et al. 2018; Narasimhan et al. 2018). It is present in South Asia today—at higher levels in the North of Pakistan and India and among speakers of the Subcontinent’s Indo-European languages and high-caste Hindu groups (Silva et al. 2017).

A recently sequenced genome from the Harappan (Indus Valley Civilization) site of Rakhigarhi north-west of Delhi, dating ~2500 BC, shows no steppe or EMN ancestry, implying that these now ubiquitous genetic signatures entered the Northern Subcontinent later than that. The Rakhigarhi female was of the ‘Ancestral South Indian’ type, more closely aligned with the genetic profile common today in South India and amongst Dravidian speakers (Friese 2018; Shinde et al. 2019). Modern South Asian mitochondrial DNA implies that the Bronze Age immigrants who introduced the steppe + EMN profile were mostly men.71

What is the upshot of the foregoing evidence? Our central aim is to identify circumstances that produced sizable sets of inherited vocabulary common to Celtic and Germanic and lacking comparanda in Indic and Iranian. The developments outlined above changed the culture and location of some speakers of Balto-Slavic/Indo-Iranian in the east so that their contacts with their former neighbours in the west became more attenuated or simply ceased. A suitable context would be the foundation of the culturally innovative Sintashta culture by Abashevo migrants from the West. These newcomers thus became detached from other CWC-derived cultures and other populations with similar genetic signatures, i.e. steppe ancestry + European Neolithic admixture. Therefore, our provisional model is that the CG and CG+ word sets, lacking Indo-Iranian comparanda as a defining feature, reflect circumstances after ~2100 BC.72

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72 After Indic, Greek has the highest number (772) and percentage (57%) of attestations of Mallory and Adams’s 1,364 Proto-Indo-European lexemes. An absence from Greek is thus another negative defining attribute of the words studied here. Therefore, in theory, a credible account for the separation of Pre-Greek from its latest common ancestor with, or contiguous dialect among, the NW languages could also be significant in delimiting the implications of the Corpus. However, unlike the consensus linking Indo-Iranian with the Sintashta culture, the whereabouts of Pre-Greek and Proto-Greek are not the subject of a widely accepted theory. Archaeogenetics has yet to decisively clarify this picture. A recent study of Minoan and Mycenaean aDNA shows that Mycenaean remains from the Greek mainland dating to ~1700–1200 BC are closely similar to those of Minoan individuals, but differ in the presence of a low-level admixture traceable to the north-east. This can be modelled as 13–18% steppe population affecting mainland Greece only (Lazaridis et al. 2017). However, this is not the only possible model that could account for the results. And, even if the steppe-admixture explanation was correct, this would not tell
§24. Alteuropäisch

There is another linguistic phenomenon with a geographic distribution corresponding closely to CWC and necessarily assigned to a time depth pre-dating the later Bronze Age and the emergence of Germanic, Balto-Slavic, and Indo-Iranian as separate languages. These are the so-called ‘Old European’ or alteuropäisch river-names, a subject pioneered by Krahe.73 The linguistic earmarks of this early layer of place-names include a four-vowel system with a dearth of ő and preponderance of ă, reminiscent in this regard to Germanic, Balto-Slavic, and Indo-Iranian.

Kitson describes the core geographic distribution of these names as follows.

The contribution of river-names to this argument [about the PIE homeland] is that in Europe south of the Baltic and north of the Alps and Carpathians, between roughly the Rhine in the west and perhaps the Don in the east, all ancient river-names are etymologically alteuropäisch. At least so say the hydronymists, and river-names in the area have been so intensively studied, and attempts to overturn the assertion have been so conspicuously unsuccessful, that I think we must take it as established (1996, 101).

The alteuropäisch river names remain problematical for many linguists. Mallory and Adams’s overviews of Indo-European do not include them as a meaningful category (1997; 2006). Vennemann (1994) argues that they are ‘Vasconic’, i.e. a prehistoric non-Indo-European language family ancestral to Basque.

Kitson’s paper focuses on the alteuropäisch type in Britain, where, like other parts of Europe west of the Rhine, they are found together with unproblematically Celtic names. He suggests that there was a process of Celticization in which obsolete and opaque names were reinterpreted. One example is the recurrent British river-name Derwent, Welsh Derwenydd. It is explained that its original form was Proto-Indo-European participial *DrewentiH2- ‘Running [river]’, attested widely on the Continent as Druentia, Dravant, &c., as well as the Indic river name Dravanti: Proto-Indo-European vđreu- ‘to run’. Becoming opaque, the name was then reinterpreted as a meaningful Celtic *Derw-went- ‘[river] with oaks’. This is a plausible explanation, and there is nothing in it requiring that the original river name was coined in a language other than the Post-Tocharian Indo-European dialect that eventually evolved into Brythonic Celtic.

However, that explanation does not necessarily imply that all the alteuropäisch river-names were Indo-European. Viewing Krahe’s corpus as a whole, the frequency of ă is striking and specifically names beginning with ā-, such as the recurring bases Ala Alana Alanta ..., Ara Arona Aranta ..., and Ava Avara Avanta ... (Krahe 1964, 65). It is hard to exclude the possibility that many go back to an earlier substratum language, rather than all of them having been coined anew—and thus obliterating all earlier river names in North-central Europe—upon the arrival of the Indo-European that then evolved into Germanic and Balto-Slavic, and possibly also Celtic. It is significant that Kitson favours both identifying the alteuropäisch river-names as Indo-European and locating the Indo-European homeland in Northern Europe bounded by the Rhine, Don, Baltic, and Carpathians. Similarly Udolph (2017, 174): ‘A home [of Proto-Indo-European] outside of the Old European hydronymy, be it in Southern Russia, in Asia Minor or in the Caucasus Mountains, can be ruled out’. One theory requires the other. How otherwise do we explain why it is in this region that ‘all ancient river-names are etymologically alteuropäisch’, why there is no substratum to reflect the different Neolithic language(s) of the region, and why the ancient river names of the Pontic–Caspian Steppe do not all conform to alteuropäisch patterns?

§25. North-west Indo-European (NW), Italo-Celtic/Germanic (ICG), Celto-Germanic (CG), and chronology

As shown in Figure 10, the NW, ICG, and CG vocabularies can be represented as three nested sets superimposed on the first-order subdivisions of Indo-European. Thus, from the historical-linguistic perspective, they occupy a known position, on top of and thus later than the oldest structural layer of the branches. CG+ and its subsets must be later than the separation of Pre-Germanic from the Proto-Balto-Slavic/Indo-Iranian continuum identified by Ringe et al. 2002. Within the most limited and hence by implication latest subset, i.e. CG, we separate the earlier stratum that is of interest presently by identifying those words that have been in the Germanic stream since before the operation of Grimm 1 and Grimm 2 and exclude those that plainly entered afterwards. So, the whole of the NW-ICG-CG overlay in the model in Figure 10 sits between those two linguistic events: Pre-Germanic separating from a continuum including Proto-Balto-Slavic/Indo-Iranian and the gamut of sound changes that define Proto-Germanic (§§15–18). In general, as we move forward through linguistic stages, as reflected in NW then ICG then CG, we expect mutual intelligibility to decline between branches, as result of regular internal linguistic processes. However, these processes could be offset when dialects were brought together in intensifying socio-cultural interaction.

§26. Dating by linguistic criteria: some general and specific considerations

Dating by linguistic criteria is possible because all natural languages constantly change. This is so even in relatively static situations, in which a society’s environment, subsistence economy, and social organization undergo no drastic change over many successive generations. So, for example, the languages of groups of hunter-gatherers, exploiting the same species with the same technology for centuries, will nonetheless change. Loss and replacement of
vocabulary will affect these languages, as well as regular sound change (Dixon 1997). We might think of these evolutionary processes as inherent within language itself and of course have a bearing on our efforts in the RAW Project to identify chronological strata in CG and CG+ words.

The situation in Western Eurasia between the Late Neolithic and first attestations of its many languages was wholly different from the prolonged comparative stasis of post-glacial hunter-gatherers (Robb 1993; Dixon 1997; Koch 2013a). The mass migrations from the Pontic–Caspian Steppe in the 3rd millennium BC, very probably bringing Indo-European languages with them to many regions, also set off centuries of rapid progress in technology and social complexity. In such situations, as well as internal processes affecting change in languages over time, there were external factors: new words were needed to describe new environments encountered by migrants, new artefacts and technologies, and new or transformed social institutions and beliefs. These changes—affecting language, but arising external to language—are susceptible to dating and linking to archaeological cultures using linguistic palaeontology (§5).

Thus, for example, there is a CG word for ‘SAIL’ (*sighlo-) and ICG word for ‘MAST’ (*mazdlo- ~ *mazdo- ~ *mazdyo-) and a Proto-Indo-European word for ‘hill’ (*bhr̥gh-) that became a CG word for ‘HILLFORT’ (§3): we may seek an archaeological horizon for which these linguistic innovations appear appropriate.

But such concrete innovations will not have been the only ones stimulating linguistic change in Western Eurasia in later prehistory. A factor of linguistic artistry and creativity would also have stimulated new modes of expression. It would be wrong to see this tendency as inherently and exclusively Indo-European. But it is certainly observable across the early Indo-European languages, for example, the Sanskrit Rg-Veda within the Late Bronze Age, the Homeric epics of Early Iron Age Greece, and the Irish, Welsh, Old Norse, and Old English traditional heroic literatures of the Early Middle Ages. All of these have been seen as perpetuating an institution of verbal artistry inherited from the speakers of Proto-Indo-European (Watkins 1987; 1995; 1997).

We arrive at a similar conclusion by another line of reasoning, as we develop the ‘Maritime Mode of Production’ model to understand the contacts between Scandinavia and the Atlantic façade in the Bronze Age, in terms of patterns historically documented in the Viking Age (Ling et al. 2018). Even some centuries earlier than Viking times a kenning typical of skaldic verse is illustrated by the Tjurkö bracteate rune: wurte runoz an walhakurne..heldaz kunimundiu ‘Heldaz wrought runes on “the corn of the Volcae” for Kunimunduz’, where ‘corn of the Volcae’ (sometimes translated ‘Welsh corn’) is to be understood as the gold fabric of the bracteate itself (§40c; Wicker & Williams 2012). The following passage relating to Old Norse poetry carries implications for artistically motivated linguistic change in Bronze Age heroic societies:

The Viking Age was time when information was transmitted orally. Traditional stories were usually told in verse, with the rhythms of metre and patterns of poetic phrasing providing aids to memory and transmission. Norse heroic and mythic poetry was also a word game whose intricacies paralleled the style of Viking carvings made on wood, stone, and metal objects.... In Old Scandinavia, participation of both skald and audience in the game of creating and unravelling poetic diction (skáldskaparmál) was a sign of intellect and learning. (Byock 2005, 123)

This characterization can be applied to Late Bronze Age society, not only because there were further significant parallels to the seafaring-warrior society of the Viking Age, but also because comparative linguistic and literary evidence implies that so much of this description can be reconstructed for early Indo-European-speaking societies in general, as we find them first revealed at their transitions from orality to literacy.

When we consider what it means that there are eight CG words for ‘FIGHTING’ or ‘BATTLE’ and another eight meaning, more-or-less, ‘TO WOUND’, our first thought might be that these words came into use in societies constantly engaged in combat. This conclusion is no doubt partly true, but simplistic. The great expansion of vocabulary
for warfare and violence probably does reflect a real increase in warlike activities. But it is also a reflection of the elevated status of warriors and the preferred subject matter for artistic creation. Events of a sort that were described over and over again in mythic and heroic narratives required suitably variable words, fulfilling different metrical slots, to express the same concepts repeatedly in displays of creative excellence. Therefore, it does not necessarily follow that CG *bhodhwo- and *katu- referred to different kinds of battle. A variety of words were needed to talk about battle, much as variations on basic themes were cultivated in carving warriors and their accoutrements on stone, rather than producing identical representations, as if stamped out on an assembly line. Another case in point is CG *markos ‘horse’, which meant basically the same thing as Proto-Indo-European *H1 ekwos, a word the reflexes of which remained in use in both the early Celtic and Germanic languages. Poets and storytellers working in an oral tradition that has much to say about horses would find a word like ‘steed’ useful, even if it meant the same thing, or nearly, as ‘horse’.

§§27–34. Patterns in the CG, ICG, CGBS, and ANW vocabulary

§27. In this section, the word entries from the Corpus (§§38–50) are rearranged, according to distribution across the Indo-European branches: a) Celto-Germanic (CG), b) Italo-Celtic/Germanic (ICG), c) Celto-Germanic/Balto-Slavic (CGBS), and d) all branches of North-west Indo-European (ANW). In each of these categories the words are listed twice, first according to the English gloss, and secondly according to the reconstructed form.

DIGIT, BRANCH, FINGER *gw-istis
DISCUSSION (?) *trapo-
DRESS PIN, BROOCH *dhelgo- ~ *dholgo-
DROPLET *dhrub- ~ *dhrūb-
DWARF-LIKE CREATURE, WATER CREATURE *aban-
EARTH, CLAY, MUD *ūr- ~ *our-
ENCLOSED FIELD *kaghyo-
ENCLOSURE 1 *katr-
ENCLOSURE, ENCLOSED SETTLEMENT, HILLFORT 2 *dūnos
EVIL *elko- ~ *elkā ~ *elkyo- ~ olko-
EXTREMITIES OF A LIVING THING *pinn-
FAMOUS, GREAT *mēr- ~ *mōros ~ *mōrā
FEAR *āg- ~ *ag-
FELLOW TRAVELLER, COMRADE *sentiyo-
FEVER *krīt- ~ *krit-
FLOOR *plōro-
FOE *poiko-
FOREIGNER *alyo-morgi- ~ *alyo-mrogi-
FORK *ghabhlo- ~ *ghabhā-
FORTIFIED SETTLEMENT, HILLFORT 1 *bhṛgh-
FORTIFIED SETTLEMENT, HILLFORT 2 *dhūnos
FREE *priyo- ~ *priyā-
FRESH WATER 1 *lindom ~ *lindhom ~ *lindhu-
FRIEND, RELATIVE 1 *wēni-
GOAD 1 *bhrozdo- ~ *bhṛzdho-
GOD-INSPIRED *wātis
GOOD, DESIRABLE *swent- ~ *sunt-
GREASE, FAT, MARROW, ANOINT *smeru-
GREAT/FAMOUS IN BATTLE *Katu-mōros ~ -mēros
GREAT/FAMOUS IN VICTORY *Seghi-mēros ~ *Segho-mōros
GREAT WATERWAY, RHINE *reinos
GREY *keiro- ~ *koiro-
HAIR, STRAND OF HAIR *doklo-
HARBOUR, SHELTER FOR VESSELS *kapono-
HEALER, PHYSICIAN, LEECH *lēgi-
HEALING PLANT *lubi-
HEAP, MOUND, PILE, RICK *krouko-
HEIR *orbho-
HIDE, CONCEAL 1 *mūg-
HIGH ONES, GROUP NAME RELATED TO ‘HILLFORT’ *bhṛghṇtes
HOLLY *kuleno- ~ *kolino-
HORSE 1 *marko-
HORSE 2 *kankistos ~ *kanksikā
HORSE+RIDE *ek“o-reidho-
HOSTAGE *gheislo-
INHERITANCE *orbhyom
INNUMERABLE, COUNTLESS *n-rīm-
INTENTION, DESIRE *mein- ~ *moin-
IRON *isarno- ~ *isarno-
JOKER, FOOL *drūto-
KING OF THE PEOPLE *teuto-rīg-
KING, LEADER *rīg- < *rēg-
KINGDOM, REIGN, REALM *rīgyom ~ *rīgyā < *rēgyā
LARK *laiwað ~ *alauð
LEAD (metal) *plobdho-
LEATHER *letrom
LEATHER BAG, BELLOWS 1 *bholgh-
LEFT, LEFT-HAND *kley- ~ *kli-
LEPROSY *truts-
LINEAR LANDSCAPE FEATURE *roino-
LOAD, CARRY A LOAD *kleut- ~ *klat-
LONG *sīt- ~ *sit-
LOUSE *leuHo- ~ *luH-s
MANE *mongo- ~ *mongā-
MILITARY COMMANDER *koryonos
MOUND, EARTHWORK *wert-
NATURALLY OVERGROWN LAND *kaito-
NURTURER, PERSON ACTING AS A PARENT (?) *altro-
OATH, TO BIND BY OATH 1 *oitos
OATH, TO BIND BY OATH 2 *leugho-
OATS, BROMUS *korkró-
OMEN, FORESIGHT *kail-
ONE-EYED, BLIND IN ONE EYE *káikos
OVERCOME IN BATTLE *uper-weik- ~ *uper-wik-
PATH, ROAD, WAY, PASSAGE *sento-
PERSON ACTING ON BEHALF OF ANOTHER *ambhaktos ~
*ambhaktā
PINE *gisnó-
PLEASANT, FAIR *teki-
POETRY, STORYTELLING *sketlo- ~ *skōtlo-
POINT *bend- ~ *bn-
POLISH, SHARPEN, WHET *sleimo- ~ *slimo-
PROSPER, FORTUNE *tenk- ~ *tonk-
RED METAL *émo- ~ *omyom < *omó-
RELATIVE, FRIEND 2 *priyānt-
RIDE (A HORSE OR HORSE-DRAWN VEHICLE) *reidh-
ROD, STAFF, LONG SLENDER PIECE OF WOOD *(s)lat(t)-
ROOF *togo-
ROW (verb) (?) *rō-
SACRED GROVE, SANCTUARY *nemet-
SAIL (noun) *sighlo-
SAND AND/OR GRAVEL BY OR BENEATH A BODY OF WATER *ghreuH-no- ~ *ghreuH-eH2-
SECRET, SECRET KNOWLEDGE *rūn-
SEDGE *sek-s-
SETTLEMENT, FARMHOUSE treb- ~ *ţrb-
SHAKE *skut-
SHIELD (?) 1 OF WICKER *kleibho-
SHIELD (?) 2 OF WICKER *kleibho-
SHIELD (?) 3 OF WICKER *kleibho-
SHINING, CLEAR *ghleiwo-
sICKNESS *sukto- ~ *sukti-
SIEVE, STRAINER 1 *sētlā-
SKIN 1 *kenno-
SKIN, HIDE 2 *sekyā-
SLING, SNARE *telm-
SON, YOUTH *maghus
SPEAK 1 *rödi-
SPEAK 2 *yektī-
SPEAR 1 *ghaiso-
SPEAR 2 *lust-
SPEAR-KING *Ghaiso-rīg-
SPLIT *splīd- ~ *splid-
STONE MONUMENT *kar-
STREAM, LIQUID IN MOTION *sret- ~ *srt-
STRENGTH, FORCE, VALOUR *nert-
STRIKE (IN BATTLE) 1 *kelto- ~ *keltyo-
STRIKE (IN BATTLE) 2 *slak-
STRIPE *streibā
STRIVE, SUCCEED *pleid-
STRONG/VICTORIOUS FORTIFIED SETTLEMENT *segho-dūno-
sUPERNATURAL BEING, PHANTOM, GHOST 1 *dhroughós
SUPERNATURAL BEING, PHANTOM, GHOST 2 *skōk-slo-
sUPERNATURAL BEING, PHANTOM, GHOST 3 *ghaisto-
SWIFT *krob(h)- ~ *krb(h)-
SWIM < MOVE (?) *swem-
THICK, FAT *tegu-
THREAD, FATHOM *pot(a)mo-
THUNDER, THUNDER GOD 1 *ton(a)ros
TROOP 1 *dhru(n)gh-
TROOP 2 *worīn-
TROUGH, TUB, VESSEL *druk-
TRUSTWORTHY, RELIABLE *drousdo- ~ *drusd-
VESSEL, CONTAINER FOR LIQUID *gan(dh)-no-
WEREWOLF *wiro-kwō ~ *wiro-w|k“o-
WHEELED VEHICLE *weghnos
WILD DOG, WOLF *widhu-kō(n)
WILD, WILDMAN *g“helti-
WITNESS *weidwōts
WOLF, WARRIOR OUTSIDE THE TRIBE *wolko- ~ *wolkā-
WOOD, TREES *widhus
WORTH, PRICE *werto-
WOUND, INJURE 1 *bhreus-
WOUND, INJURE 2 *knit-
WOUND, INJURE 3 *aghlo-
WOUND, INJURE 4 *g“hen- ~ *g“hon-
WOUND, INJURE 5 *koldo-
WOUND, INJURE 6 *kre(n)g- ~ *krog-
WOUND, INJURE 7 *sai-

ii. by reconstructed form
*aban- DWARFLIKE CREATURE, WATER CREATURE
*āg- ~ *ag- FEAR
*aghlo- WOUND, INJURE 3
*aks(i)- AXLE
*alto- NUPTURER, PERSON ACTING AS A PARENT (?)
*alyo-morgi- ~ *alyo-mrogi- FOREIGNER
*ambhaktos ~ *ambhaktā PERSON ACTING ON BEHALF OF
ANOTHER (< ‘one sent around’)
*basyo- BOAR
*bend- ~ *bnd- POINT
*bhēgh- ~ *bhōgh- BATTLE, FIGHTING, VIOLENCE 7
*bhei(a)tlo- ~ *bhei(a)l- AXE
*bhodhwo- BATTLE, FIGHTING, VIOLENCE 1
*bholgh- LEATHER BAG, BELLOWS 1
*bhound- BOOTY, PROFIT

*bhrest- BATTLE, FIGHTING, VIOLENCE 8
*bhreus- WOUND, INJURE 1
*bhrgh- FORTIFIED SETTLEMENT, HILLFORT 1
*Bhrghñtes HIGH ONES, GROUP NAME RELATED TO ‘HILLFORT’
*bhrozdo- ~ *bhrzdo- GOAD 1
*bhrusn- BREAST
*bhruto- ~ *bhrutu- BOILED > PASSIONATE
*dhelgo- ~ *dholgo- DRESS PIN, BROOCH
*dhemH- DARK 1
*dhergo- DARK, BLOOD-RED 2
*dheubhño- ~ *dhubhnó- ~ *dhubhni- DEEP
*dhroughós SUPERNATURAL BEING, PHANTOM, GHOST 1
*dhrub- ~ *dhrūb- DROPLET
*dhrutng- TROOP 1
*dhūnos FORTIFIED SETTLEMENT, HILLFORT 2
*doklo- HAIR, STRAND OF HAIR
*drousdo- ~ *drusd- TRUSTWORTHY, RELIABLE
*druk- TROUGH, TUB, VESSEL
*drūto- JOKER, FOOL
*dūnos ENCLOSURE, ENCLOSED SETTLEMENT, HILLFORT 2
*ekw“oreidho- HORSE+RIDE
*elko- ~ *elkā- ~ *elkyo- ~ *olko- EVIL
*émo- ~ *omyom < *omó- RED METAL
*gan(dh)-no- VESSEL, CONTAINER FOR LIQUID
*ghabhlo- ~ *ghabhlā- FORK
*ghaiso- SPEAR 1
*Ghaiso-rīg- SPEAR-KING
*ghaisto- SUPERNATURAL BEING, PHANTOM, GHOST 3
*gheislo- HOSTAGE
*ghleiwō- SHINING, CLEAR
*ghreuH-no- ~ *ghreuH-eH- SAND AND/OR GRAVEL BY OR
BENEATH A BODY OF WATER
*gisnó- PINE
*gren- ~ *gran- BEARD  
*gulo- ~ *goulo- ~ *glōwo- CHARCOAL, COAL  
*gwelti- WILD, WILDMAN  
*g"hen- ~ *g"hon- WOUND, INJURE  
*g"istis DIGIT, FINGER, TOE, BRANCH  
*isarno- ~ *īsarno- IRON  
*kaghyo- ENCLOSED FIELD  
*kāikos ONE-EYED, BLIND IN ONE EYE  
*kail- OMEN, FORESIGHT  
*kaito- NATURALLY OVERGROWN LAND  
*kankistos ~ *kanksikā HORSE  
*kapono- HARBOUR, SHELTER FOR VESSELS  
*kar- STONE LANDMARK, STONE RITUAL STRUCTURE  
*katr- ENCLOSURE  
*katw- ~ -mēros GREAT/FAMOUS IN BATTLE  
*katw-s- ~ *katu-wl- ~ *katu-wolkwo- BATTLE-WOLF > HERO  
*keiro- ~ *koiro- GREY  
*kelto- ~ *keltyo- STRIKE (IN BATTLE)  
*kenno- SKIN  
*kleibho- SHIELD (?)OF WICKER  
*kleut- ~ *klat- LOAD, CARRY A LOAD  
*kley- ~ *kli- LEFT, LEFT-HAND  
*knit- WOUND, INJURE  
*koldo- WOUND, INJURE  
*korkró- OATS, BROMUS  
*koryonos MILITARY COMMANDER  
*kre(n)g- ~ *krog- WOUND, INJURE  
*krīt- ~ *krit- FEVER  
*kro(h)- ~ *krb(h)- SWIFT  
*krouko- HEAP, MOUND, PILE, RICK  
*kuleno- ~ *kolino- HOLLY  

*laiwað ~ *alauð LARK  
*legi- HEALER, PHYSICIAN, LEECH  
*letrom LEATHER  
*leugho- OATH, TO BIND BY OATH  
*leuHo- ~ *luH-s LOUSE  
*lindom ~ *lindhom ~ *lindhu- FRESH WATER  
*lok- BLAME  
*lubi- HEALING PLANT  
*lurg- CLUB, CUDGEL, STAFF, STICK  
*lust- SPEAR  
*maghus SON, YOUTH  
*marko- HORSE  
*mein- ~ *moin- INTENTION, DESIRE  
*mēr- ~ *mōros ~ *mōrā FAMOUS, GREAT  
*mongo- ~ *mongā- MANE (OF A HORSE)  
*mūg- HIDE, CONCEAL  
*nant- BATTLE, FIGHTING, VIOLENCE  
*nemret- SACRED GROVE, SANCTUARY  
*nert- STRENGTH, FORCE, VALOUR  
*nīt- BATTLE, FIGHTING, VIOLENCE  
*oitos OATH, TO BIND BY OATH  
*Olo-patēr ALL-FATHER, GREAT FATHER (DIVINE EPITHET)  
*orbho- HEIR  
*orbhyom INHERITANCE  
*pinn- EXTREMITIES OF A LIVING THING  
*pleid- STRIVE, SUCCEED  
*plobdho- LEAD  
*plōro- FLOOR  
*pluk- TROOP  
*pluk- BOATLOAD (OF PEOPLE, DOMESTIC ANIMALS, OR INANIMATE MATERIAL OF VALUE)  
*poiko- FOE  
*pot(a)mo- THREAD, FATHOM
*priyānt- RELATIVE, FRIEND 2
*priyo- ~ *priyā- FREE
*reidh- RIDE (A HORSE OR HORSE-DRAWN VEHICLE)
*reinos GREAT WATERWAY, RHINE
*rektus CORRECT, RIGHT, JUST
*rīgyom ~ *rīgyā < *rēgyā KINGDOM, REIGN, REALM
*rīg- < *rēg- KING, LEADER
*rīma- COUNTING, NUMBER
*rō- ROW (verb)
*rōdi- SPEAK 1
*roino- LINEAR LANDSCAPE FEATURE
*rūn- SECRET, SECRET KNOWLEDGE
*sai- WOUND, INJURE 7
*Seghi-mēros ~ *Segho-mōros GREAT/FAMOUS IN VICTORY
*segho-dūno- STRONG/VICTORIOUS FORTIFIED SETTLEMENT
*sek-s- SEDGE
*sekyā- SKIN, HIDE 2
*sem- RUSH (the plant)
*senṭiyō- FELLOW TRAVELLER, COMRADE
*sento- PATH, ROAD, WAY, PASSAGE
*sētlā- SIEVE, STRAINER 1
*sighlo- SAIL (noun)
*sīt-, *sit- LONG
*sketlo- ~ *skōtlo- POETRY, STORYTELLING
*skey- ~ *ski- CUTTING WEAPON AND/OR TOOL (?)
*skōk-slo- SUPERNATURAL BEING, PHANTOM, GHOST 2
*skut- SHAKE
*slak- STRIKE (IN BATTLE) 2
*(s)lat(t)- ROD, STAFF, LONG SLENDER PIECE OF WOOD
*sleimo- ~ *slimo- POLISH, SHARPEN, WHET
*smeru- GREASE, FAT, MARROW, ANOINT
*smeryon- ~ *semar- CLOVER
*splīd- ~ *splid- SPLIT

*sret- ~ *sṛt- STREAM, LIQUID IN MOTION
*streibā STRIPE
*sukto- ~ *sukti- SICKNESS
*swem- SWIM < MOVE (?)
*swent- ~ *sunt- ~ *swnt- GOOD, DESIRABLE
*tēgu- THICK, FAT
*teki- PLEASANT, FAIR
*telm- SLING, SNARE
*tenk- ~ *tonk- PROSPER, FORTUNE
*teuk- ~ *tuk- BUTTOCKS, THIGH, HIP
*togo- ROOF
*ton(a)ros THUNDER, THUNDER GOD 1
*teuto-rīg- KING OF THE PEOPLE
*trapto- DISCUSSION (?)
*treb- ~ *ṭrb- SETTLEMENT, FARMHOUSE
*treg- BATTLE, FIGHTING, VIOLENCE 4
*truts- LEPROSY
*uper-weik- ~ *uper-wik- OVERCOME IN BATTLE
*ūr- ~ *our- EARTH, CLAY, MUD
*wātis GOD-INSPIRED
*weghnos WHEELED VEHICLE
*weidwōts WITNESS
*weik- BATTLE, FIGHTING, VIOLENCE 3
*weni- FRIEND, RELATIVE 1
*werto- MOUND, EARTHWORK
*werto- WORTH, PRICE
*widhu-kō(n) WILD DOG, WOLF
*widhus WOOD, TREES
*wiwró-kwō ~ *wiwró-wl- WEREWOLF
*wolko- ~ *wolkā- PREDATOR, WOLF, WARRIOR OUTSIDE THE TRIBE
*worīn- TROOP 2
*yekti- SPEAK 2
b. Italo-Celtic/Germanic (ICG)

i. by meaning

ADDER, SNAKE, VIPER *natr- ~ *nētr-
BADGER *takso-
BENEFIT, PRIZE (?) *lau-
BLACKBIRD *mesl- ~ *amsl-
BLOOM, FLOURISH, FLOWER *bhlō-
BLOW, BREATHE *spei-
BOW AND ARROW *arkw-o-
BROWN, DARK *dheus-
CHOOSE, TRY *gustu-
COLOUR NAME (NOT BLACK, WHITE, OR RED) *bhēH₁lus, genitive *bhH₁luós
CURLY HAIR *krisp-
DEVICE THAT LEANS AGAINST SOMETHING UPRIGHT, LEANTO *kleitro- ~ *kleitrā- ~ *klitro-
EMPTY *wāstos
FISH *peisk- ~ *pisko-
FOAM, FROTH *bhermVn-
FREEZE, FROST *preus-
FRESH WATER 2 *akvā-
FURROW *porkā ~ *prko- ~ *prkā-
GOAD, POKER 2 *ghazdho- ~ *ghazdhā-
GUEST *ghostis
HARROW *oketā-
HATRED *kad-
HEAD *kāput
HELMET OF TIN-BRONZE (?) *katstī- ~ *kāt-
HIDE, CONCEAL 2 *kele/o-
JUNIPER *yoini-
KNOT, KNOTWORK, DEVICE OF KNOTWORK TO CATCH FISH *nōd- ~ *nad-
LEAD (metal) *plobdho-
LIGHTNING *louk-
MADE CAPTIVE, BOUND, SLAVE *kaptōs ~ *kaptā-
MAST *mazo- ~ *mzdlo-
NECK *kōllos
NUT *know- ~ *knu-
OAK, TREE *perkvo-
ORE, METAL OXIDE *raud- ~ *arud ~ *rutu-
REAPING, MOWING, HARVEST *met- ~ *mēto-
SACRIFICE, OFFERING *dapno- ~ *dvpnā-
SEAT, CHAIR *sedlo- ~ *setlo-
SELF, PROPERTY *selbho- ~ *selwo-
SHARP EDGE *akyā- ~ *aku- ~ *āk(s)-
SIEVE, STRAINER 2 *kreidho- ~ *kreitro-
SMELL STRONGLY *bhrag- ~ *bhrēg-
SOFTWARE *lento- ~ *lnto-
SPEAK 3 *yek- ~ *yok-
STRIKE (IN BATTLE), BEAT 3 *bheud-
THINK (?) *tong-

ii. by reconstructed form

*akvā- FRESH WATER 2
*akyā- ~ *aku- ~ *āk(s)- SHARP EDGE
*arkw-o- BOW AND ARROW
*bhēH₁lus, genitive *bhH₁luós COLOUR NAME (not black, white, or red)
*bhermVn- FOAM, FROTH
*bheud- STRIKE (IN BATTLE), BEAT 3
*bhrag- ~ *bhrēg- SMELL STRONGLY
*bhlō- BLOOM, FLOURISH, FLOWER
*dapno- ~ *dapnā- SACRIFICE, OFFERING
*dheus- BROWN, DARK
*ghazdho- ~ *ghazdhā- GOAD, POKER 2
*ghostis GUEST
*gustu- CHOOSE, TRY
*kad- HATRED
*kaptós ~ *kaptā- MADE CAPTIVE, BOUND, SLAVE
*káput HEAD
*kat’ti ~ *kāt- HELMET OF TIN-BRONZE (?)
*kele/o- HIDE, CONCEAL 2
*kleito- ~ *kleitrā- ~ *klitro- LEANTO, DEVICE THAT LEANS AGAINST SOMETHING UPRIGHT
*know- ~ *knu- NUT
*kóllos NECK
*kreidhro- ~ kreitro- SIEVE, STRAINER 2
*krisp- CURLY HAIR
*lau- BENEFIT, PRIZE (?)
*lento- ~ *lnto- SOFT
*louk- LIGHTNING
*mazdo- ~ mazdlo- MAST
*mazlo- ~ *amsl- BLACKBIRD
*met- ~ *mēto- REAPING, MOWING, HARVEST
*natr- ~ *nētr- ADDER, SNAKE, VIPER
*nōd- ~ *nad- KNOT, KNOTWORK, DEVICE OF KNOTWORK TO CATCH FISH
*ν-rimon INNUMERABLE, COUNTLESS
*oketā- HARROW
*peisk- ~ *pisko- FISH
*perk“o- OAK, TREE
*plobdho- LEAD (metal)
*porkā ~ *prko- ~ *prkā- FURROW
*preus- FREEZE, FROST
*raud- ~ *arud ~ *ruto- ORE, METAL OXIDE
*sedlo- ~ *setlo- SEAT, CHAIR
*selbho- ~ *selwo- SELF, PROPERTY
*spei- BLOW, BREATHE
*takso- BADGER
*tong- THINK (?)
*wāstos EMPTY
*yek- ~ *yok- SPEAK 3
*yoini- JUNIPER

c. Celtic/Germanic/Balto-Slavic (CGBS)
i. by meaning
ARABLE LAND, PLOUGHED FIELD *polkā
ARMY, DETACHMENT, TRIBE *kóryos
BE STILL, BE QUIET *(s)tel-
BREAST, CHEST, ABDOMEN *bhreus-
BUTTER *ang“en-
DEATH *sterbh-
DEBT, OBLIGATION *dhlg-
DIRTY, YELLOWISH BROWN *sal-
DOUGH *tais-
HAMMER OF THE THUNDER GOD *meldh-
HERD (OF CATTLE), SERIES *kerdhā
HOMESTEAD *koimo-
LEATHER BAG, BELLOWS 2 *mokon- ~ *mokīnā-
LOYAL, TRUSTWORTHY *drewu- ~ *derwo-
LUCK *kobom
MAGIC, SORCERY *soito- ~ *soitā-
MALEVOLENT FEMALE SPIRIT *morā
MANY *menek- ~ *monek-
METALLURGY *(s)mei-
MOVE LIKE A SNAKE, SLINK *slenk-
MOVE QUICKLY, STIR ONESelf, JUMP, SHAKE *skek-e- ~ *skok-eye-
OPEN LAND *lendh- ~ *lndh-
REACH TO, ENTREAT (?) *tekye-
ROOFED OUTBUILDING *krōpos
SHAKE *kret-
SILVER *silVbr-
SLOETREE, BLACKTHORN (?) *dhergh-
SMEAR, GLUE, STICK *gleina- ~ *gлина-
STAFF, POST *stabho- ~ *stabhā-
SUPERNATURAL BEING, PHANTOM, GHOST 3 *dhwes-
THUNDER, THUNDER GOD 2 *perk unos
VOMIT, DEFECATE (?) *ski-
ii. by reconstructed form

*angʷ*en- BUTTER
*bhreus- BREAST, CHEST, ABDOMEN
*dhergh- SLOETREE, BLACKTHORN (?)
*dhlg- DEBT, OBLIGATION
*dhwes- SUPERNATURAL BEING, PHANTOM, GHOST 3
*drewu- ~ *derwo- LOYAL, TRUSTWORTHY
*gleina- ~ *glina- SMEAR, GLUE, STICK
*kerdhā ~ *kordh- HERD (OF CATTLE), SERIES
*kobom LUCK
*koimo- HOMESTEAD
*kóryos ARMY, DETACHMENT, TRIBE
*kret- SHAKE
*krópos ROOFED OUTBUILDING
*lendh- ~ *lndh- OPEN LAND
*meldh- HAMMER OF THE THUNDER GOD
*menek- ~ *monek- MANY
*mokon- ~ *mokīnā- LEATHER BAG, BELLOWS 2
*morā MALEVOLENT FEMALE SPIRIT
*pen- ~ *pṇ- WETLAND
*perkʷunos THUNDER, THUNDER GOD 2
*polkā ARABLE LAND, PLOUGHED FIELD
*sal- DIRTY, YELLOWISH BROWN
*silVbr- SILVER
*skek-e- ~ *skok-eye- MOVE QUICKLY, STIR ONESELF, JUMP
*ski- VOMIT, DEFECATE (?)
*slenk- MOVE LIKE A SNAKE, SLINK
*(s)mei- METALLURGY
*snad- WOUND 8
*soito- ~ *soitā- MAGIC, SORCERY
*stabho- ~ stabhā- STAFF, POST
*sterbh- DEATH
*(s)tel- BE STILL, BE QUIET
*tekye- REACH TO, ENTREAT (?)
*welk- ~ *wolk- WET

d. Italo-Celtic/Germanic/Balto-Slavic (ANW)

i. by meaning

ALDER *al(i)sno-
ALL *olo-
ANGELICA (?) *kʷóndhr/n-
BEE *bhei-
BLEAT (?) *bhled- ~ *bhlēd-
BLUISH, PLUM-COLOURED *(s)liHwo-
CALL, SHOUT, SPEAK OUT *gal-
ELM *elmo- ~ *olmo- ~ *limo- ~ *leimo-
GRAIN *elm-
GUEST *ghostis
HAZEL *kós(V)los
HENBANE *bhélōn, genitive *bhlnós
HUMAN BEING < EARTHLING *dhgh(e)m- ~ *dhghom-
LEFT, LEFT-HAND *kley- ~ *kli-
LOVE, DESIRE 1 *leubh- ~ *lubh-
LOVE, DESIRE 2 *kāros
PALE GREEN, YELLOW *ghelwo-
PEOPLE, TRIBE *teutā
PORTABLE FRAMEWORK *korb-
SEA, LAKE *mori-
SHIELD 2 *skeltu- ~ *skeito- ~ *skoito-
SOW, PLANT SEED, SCATTER *se- ~ *seg- ~ *sē-
STRIKE 4 *bhlag- (?)
SUCK *seug- ~ *seuk-
SWAN (?) *el-
TRUE *wēro- ~ *wērā-
S. Looking at the material as arranged above, some patterns stand out. First of all, there are far more CG items: 173 as opposed to 44 ICG, 34 CGBS, and 25 ANW. It must be allowed that the present lists cannot be final for any category. Further resifting of etymologies and attestations will no doubt find words to be added. Others, when better understood, will probably have to be deleted or shifted between groupings. Even so, the overall pattern is not subtle, so the main contours are unlikely to change fully.

A second point is that most of these items in all the subgroups do not look like loanwords. As well as the high percentages of words that are clearly pre-Grimm 1 (§§15–17) and/or pre-Grimm 2 (§18) and 0% that are clearly post-Grimm 1 and/or post-Grimm 2, a common
characteristic is for the same root with the same or similar meaning to reflect different vowel grades and the addition of suffixes, all of which had ceased to be productive before the oldest surviving evidence. In other words, this material suggests that much of the contact took place at a linguistic stage or stages fundamentally different from, and earlier than, Gaulish, Celtiberian, and Ogamic Primitive Irish (on the Celtic side) and Gothic and the Ancient Nordic runes (on the Germanic).

In many examples, where such linguistic variations as differing Indo-European vowel grades occur, it remains workable to derive the attested forms from Proto-Indo-European through the line of descent to the individual languages, without recourse to contamination between branches. In such cases, the only aspects that suggest post-Proto-Indo-European contact is that the words, or some special developments of the words, are found only in the languages of the North and West and/or that the words mean something more relevant to societies later than the Late Neolithic horizon of Proto-Indo-European.

In some examples, the vowel differs in a way that cannot be explained by derivation from different Indo-European vowel grades. The equivalent usage of Pre-Germanic *mērī- ‘famous’ and Proto-Celtic *māro- ‘great’ in examples like the names Germanic Segimeros and Ancient Celtic SEGOMARVS is understandable when it is remembered that Pre-Germanic *ē had probably come to be pronounced [æː], making its pronunciation of [mæːrɪ] closer to that of the Proto-Celtic. In North-west Germanic, Proto-Germanic *ē changed fully to *ā. However, the spelling Σεγιμερος in Strabo shows that this change was not an essential precondition for the syncretism with the Celtic -māros names.

There are lower percentages of warlike words in the sets common to larger numbers of languages. For example, within the ANW grouping, there is one word for ‘SHIELD’ and another for ‘STRIKE’. But the overall impression—contrasting with CG—from the broader groupings (especially CGBS and ANW) is the prominence of homely and pacific domains: for example, CGBS ‘ARABLE LAND’, ‘BREAST’, ‘BUTTER’, ‘DOUGH’, ‘HOMESTEAD’, ‘ROOFED OUTBUILDING’, and ANW ‘BEE’, ‘FENCE’, ‘PLANT SEED’, ‘SUCK’, ‘WARM’, and two words for ‘LOVE’.

The evidence of this vocabulary supports the case that there was a significant social change preceding the point when Pre-/Proto-Celtic and Pre-Germanic were in especially close contact with each other but contact had become more attenuated withItalic and Balto-Slavic. The warrior and his role were receiving more attention. Although we should not close our minds to other possibilities, it is likely that the era of focus on the warrior in innovative vocabulary coincided with the time when more equipment was being produced for warriors, as well as an expanding martial iconography in artwork. The greater number of CG words is consistent with a model in which contact between what became the attested Germanic languages and what became the attested Celtic languages was either longer or more intense after Germanic had separated from Balto-Slavic and after Celtic from Italic.

§29. Chronological implications of the subsets of words

CG words found also in Baltic and/or Slavic (CGBS), which also show the semantic, morphological, and phonological innovations common to Celtic and Germanic (= 34 total in the collection), would, as a group, be earlier than CG words wholly absent from Balto-Slavic or showing fewer of the CG innovations in Balto-Slavic.

CG words found also in Italic (ICG)—and also showing the semantic, morphological, and phonological innovations common to Celtic and Germanic (= 44 total in the Corpus)—probably contain some words that entered Pre-Germanic before the breakup of Italo-Celtic. This inference can be supported especially when the meanings of the words are considered (see §32), as a lower percentage of ICG words than CG can be related to Late Bronze Age material culture and social organization (30% versus 52%), and rock art iconography (25% versus 43%). On the other hand, it is unlikely that all the ICG words
passed to Pre-Germanic before the breakup of Italo-Celtic. Much of the vocabulary of Celtic was inherited from the Italo-Celtic stage. Therefore, when Pre-Germanic acquired words from Pre- or Proto-Celtic, some of these words would have been inherited, without further innovation in meaning or word formation, from Italo-Celtic, as well as some words that had first developed in Pre-Celtic and Proto-Celtic after separating from Italic.

CG words absent from Italic are potentially a more meaningful category than the previous. For individual cases, a CG word or innovation may be unattested in Latin and the other Ancient Italic languages due to the regular process of lexical loss. However, this category is sizable—173 CG words versus 44 ICG—which points to a stage of contact after Celtic had separated from Italo-Celtic and was coining and adopting new words that never reached the separated Italic. The provisional date inferred above (see Figure 8) for the separation of Italic and Celtic is the post-Beaker Early Bronze Age, ~1800–1500 BC.

§30. The hypothesis and some implications

It is useful at this point to recap the basic hypothesis investigated in the RAW Project: the primary agents responsible for the long-distance exchange between Scandinavia and the Iberian Peninsula ~1400/1300–900 BC were seafaring warriors. This hypothesis implies several simultaneous developments:

1. These seafaring warriors possessed seaworthy vessels and navigational skills.

2. A warrior class had come into being: a group with warlike weaponry (as opposed to tools or hunting gear that could be repurposed for fighting), military training, and a recognized social status. On long-distance expeditions, these seafaring warriors could defend themselves and valuable cargoes. Their status was also displayed overtly in order to command sufficient respect in dealings with foreign chieftains who controlled valuable exotic resources and/or bottlenecks in the exchange system. The CG word for ‘DRESS PIN, BROOCH’ refers to an item of status display that is also represented together with other warrior accoutrements in Bronze Age rock art.

3. The seafaring warriors were able to make themselves understood in diplomacy and commercial exchanges.

4. The socio-economic system of the homeland of the seafaring warriors was sufficiently advanced and organized to exempt them from essential agro-pastoral seasonal labour (Ling et al. 2018). As in the Viking Age and the era of Phoenician expansion into the Western Mediterranean, long-distance expeditions could last more than a year round-trip, requiring a safe haven for wintering away from home and a homeland economy that could function in the absence of these crew members (cf. Almagro-Gorbea 2001; Aubet 2001). Several CG words imply a stratified society with subordinate individuals under the command of others: ‘KING or LEADER’, ‘MILITARY COMMANDER’ versus ‘HOSTAGE’, ‘PERSON ACTING ON BEHALF OF A LEADER’, ‘YOUTH’, as well as ICG ‘BOUND CAPTIVE’. Note that the latter series comprises distinct kinds of subordinate or unfree persons: a *gheislos is a foreigner of valuable status held hostage, an *mbhaktos is ‘sent around’, i.e. trusted to act as directed on the leader’s behalf at a distance, a *maghus has yet to attain age-grade capacity, and the *kaptos is literally unfree and apparently of lowest status. The alternative concept of ‘FREE’ is expressed by CG *priyo-, an innovative meaning contrasting with Sanskrit *priyā- ‘dear’, evidently the original sense in Proto-Indo-European *priH.ós. This same root is the base of CG *priyānt- ‘RELATIVE, FRIEND’, where the shift in meaning from Proto-Indo-European once again points to an outlook with an in-group and an implied out-group, i.e. the unfree, unrelated, enemy. The idea of a group of people joined together in a solemn undertaking is
implicit in the two CG words for ‘OATH’ and another for ‘SECRET KNOWLEDGE’ (cf. Helms 1988; Hayden 2018; Ling 2019). For the warband itself, there are three CG words, one of which (*pluk-) goes back to a root meaning ‘floating on or through water’ and retains as one of its meanings ‘ship’s crew’ in Irish and Scottish Gaelic lucht.

The seafaring warriors had some advantage over alternative means for bringing metal to Scandinavia (Earle et al. 2015; Ling et al. 2017). As the crow flies, there were exploitable sources of copper closer to Southern Scandinavia in Central Europe than in Wales or the Western Iberian Peninsula. Two possible advantages might have come about suddenly at the point that superior seaworthy vessels and navigation skills arose (cf. Ling et al. 2018).

i Larger loads of metal could be brought faster than would be possible when carried overland by people, pack animals, or wheeled vehicles using the discontinuous Bronze Age road system.

ii Obtaining raw materials by sea was possibly more secure and profitable, allowing the traders to bypass any land-based chiefdoms known for harassing caravans and/or extracting tribute at strategic bottlenecks.

§31. Knowing the general trajectory of Bronze Age Europe, it is not unlikely that more than one of these requisite innovations arose—or were in the process of arising—at more-or-less the same time, including, for example: standardized high-tin bronze, the horse and chariot package, and advanced seafaring (Koch 2013a; cf. Kristiansen & Larsson 2005). If one were to choose a single most important triggering advance, the leap forward in seafaring—ship building, and navigation—would be particularly auspicious. Amongst the striking attributes of the Bronze Age vessels carved on stone in both Scandinavia and Galicia are similarities to Aegean ships of the same period (cf. Kaul 1998; 2003; Ruiz-Gálvez 2005). If a Wessex–Mycenae connection had been regularly bringing Baltic amber and Cornish tin to the Aegean in the age of the shaft graves of Mycenae, 1750–1550 BC ≡ Nordic Period 1 (cf. Penhallurick 2008; Berger et al. 2019), it is likely that some individuals were making the complete circuit between the northern seas and the head of Adriatic and thus able to observe and transmit technological innovations from the dominant sea powers of the Eastern Mediterranean (cf. Harding 1990; Maran 2004; 2016; Mederos 2017). In this context, the spread of advanced-seafaring know-how—that catalysed Scandinavia’s contacts with the Atlantic façade—might have been part of the larger story of the loosening of palace monopolies, leading eventually to the rise of the ‘sea peoples’ and contributing to the downfall of Mycenae and the Hittite Empire (cf. Sherratt 2003; 2009).

§32. Words and warriors

To summarize about the foregoing subsets of Post-Proto-Indo-European vocabulary, all of them—ANW, CGBS, ICG, and CG—contain words offering a window onto the warrior-led societies of the Bronze Age. But as we move from the more broadly defined groups of languages to the more particular—from ANW to CGBS/ICG to CG—the words that can be selected as consistent with this interpretation (listed below) become more numerous, as well as representing a higher percentage of the total set, especially in the CG category.

The following items of the shared vocabulary can be related to aspects of Bronze Age material culture, social organization, and ideology. Most of the words fulfilling those criteria can also be related to images in Bronze Age rock art. Many of the words not represented in rock art convey concepts that are not usually shown in the iconography, such as those describing fortified settlements or feasting accessories (e.g. FORK).

It is possible that in some cases such concepts were represented using understood symbolism, but cannot now be readily decoded. For example, some of the figures or scenes might have represented the concept *rektu-* ‘LAW, JUSTICE’ without this being apparent as such to anyone not initiated. Our theory of the relationship of rock art to secret societies implies that meaning fields of ‘OATH, TO BIND BY OATH’; ‘SECRET, SECRET KNOWLEDGE’; ‘SACRED GROVE, SANCTUARY’; and ‘STONE RITUAL STRUCTURE’ are likely to have applied in the creation and re-creation of rock art (cf. Hayden 2018; Ling 2019).

Whereas the items below will be relevant for dating by linguistic palaeontology, that task is not altogether straightforward. So, for example, whereas the objects and concepts of ‘SPEAR’ and ‘SHIELD’ became especially important in warrior-led Bronze Age societies, they existed already in the Neolithic and continued to exist in the Iron Age. In most cases, it will be easier to say that the meaning of a word is consistent with its rise in the Bronze Age; there will be fewer examples for which other periods can be excluded using semantic criteria alone. In this respect, this exercise will be suggestive rather than definitive. An element of aesthetic subjectivity cannot be avoided altogether incoming to grips with the ethos of the European Bronze Age and the narrative framework implied by the recurrent themes of the era’s rock art.

a. Celto-Germanic (CG): total words = 173

Paragraphs 1-2 of those, meanings that can be related to Bronze Age rock art iconography = 74 (43%)

*āg-* ~ *ag-* FEAR
*aaghlo-* WOUND, INJURE 3
*aks(i)l-* AXLE
*aalo-morgi- ~ *mrogi-* FOREIGNER
*bend-* ~ *bnd-* POINT
*bhēgh- *bhōgh-* BATTLE, FIGHTING, VIOLENCE 7
*bhei(a)tlo- ~ *bhei(a)l-* AXE

*bhodhwo-* BATTLE, FIGHTING, VIOLENCE 1
*bhoudi-* BOOTY, PROFIT
*bhrest-* BATTLE, FIGHTING, VIOLENCE 8
*bhreus-* WOUND, INJURE 1
*bhrozo- ~ *bhrzdo-* GOAD 1
*dhelgo- ~ *dholgo-* DRESS PIN, BROOCH
*dhru(n)gh-* TROOP 1
*ek*ono-reidho-* HORSE+RIDE
*ghaiso-* SPEAR 1
*ghelso-* HOSTAGE
*gh*hen-* ~ *g*hon-* WOUND, INJURE 4
*kāikos ONE-EYED, BLIND IN ONE EYE
*kankistos- ~ *kanksikā HORSE 2
*kar-* STONE RITUAL SITE
*kat-* ENCLOSURE
*katu- BATTLE, FIGHTING, VIOLENCE 2
*katu-wlk*wo-* ~ *katu-wolk*wo-* BATTLE-WOLF > HERO
*kelto- ~ *keltyo-* STRIKE (IN BATTLE) 1
*kleibho-* SHIELD (?)OF WICKER 1
*kleut- ~ *kl* Load, CARRY A LOAD
*knit-* WOUND, INJURE 2
*kol- ~ *k∫-* CORPSE, DEAD BODY
*koldo-* WOUND, INJURE 5
*koryonos MILITARY COMMANDER (as divine epithet)
*kre(n)g- ~ *krog-* WOUND, INJURE 6
*krob(h)- ~ *krb(h)- SWIFT (specific to rock art only)
*leugho- OATH, TO BIND BY OATH 2
*lurg-* CLUB, CUDGEL, STAFF, STICK
*lust-* SPEAR 2
*marko-* HORSE 1
*mēhkhtos- ~ *mēhkhtā PERSON ACTING ON BEHALF OF A LEADER
(< ‘one sent around’)
*mēr-* ~ *mōros ~ *mōrā- FAMOUS, GREAT
*maghus* SON, YOUTH

*mongo- ~ *mongā- MANE (OF A HORSE)

*nant- BATTLE, FIGHTING, VIOLENCE 6

*nert- STRENGTH, FORCE, VALOUR

*nīt- BATTLE, FIGHTING, VIOLENCE 5

*oitōs OATH, TO BIND BY OATH 1

*Olo-patēr ALL-FATHER, GREAT-FATHER (DIVINE EPITHET)

*orbho- HEIR

*orbhyom INHERITANCE

*pluk- TROOP 3 / BOATLOAD (OF PEOPLE, DOMESTIC ANIMALS, OR INANIMATE MATERIAL OF VALUE)

*poiko- FOE

*priyo- ~ *priyā- FREE

*reidh- RIDE (A HORSE OR HORSE-DRAWN VEHICLE)

*reinos GREAT WATERWAY, RHINE

*rīg- < *rēg- KING, LEADER

*rūn- SECRET, SECRET KNOWLEDGE

*sai- WOUND, INJURE 7

*Seghi-mēros ~ *Segho-mōros FAMOUS/GREAT IN VICTORY

*sighlo- SAIL (noun)

*sentiyo- FELLOW TRAVELLER, COMRADE

*skey- ~ *ski- CUTTING WEAPON AND/OR TOOL (?)

*slak- STRIKE (IN BATTLE) 2

*sleimo- ~ *slimo- POLISH, SHARPEN, WHET

*telm- SLING

*ton(a)ros THUNDER, THUNDER GOD 1

*teuto-rīg- KING OF THE PEOPLE

*treg- BATTLE, FIGHTING, VIOLENCE 4

*wātis GOD-INSPIRED

*wegovhos WHEELED VEHICLE

*weik- BATTLE, FIGHTING, VIOLENCE 3

*weni- FRIEND, RELATIVE

*widhu-kō(n) WILD DOG, WOLF

*wiros-kwō ~ *wiros-wlō- WEREWOLF

*wolko- ~ *wolkā- PREDATOR, WOLF, WARRIOR OUTSIDE THE TRIBE

*worīn- TROOP 2

¶ An additional 16 meanings can be related to Bronze Age life, though not directly related to rock art iconography, for an inclusive total of 90 items (52% of 173 CG words):

*bholgh- LEATHER BAG, BELLOWS 1

*bhrgh- FORTIFIED SETTLEMENT, HILLFORT 1

*Bhrghntes HIGH ONES, GROUP NAME RELATED TO ‘HILLFORT’

*dhūnos FORTIFIED SETTLEMENT, HILLFORT 2

*ēmo- ~ *omyom < *omō- RED METAL

*ghabhlo- ~ *ghabhlā- FORK

*kaghyo- ENCLOSED FIELD

*kail- OMEN, FORESIGHT

*kapono- HARBOUR, SHELTER FOR VESSELS

*nemēt- SACRED GROVE, SANCTUARY

*rektus LAW, JUSTICE

*rīgā- < *rēgyā KINGDOM, REIGN, REALM

*segho-dūno- STRONG/VICTORIOUS FORTIFIED SETTLEMENT

*sētlā- SIEVE, STRAINER 1

*wert- MOUND, EARTHWORK

*werto- WORTH, PRICE

b. Italo-Celtic/Germanic (ICG): total words = 44

¶ Of those, 11 meanings can be related to Bronze Age rock art = 25% of 44 ICG words

*akyā- ~ *aku- ~ *āk(s)- SHARP EDGE

*arkwō- BOW AND ARROW

*bheud- STRIKE (IN BATTLE), BEAT 3

*dapno- ~ dapnā- SACRIFICE, OFFERING

*ghazdhos- ~ *ghazdhā- GOAD, POKER 2
*ghostis GUEST
*kad- HATRED
*kaptós ~ *kaptā- MADE CAPTIVE, BOUND, SLAVE
*katsti- ~ *kāt- HELMET OF TIN-BRONZE (?)
*mazdo- ~ *mazdyo- ~ *mazdlo- MAST
*raud- ~ *arud ~ *rutu- ORE, METAL OXIDE
    ¶ An additional 2 rock art iconography, for an inclusive total of 13 items (30% of 44 ICG words) related to aspects of Bronze Age life
*kreidhro- ~ *kreitro- SIEVE, STRAINER 2
*plobdho- LEAD (metal)

c. Celto-Germanic/Balto-Slavic: total words = 34
    ¶ Of those, meanings related to Bronze Age life = 7 (20%)
    ¶ All of which can also be related Bronze Age rock art = 7 (20%).
*kóryos ARMY, DETACHMENT, TRIBE
*meldh- HAMMER OF THE THUNDER GOD
*perk*unos THUNDER, THUNDER GOD 2
*reidh- RIDE (A HORSE OR HORSE-DRAWN VEHICLE)
*silVbr- SILVER
*(s)mei- METALLURGY
*snad- WOUND 8
d. Italo-Celtic/Germanic/Balto-Slavic (ANW): total words = 26

¶ Meanings related to Bronze Age life = 3 (12%)
¶ All of which can also be related to Bronze Age rock art = 3 (12%).

*bhlag- (?) STRIKE 4
*rotos ~ *rotā WHEEL
*skeltu- ~ *skeito- ~ *skoito- SHIELD 2

e. All categories (CG+)

total words = 276 of the total, meanings that can be related to Bronze Age rock art = 95 (34%)

¶ Of those, another 19 meanings related to Bronze Age life, though not clearly relatable to rock art iconography, for an inclusive total of 113 (41%) of Bronze Age-related words

§33. Celto-Germanic compounds

The sharing of two-element compounds is evidence for close contact between languages. In the Corpus, there are 13 examples, listed below. They all occur amongst the 173-word CG subset. None of the examples are also found in Italic and/or Balto-Slavic. In their meaning, all are culturally significant and can be related to Bronze Age ideology, noting that ‘INNUMERABLE’, Archaic Welsh **ebrifet**, occurs in a poetic description of a vast number of spears in a battle. The only examples below that can be identified as borrowings, rather than parallel cognates limited to two Indo-European branches, are the two compound names with *-rīg- ‘king’, showing Proto-Celtic *ī from Pre-Celtic *ē.

ALL-FATHER, GREAT-FATHER (DIVINE EPITHET) *Olo-patēr
BATTLE-WOLF > HERO *katu-wǒkʷo- ~ *katu-wolcʷo-
FOREIGNER *alyo-morgi- ~ *alyo-mrogi-
GREAT/FAMOUS IN VICTORY *Seghi-mēros ~ *Segho-mōros
GREAT/FAMOUS IN BATTLE *Katu-mōros ~ *Katu-mēros
HORSE+RIDE *ekwo-reidho-
INNUMERABLE, COUNTERLESS *n-rīm-
KING OF THE PEOPLE *Teuto-rīg-
OVERCOME IN BATTLE, CONQUER *uper-weik- ~ *uper-wik-
SPEAR-KING *Ghaiso-rīg-
STRONG/VICTORIOUS FORTIFIED SETTLEMENT *Segho-dūno-
WEREWOLF *wiro-kwō(n) ~ *wiro-wǒkʷo-
WILD DOG, WOLF *widhu-kō(n)

A further possible example is Ancient Nordic **wajemariz** ‘ill-famed’ ~ Welsh **gwaefawr** ‘woeful’ < notional CG *wayo-mēri- ~ *wayo-mōro-. But both compounds are sparsely attested and the Welsh only from the 19th century. Even so, the Welsh compound probably existed at an earlier date, as adjectives in -fawr ‘great’ are no longer a productive formation.

§34. The non-Indo-European element

Words that occur only in the Indo-European languages of the North and West can be broadly subdivided into two categories:

1 words that simply do not occur at all in any of the other Indo-European branches (i.e. Anatolian, Tocharian, Indo-Iranian, Greek, Armenian, and Albanian) and

2 words that share roots attested in non-North-west Indo-European languages, but show some special meaning and/or detail(s) of word formation confined to NW.
The first category—especially cases for which it is hard or impossible to reconstruct a well-formed Indo-European root—probably includes words that have been borrowed from non-Indo-European languages.

The identification here of this non-Indo-European element mostly follows the Leiden series of Etymological Dictionaries, namely De Vaan (2008), Matasović (2009), Kroonen (2013), and Derksen (2015). Within the present total of 276 CG+ words, the statistics are as follows for words possibly derived from a non-Indo-European language or languages.

- **a. Celto-Germanic** — 18 examples (10%) out of 173 total
  - BADGER *takso-
  - CLOVER *smeryon- ~ *semar-
  - CLUB, CUDGEL, STAFF, STICK *lurg-
  - ENCLOSED FIELD *kaghyo-
  - ENCLOSURE *ketr- ~ *kētr-
  - FORK *ghabhlo- ~ *ghabhla-
  - HEAP, MOUND, PILE, RICK *krouko-
  - HOLLY *kuleno- ~ *kolino-
  - HORSE 1 *markos
  - IRON *isarno- ~ *īsarno-
  - LEPROSY *truts-
  - ONE-EYED, BLIND IN ONE EYE *kákos
  - POINT *bend- ~ *bnd-
  - ROD, STAFF, LONG SLENDER PIECE OF WOOD *(s)lat(t)-
  - SAIL (noun) *sighlo-
  - SECRET, SECRET KNOWLEDGE *rūn-
  - SETTLEMENT, FARMHOUSE *tреб- ~ *tṛb-
  - STONE LANDMARK, STONE MONUMENT, STONE RITUAL SITE *kar-

- **b. Italo-Celtic/Germanic** — 8 examples (18%) of 44 total
  - BLACKBIRD *mesl- ~ *amsl-
  - BOW AND ARROW *arkō-
  - GOAD, POKER 2 *ghazdo- ~ *ghazdhā-
  - JUNIPER, RUSHES, REED *yoini-
  - LEAD *plobдо-
  - MAST *mazd- ~ mazdyo- ~ *mzdlos
  - NUT *knu-
  - ORE, METAL OXIDE *raud- ~ *arud ~ *rutu-

- **c. Celto-Germanic/Balto-Slavic** — 2 examples (9%) of 34 total
  - MANY *menek- ~ *monek-
  - SILVER *silVbr-

- **d. Italo-Celtic/Germanic/Balto-Slavic (ANW)** — 8 examples (32%) of 25 total
  - ALDER *al(i)sno-
  - BEE *bhei-
  - BLEAT (?) *bhled- ~ *bhleđ-
  - ELM *elmo- ~ *olmo- ~ *limo- ~ *leimo-
  - GRAIN *bhar-
  - HAZEL *kós(V)los
  - PORTABLE WOODEN FRAMEWORK *korb-
  - SWAN (?) *el-

- **e. all categories, CG+ (inclusive North-west Indo-European)** — 36 examples (13%) of 276 total

The uptick to 32% for the ANW subset may be meaningful, albeit based on a small sample—8 out of 26 words. It is also noteworthy that the category of possible non-Indo-European words is, overall, proportionally small for all subsets and for the whole collection of 276 words. However, these figures could go up with probing
re-examination and revised assumptions. To be counted as CG, ICG, CGBS, or ANW words, they must somehow differ in form and/or meaning from what occurs in the rest of Indo-European. It is therefore likely that the inexact similarities in form and meaning are in some instances coincidental with the result that some words of non-Indo-European origin have been mistakenly traced to Indo-European roots. It is also possible that some of the items lacking wider Indo-European attestations, but implying preforms consistent with Proto-Indo-European root structure, do so coincidentally. Methodologies that allow for more or fewer non-Indo-European substratum etymologies show considerable disparity between historical linguists. For example, against the 1,364 Indo-European lexemes compiled by Mallory and Adams (1997), the looser criteria of Pokorny (2002) admit 2,044 Indo-European roots (Mallory 2019, 36). The scope for non-Indo-European substratum words fluctuates inversely with these totals. There are unsettled theoretical questions affecting the total of words assigned non-Indo-European origin, such as whether Proto-Indo-European had the vowel *a (and therefore whether reconstructed forms requiring *a could not possibly be Indo-European) and whether the alteuropäisch river names were Indo-European (§24). Nevertheless, the present picture is unlikely to be wholly overturned: most of the 173 CG words and 276 CG+ derive from native Indo-European vocabulary rather than borrowings from non-Indo-European.

Many non-Indo-European loanwords probably came from the languages spoken in North-west Europe before the arrival of Indo-European speakers. Accordingly, many of the 36 words listed here name plants and animals, as well as man-made artefacts and structures, items that were probably already known to the Neolithic people of Northern and Western Europe: such as, ALDER, BADGER, BEE, BLACKBIRD, CLOVER, ELM, FARMHOUSE, HAZEL, HEAP, HOLLY, JUNIPER, NUT, PINE, PORTABLE WOODEN FRAMEWORK, and SWAN.

Although words for warfare are heavily represented across the total of 173 CG words, the subgroup of the 276 CG+ words of possible non-Indo-European origin includes names for only two low-grade and primitive weapons: CG ‘CUDGEL’ and ICG ‘GOAD’. A special case is ICG ‘BOW AND ARROW’ *arkʷoːː; this can be plausibly derived from a word meaning ‘juniper’ attested in Greek and Balto-Slavic and reconstructable as *arku-, thus probably one more of the several non-Indo-European plant names taken over from a European Neolithic substratum language (cf. Iversen & Kroonen 2017). In other words, although ICG *arkʷoː is a weapon name and probably based on a non-Indo-European loanword, it would not be a non-Indo-European weapon name.

Other words might reflect contact with technologically more advanced cultures, such as CG ‘IRON’ *isarno- ~ *isarno-, ICG ‘LEAD (metal)’ *plobhdo- and ‘ORE, METAL OXIDE’ *raud- ~ *arud ~ *rutu-, and CGBS ‘SILVER’ *silVbur-, words which were probably introduced by long-distance trade into Indo-European-speaking territory from elsewhere. ICG ‘MAST’ *mazd- is a significant technological word with obvious implications for maritime connections. Note also that there is no certain etymology for CG ‘SAIL’ *sighlo-, a word which therefore possibly arrived together with ‘MAST’. Do we look south, say, to the Minoans, or northwards to pre-Indo-European Scandinavia, such as the Pitted Ware culture?76

76 On the Pitted Ware culture and its possible cultural and linguistic influence, see Welinder 1978; Ahlström et al. 1997; Malmström et al. 2009; Iversen 2016; Iversen & Kroonen 2017; Fornander et al. 2018.
§35. The attestation pattern of the CG words and its implications

The Corpus (§§38–50) is recognizable as a work in the genre of historical lexicography, such as large dictionaries that include etymologies and cite cognates in related languages. In such works, the earliest well attested stages of languages will be particularly useful in establishing the more original forms and meanings of words. Those two criteria—early and well attested—often work at cross purposes. For our study Gothic and the better attested of the Continental Celtic languages, Gaulish and Celtiberian, are especially significant as providing evidence that is both relatively early and illuminates sub-branches of Germanic and Celtic that have since died out. However, these three languages are not fully attested, and in the case of Gaulish and more especially Celtiberian, the evidence we have is not well understood (Lambert 1994; Wodtko 2000; 2003; Jordán 2019). If we were to count up how many of the 173 CG words were attested in each of these three languages, the controlling factor would be the languages’ limited attestation. Many, if not indeed most, of the CG words had probably once been present in Gothic, Gaulish, and Celtiberian, but failed to be written down in any text that survives. Furthermore, in what we do have of the Ancient Celtic languages a high proportion is proper names, and their meanings can only be established by comparison with better attested languages.

By contrast, Old Norse, Old English, Old High German, Old and Middle Irish, and Middle Welsh can be considered fully attested pre-modern languages. Most words that were in common currency in these languages are known to us through surviving texts. Therefore, we can be more confident that the distribution of CG words across these languages might carry implications about where, when, and how Celtic and Germanic came to share this vocabulary. Old Frisian and Old Saxon totals are not summed up below, because these West Germanic languages are less well attested than Old English and Old High German. However, a perusal of the Corpus will give an impression of how often Old Frisian and Old Saxon go along predictably with the other early Germanic languages.

The relevant statistics are as follows:

1. **North Germanic**: **136 = 79% of the 173 CG words** (almost all attested in Old Norse + a few items from runes in the older futhark or Old Danish or Old Swedish and not also found in Old Norse)

2. **West Germanic**
   a. **Old English**: **122 = 71% of CG words**
   b. **Old High German**: **109 = 63% of CG words**

3. **Goidelic**: **140 = 81% of CG words** (all attested in Old and/or Middle Irish, many also attested in Scottish Gaelic, a few also attested in Ogamic Primitive Irish)

4. **Brythonic**: **132 = 76% of CG words** (90%+ of these attested in Old and/or Middle Welsh; the total also includes a few items not found in Welsh, but attested in Old and/or Middle Breton, Old and/or Middle Cornish, and/or Ancient Brythonic)
The figures above do not differ drastically between the well attested medieval languages, and some of the disparities can be explained as the expected effects of factors having nothing to do with the question at hand. For example, Irish is the best and earliest attested vernacular in post-Roman Western Europe. In this light, it is somewhat remarkable that Brythonic total is as close to the Irish as it is. The bulk of Middle Welsh literature, which is where most of the Brythonic examples occur, is later, mostly later even than the Middle Irish period, which is often conventionally assigned a transition to Early Modern Irish of AD 1200 (cf. Russell 2006; Ó Baoill 2010). Furthermore, much of the inherited vocabulary of Brythonic was replaced by Latin during the Roman Period in Britain (AD 43–410).

The high percentages across the board indicate that the CG element belongs to the core vocabularies of Germanic and Celtic, consistent with an early period of contact, before these branches had significantly diverged into the separating dialects that became the attested languages. It is also noteworthy that the totals for Old English and Old High German, languages situated entirely on territories that had been Celtic speaking, do not show higher percentages of CG words than Old Norse, the territory of which was completely disjoint from what had been Celtic. In fact, the Old English and Old High German totals are lower. All and all, it is worth remembering that the highest total on the Celtic side is Goidelic and the highest in Germanic is Norse, languages that were not in contact in historical times until the Viking period, and that Viking-period loans are almost always easily recognized and have been excluded from the Corpus.

In some instances there are obvious explanations for gaps in the attestations and changes of meaning. For example, no Germanic or Celtic language was fully attested in the pre-Christian period. Therefore, in the category of ‘Beliefs and the supernatural’ (§46), many words have probably been lost from attested languages due to Christianization, while others survive only in secondary meanings devoid of their earlier religious significance. Thus, the primary epithet of the divine patriarch, ALL-FATHER/GREAT-FATHER *Ολο-

§36. The evidence and the hypothetical time frame

Here we review points consistent with an essential facet of our hypothesis: the Bronze Age—when Welsh and then Iberian copper reached Scandinavia and Scandinavian rock art and Iberian warrior stelae shared iconography—was also the horizon to which many Celto-Germanic words are most plausibly attributed.

1 What is now known about the expansion of the genetic ‘steppe component’ (~50% Eastern Hunter-Gatherer : ~50% Caucasus Hunter-Gatherer) from the Pontic–Caspian Steppe in the 3rd millennium BC is the basis for a strong case that Post-Anatolian Indo-European expanded together with this gene flow.

2 Identification of the Sintashta culture with the separation of the Indo-Iranian branch implies that most items of inherited vocabulary that predate ~2100 BC should show a wide geographic distribution, with attestations in both eastern and western Indo-European languages. Some words may occur only in Northern and Western Europe due to random loss in the other branches. However, as a group, words with NW distributions reflect regional developments post-dating ~2100 BC. The absence of cognates in Indic and Iranian can be seen as implying periods later than that (§§23, 37).

3 The many CG words with Germanic forms pre-dating Grimm 1 and Grimm 2 are consistent with Bronze Age contact and questionable for an alternative scenario in which the contact took place in Central Europe during the La Tène Iron Age.
4 The numerous CG words which are either altogether absent from Latin and the other Ancient Italic languages or show linguistic innovations that did not occur in Italic suggest that most of this vocabulary arose after Italic and Celtic had separated. That was probably later than the Early Bronze Age (§§19, 21).

5 The high proportion of CG words attested in Ancient Nordic runes and Old Norse is consistent with a model of contact by sea in the Late Bronze Age.

6 The high proportion of CG words in Irish more easily suits a model of contact by sea in the Late Bronze Age than of contact in Central Europe after 500 BC (§§13, 35; cf. Eogan 1995).

7 Many CG words fit the culture and value system of the European Bronze Age—spear, shield, axe; sail, mast, to row; horse, axle, wheeled vehicle; silver—although linguistic palaeontology cannot always decisively differentiate Bronze Age from Iron Age vocabulary.

8 Many CG words can be correlated with the recurring iconography shared by Scandinavian rock art and Iberian warrior stelae (§32).

9 At the level of social organization, several CG words are consistent with the chiefdoms of the Bronze Age: ‘KING’, ‘KINGDOM’, ‘TRIBE’, ‘HOSTAGE’, ‘SERVANT/REPRESENTATIVE’. The example of the shared change of meaning from Indo-European ‘height, hill’ to Celtic and Germanic ‘fortified settlement’ (‘berg’ > ‘burg’) suggests that the two groups participated in the Age of Hillforts while in contact with each other. That phenomenon began in the middle of the Bronze Age in Ireland (§§3, 32).

10 CG vocabulary for magic, oath taking, and secret knowledge is consistent with integral ritual aspects of the ‘Maritime Mode of Production’ model as applicable to the Nordic Bronze Age and creation of Bronze Age rock art (Ling at al. 2018; Ling 2019).

§37. Conclusions
In recent synthetic overviews (e.g. Kristiansen 2018), a social watershed is recognized affecting parts of Europe in the Middle Bronze Age. The widespread appearance of the flange-hilted sword ~1500 BC is seen as signalling the emergence of the professional warrior (cf. Vandkilde 2014). This iconic weapon—in archaeological assemblages as well as rock art images—is central to the warrior’s panoply, which also included shields formed in concentric circles (§2), heavy lances, helmets and armour, the two-horse war chariot with spoked wheels, and items related to personal beauty, such as brooches, mirrors, combs, razors, and tweezers.77 In Ireland, heavily fortified hillforts also attest intensified militarization from this time (O’Brien 2016; O’Brien & O’Driscoll 2017). The long-distance mobility of the warrior was essential to economy of the Middle and Late Bronze Age. Warbands provided security for the reliable exchange of exotic raw materials at the apex of the international value system: copper, tin, amber, and gold.78

The broader society around the institution of the warrior was also transformed. Intensified and highly organized agro-pastoral activity was required to create surpluses to relieve twenty or so young men from seasonal food-production to form a crew/warband on a year-long expedition (Ling et al. 2018). All of this required socio-economic specialization within ranked societies sufficiently large and complex for the central organization and direction of the necessary workforce and resources. As observed by Kristiansen (2018, 41), many of these patterns, as first observable in the Middle Bronze Age, continued in Europe through the Iron Age, Classical Antiquity, and Middle Ages into the early modern period:

In all this—trade alternating with raids and sometimes leading to large-scale migrations—Bronze Age warfare looks more like Celtic and Viking warfare and migration. It implies that, by the Bronze Age, European political economies had reached a level of organization that changed little until historical times...

77 Celestino 2001; Harrison 2004; Mederos 2008; 2012; Díaz-Guardamino 2010; Brandherm 2013a; 2013b.
78 Ling & Koch 2018; cf. Standish 2012; Standish et al. 2015; Vandkilde 2016.
Viewed against this background, a large part of the 172 CG items can be understood as words needed to express new ideas that came with these transformations of the period ~1500–1100 BC. It is also significant that there are lower numerical subtotals of the other linguistic sets (Italo-Germanic, ICG, CGBS, and ANW), as are the lower percentages in these groupings that can be related to the transformations in Bronze Age society and the iconography of Bronze Age rock art.

As set out in Koch 2013a, two of the great strands of innovation that were to transform Bronze Age society can be traced to places of origin far from Scandinavia. The horse and chariot package first emerged in the Sintashta culture of Transuralia (Anthony 2007; Kuz’mina 2007; cf. Parpola 2015) and the replacement of ‘pure’ copper and arsenical copper by high-tin Bronze as the standard fabric of tools, weapons, and ornaments developed in the British Isles (Pare 2000). Both innovations began ~2100 BC then spread from their epicentres.

By ~1500 BC Southern Scandinavia had become a brilliant participant in the Bronze Age. Leading up to this, we must suppose that young men who were native speakers of Pre-Germanic (most of whom probably lacked comfortable inheritance) sought their fortunes by undertaking long travels beyond the lands of their native dialect. These journeys included two types: (a) expeditions to acquire metals in Central Europe or the Atlantic West and (b) service as ‘mercenaries’ in warbands recruited by foreign potentates. Later, many of these adventurers returned home with enhanced wealth and status and special knowledge that included words for new-fangled equipment, institutions, and concepts for which there had previously been no words in Pre-Germanic. The question that these activities raise for historical linguistics is to what extent this transfer of knowledge had obliged Bronze Age adventurers from Scandinavia to learn a second language. Or had the interaction taken place through still mutually intelligible Indo-European dialects? If the latter, at what time did this situation give way to that of separate languages as found in historical times?
The CG Corpus contains relatively few clear-cut loanwords. It may therefore be unnecessary to suppose that speakers of Pre-Germanic had to learn Pre-/Proto-Celtic as a foreign language during most of the Bronze Age. If there had been low mutual intelligibility and speakers of one of these branches therefore had to learn a second language, we would expect more words showing Celtic innovations in Germanic or vice versa. Most of the evidence can be better explained with the following account, in which mutual intelligibility between early Indo-European dialects was prolonged through close contact within the Bronze Age system.

~3100 BC the migration of people of Yamnaya culture and steppe genetic type to found the Afanasievo culture broke up the dialect continuum of Post-Anatolian Indo-European between a Post-Tocharian continuum in Europe and Pre-Tocharian in the Siberian Altai and Minusinsk Basin.79

From ~2800 BC gene flow from Yamnaya at the founding of CWC in Northern Europe points to mass migration of Post-Tocharian Indo-European speakers. This created the setting for a dialect chain ancestral to Germanic, Balto-Slavic, and Indo-Iranian.

From ~2500 BC the entry of Beaker people with steppe ancestry into CWC Central Europe caused the dialect ancestral to Germanic to come closely into contact with the dialect(s) ancestral to Italic and Celtic. Contact between Pre-Germanic and the dialects ancestral to Balto-Slavic and Indo-Iranian diminished.

~2100 BC the formation of the Sintashta culture east of the southern Ural Mountains, is identified (following Anthony 2007) with the separation of Proto-Indo-Iranian. After this its contact with the languages of Europe fell off precipitously. Because all the subsets of words studied here (CG, ICG, CGBS, and ANW) lack Indo-Iranian cognates by definition, it is inferred that these sets post-date this development (§23).

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79 §9; Mallory & Mair 2000; Anthony 2007, 311; Allentoft et al. 2015; Narasimhan et al. 2018. Chang et al. 2015 show this split ~3200/3100 BC.

80 Chang et al. 2015 show the split of Italic and Celtic ~1800 BC.
independently underwent the Germanic and Celtic treatments of Proto-Indo-European syllabic *r̥ and *n̥. It would be unlikely for the name to have its attested Germanic form if it had been borrowed from Celtic after ~1200 BC and probably impossible after ~900 BC.

~1200–900 BC a context suitable for a unified, and possibly expansive, Proto-Celtic continued west of the Rhine. Important cultural zones within this region included the Atlantic Bronze Age, embracing Ireland, Britain, North-west France, and the Western Iberian Peninsula (Harrison 2004; Milcent 2012), and the Western Urnfield area (Rhine, Switzerland, Eastern France). These two regions interacted closely towards the beginning of the Late Bronze Age ~1300/1200 BC (Gerloff 2010; Brandherm 2013a).

By ~900 BC the Proto-Celtic sound changes were complete. The minority of CG words detectable as Celtic loanwords in Germanic reflect these developments. Mutual intelligibility was declining. For example, Proto-Germanic *r̥ika ‘KINGDOM’ < Proto-Celtic *rīgyā < Pre-Celtic *rēgyā shows Celtic *j̥ < *ē, implying that the loan probably post-dates ~1200 BC. On the other hand, as it reflects Grimm 2, *r̥ika < *rīgyā precedes the formation of Proto-Germanic and possibly predates ~500 BC. As an example, with different characteristics, Proto-Germanic *am̥bahtaz ‘PERSON ACTING ON BEHALF OF A SUPERIOR’ < Proto-Celtic *ambax̥tos < notional Pre-Celtic *m̥bhaktos shows Celtic *am < *m̥. This word lacks any consonants to reveal whether it entered Germanic before or after Grimm 1 and/or Grimm 2: Proto-Indo-European *bh and the cluster *kt had the same outcomes in Celtic and Germanic (Ringe 2017, 328). On the other hand, the fact that *am̥bahtaz is found in all the early Germanic languages, including Gothic, suggests that it was borrowed before Germanic expanded geographically and began to diverge into the attested dialects.

The split of Proto-Celtic into Hispano-Celtic versus Goidelic/Gallo-Brythonic is identified with the departure of the Iberian Peninsula from the Atlantic Bronze Age at the beginning of the Phoenician-influenced Iberian Iron Age ~900 BC (Koch 2016; cf. Burgess & O’Connor 2008).

~500 BC is the consensus date of the Grimm 1 sound change. Most of the words in the Corpus predate this change. The effects of Grimm 1 were drastic enough to create a major obstacle to mutual intelligibility between Celtic and Germanic. The date of this change coincides with the end of the Nordic Bronze–Iron Transition. The end of the prolonged mutual intelligibility of Celtic and Germanic was possibly a socio-linguistic result of the collapse of the long-distance bronze exchange system that had connected the two speech communities. In sum then, most of the CG words in the Corpus entered Germanic before ~500 BC, and it is not certain whether many, or even any, of them are later.
Figure 16. Summary: Prehistoric cultural complexes as probable vectors for the steppe genetic component and, by implication, early Indo European languages. Because human remains associated with the Pitted Ware Culture lack the steppe component (Malmström et al. 2009), PWC was potentially significant as contributors of non-Indo-European maritime knowhow and substratum linguistic influence to the Scandinavian realizations of CWC, namely the Battle Axe and Single Grave Cultures (Iversen 2016; Iversen & Kroonen 2017; Fornander et al. 2018).
Principal secondary works used in compiling the entries.
To avoid cluttering the word entries below, the publications used most frequently are listed here, rather than citing them repeatedly. The main sources used in compiling the word entries below are Mallory and Adams (2006) for Proto-Indo-European roots and the CG+ subset; Hyllested (2010) for CG words (used in conjunction with the excellent handout of Ringe available on line); Kroonen (2013), Ringe (2017), and Fulk (2018) for Germanic; LEIA and Matasović (2009) for Celtic; de Vaan (2008) for Italic; ALEW and Derksen (2015) and for Balto-Slavic. The forms and meanings of Old and Middle Irish words are based on eDIL, and those of Welsh on GPC. For Old Welsh Falileyev (2008) is consulted and the thesis of Bauer (2008) for Old Breton. The readings of runes in the older futhark follow Antonsen (1975). Greek comparanda are based on Beekes (2010). For ancient Celtic place-names, the main compilations consulted are Talbert (2000) , Koch et al. (2007), Falileyev et al. (2010), and Delamarre (2012).

Palaeohispanic comparanda. Celtiberian and examples from the pre-Roman Indo-European languages of the Western Peninsula, are provided in fuller detail than the other languages for four reasons: Comparative Celtic studies has over the years developed mainly as a three-way comparison of Brythonic, Goidelic, and Gaulish. From the later 20th-century onwards far more evidence has become available from the Iberian Peninsula and has been recognized as being of special significance for comparative reconstruction due to its archaism and general differentness from Gaulish and the Insular languages. However, scholarship outside Spain and Portugal still tends not to take full advantage of this material, often relying on well-known citation forms. Celtic studies and Palaeohispanic studies remain largely separate fields despite the significance of their overlapping subject matter.

2 For the present study material from the Western Peninsula is of special importance as this is the area where copper matching isotopic and chemical fingerprints in Late Bronze Age Scandinavia is found. It is also the area where Late Bronze Age warrior stelae are concentrated that show numerous close similarities to Scandinavian rock art of the same period.

3 From 2013 to 2016 the author led the multidisciplinary research project ‘Atlantic Europe in the Metal Ages: questions of shared language’ (AEMA), funded by the UK’s Arts and Humanities Research Council (Research Grant Proposal AH/K002600/1). As part of this project, Dr Fernando Fernández Palacios made an extensive compilation of Hispanic inscriptive evidence containing indigenous names and drawing on his earlier work with the Hesperia project in Madrid. As the RAW Project builds on the earlier work of AEMA, we judged it advisable to make the relevant items from the AEMA collection available here.

4 In Portugal and Western Spain, there is evidence for a Pre-Roman Indo-European language, now termed ‘Lusitanian’, that shows affinities with Celtic and Italic, but also features that are not easily reconciled with the usual definition of a Celtic language, such as the preservation of Indo-European *p, as in Lusitanian PORCOM ‘pig’. In short inscriptive texts with mixed Roman and native names, it is often unclear whether the latter can be assigned to Celtic or Lusitanian. For this reason, full texts and longer excerpts have been included, as the accompanying native names might throw light on the Celtlicity of the milieu.

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82 For citing Palaeohispanic comparanda, no attempt has been made to subdivide modern provinces to recover more accurately the ancient boundaries of Celtiberia, the briga zone, and so on. The heading ‘Celtiberian region’ comprises the modern Spanish provinces of Burgos, Cuenca, Guadalajara, La Rioja, Palencia, Soria, Teruel, and Zaragoza. ‘Central region’ comprises Ávila, Madrid, Segovia, Toledo, and Valladolid. ‘Western Peninsula’ comprises all of Portugal and the Spanish Provinces of Asturias, Badajoz, Cantabria, Cáceres, A Coruña, Huelva, Léon, Lugo, Ourense, Pontevedra, Salamanca, and Zamora. ‘Outside the briga zone’ refers to finds from the rest of the modern provinces of Spain.
§39. Water and motion over/through water

a. Celto-Germanic (CG)

BOATLOAD (OF PEOPLE, DOMESTIC ANIMALS, OR INANIMATE MATERIAL OF VALUE) *pluk- - Proto-Germanic *flukka(n)-
[PRE-GRIMM 1]: Old Norse flokkur ‘troop, host, flock’, Faroese flokkur ‘multitude, crowd, party, flock (of birds)’, Old English floc ‘flock, company, troop’, cf. Middle Dutch vluycken ‘to transport over water’, Old Norse fley ‘ship’ < Proto-Germanic *flauja- < Pre-Germanic *plouyo- [PRE-GRIMM 1]; - Proto-Celtic *(p)luchtu- < Pre-Celtic *pluk-tu-: Gaulish luxtos ‘load of pottery from an industrial kiln for despatch’, Old Irish lucht ‘class of people, occupants, category, boat’s crew, followers, contents, ship’s cargo’, cf. these lines from a Middle Irish poem from the Fenian text known as the Acallam Becc: Seól saithe, ba ingnad a chruth, re láth grinne luchta i ruth ‘a sail of a throng, its form extraordinary, for moving a keen crew on course’ (cf. Carey 2019, 66–7), Scottish Gaelic luchd ‘people, group (including women and men), burden, ship’s cargo’, Old Welsh luidt, Middle Welsh llyth ‘tribe, lineage, kinship group, faction, clan, occupants, inhabitants, (full) load, ship’s cargo’.

the Celtic ones or given a shared derivation, but have suitable forms and meanings. The most striking feature, especially in the Celtic, is that what appears to be a single word (Old Irish *lucht* = Welsh *llwyth*) has two very different and—at first glance—unconnected meanings in both Goidelic and Brythonic: namely, a definable group of people, on the one hand, or a full load or cargo of something not human, on the other. Taking these back to Proto-Celtic *(p)luχtu-* from an enlarged root √pleuk- ‘float, swim, sail’, alongside ‘boat’s crew’ amongst the attested Early Irish meanings, provides a semantic key. The forms and distinctive range of definitions imply the original core sense ‘boatful’. The doughnut-shaped semantic range makes sense if it is supposed that the words originally formed in a society in which many people were involved in movement of themselves, their livestock, and inanimate valuables in boats and that the speakers of Celtic and Germanic subsequently became more settled and land based, but the social significance of whatever and whomever used to be commonly loaded onto a boat continued. As Kroonen sets out correctly, the Germanic *fleugan-* ‘to fly’ can be traced back to *pléuk-e-* ‘swim, float’. But it does not necessarily follow that ‘flock of birds’ was the original primary meaning of Proto-Germanic *flukka(n)-*. ¶ From the point of view of meaning, it is tempting to connect these words also with the widespread Proto-Germanic word of uncertain etymology, *fulka* ‘troop, tribe’: Old Norse *folk* ‘people, army, detachment’, Old English *folc*, Old Frisian, Old Saxon, Old High German *folk*. Did *fulk(k)-* arise from *flukk*- by metathesis? According to OED (s.n. ‘folk’) Old Lithuanian *pulkas* ‘exercitus, army’, Old Church Slavonic *plůků* ‘division of an army’ may be early (i.e. pre-Grimm 1) borrowings from [Pre-]Germanic. Alternatively, it is possible that *pluk-, *pulk- ‘BOATLOAD’ emerged as a CGBS word before the NW branches were fully separate. Note that the *u* in Proto-Germanic *flukka(n)-* is not from Pre-Germanic *[u] > *ul but part of the root √plew-.

DEEP *dheubhnó- ~ *dhubhnó- ~ *dhubhni-. See below §50.a.

DROPLET, DRIP *dhrub- ~ *dhrūb-. • Proto-Germanic *drup(p)an- [PRE-GRIMM 2 ?]: Old Norse *dropi* ‘drop’, *drjúpa* ‘to drip, to trickle’, Old English *dropa* ‘drop’, *dréopan* ‘to drop’, *droppettan* ‘to drip, to distil’, Old Frisian *driāpa* ‘to drop, to trickle’, Old Saxon *dropo* ‘drop’, *driopan* ‘to drip, to trickel’, Old High German *tropfo* ‘drop’, *triófan* ‘to drip, to trickle’, *tropfezzen* ‘to drip, to distil’; • Proto-Celtic *drúxtu- < Pre-Celtic *drup-tu- < *dhrub-tu-*: Old Irish *drúcht* ‘dew, drop, moisture’, Scottish Gaelic *drúchd* ‘dew, drizzle, tear, sweat’.

GREAT WATERWAY, RHINE *reinos. • Proto-Germanic *Rīnaz ‘Rhine’: Old English *Rīn*, Middle High German *Rīn*; • Proto-Celtic *rēnos < Pre-Celtic *reino:-* Gaulish *Rēnos* ‘Rhine’, Middle Irish *rían* ‘sea, ocean, course, route, path’, genitive *rēin* glossing ‘maris’. ¶ The CG forms derive from a *-no-* suffix added to Proto-Indo-European √H3reyH- ‘flow’: cf. Sanskrit *riyate*, *rināti* ‘flows’, Old Church Slavonic *rinoti się* ‘flows’, Old English *rīđ* ‘stream’, Latin *rīvus* ‘river’. These cognates imply that the original sense of CG *reinos* probably had to do with navigable rivers. Therefore, it is reasonable to conclude that the word changed meaning, as reflected in Irish, when the language crossed the sea to the British Isles. The finding that the aDNA of Beaker-associated individuals from the Netherlands was virtually indistinguishable from that of British Beaker people is suggestive in this connection (cf. Olalde et al. 2018). ¶ Latin *Rhēnus*, Greek ‘Ρῆνος ‘Rhine’ are borrowed from Celtic.
FRESH WATER 1 *lindom ~ *lindu- ~ *lindhom ~ *lindh-. ● Germanic: Old Norse lind ‘spring, fountain’, Old Frisian lind ‘pool’, Middle High German lünde ‘wave’; ● Proto-Celtic *lindom ‘drinkable water’, Gaulish linda ‘drinks’ plural noun (Banassac), Ancient Brythonic place-name Lindon ‘lake, pool’ > ‘Lincoln’, Old Irish lind ‘liquid’, Scottish Gaelic lainne ‘pool, pond, lake, gulf’, leann ‘ale, liquor, pool’, Old Welsh linnouein glossing ‘in lacis lacunisque’ ‘in lakes and pools’, Old Cornish pisc-lin glossing ‘uiuarium’ ‘fish pond’, Middle Welsh ilyn ‘lake, drink’. ¶ The Germanic forms may be post-Grimm 1 borrowings from Celtic (Falileyev et al. 2010, 22), but a preform *lindhom ~ *lindh- would not require borrowing. ¶ Modern Welsh ilyn tends to be treated as masculine in North Wales and feminine in the South, reflecting an original neuter.

HARBOUR, SHELTER FOR VESSELS *kapono-. ● Proto-Germanic *habanō- ‘harbour, shelter for boats’ < [PRE-VERNER] *χαφάνα- < Pre-Germanic *kapóno- [PRE-GRIMM 1]: Old Norse hofn, Old English hæfen, Old High German haben; ● Proto-Celtic *kawno- < *ka(p)ono-: Middle Irish cúan ‘haven, harbour, port, bay, gulf’.

LOAD, CARRY A LOAD *kleut- (< *kleu(H2)-t- < *kleuH2-u-) ~ *klat- (< *klH2-t-). ● Proto-Germanic *hlaþan- ~ *hlóþ- < *χlāþ- ‘to burden, load down’ [PRE-VERNER]; ● Proto-Germanic *hlapan- ~ *hlūp- < *χlāþ- ‘to burden, load down’ [PRE-GRIMM 1]: Gothic (af)hlapan ‘overload’, Old Norse hlada ‘to pile up, build, load’, Old English hladan ‘to heap, pile up, build, load’, hloð, hlōdōn ‘loaded’ (cf. Old English hlǣd ‘burden’), Old Frisian hlada, hlađa, Old Saxon hladan ‘load’, Old High German hladan ‘load’, luod, luodun ‘loaded’; ● Proto-Celtic *klout-: Middle Welsh clut ‘carriage, the action of carrying, load, burden, heap, pack, bundle, baggage’, cf. Old Breton clut moruion glossing ‘formicinus’ ‘ant hill’, Old Welsh, clutgued glossing ‘strues’ ‘heap, construction’, and the corresponding verb clutam glossing ‘struo’ ‘I put together, build, heap up’. ¶ As Kroonen explains, the Balto-Slavic forms including Lithuanian klōtį ‘cover’ and Old Church Slavonic klasti ‘to put’ point to derivation from NW vkleH2- ‘spread out flat’ (rather than Proto-Indo-European Vkley- ‘lean’). VkleH2- acquired -t in Pre-Germanic to become *klāt- > *hlōþ-.

Derksen (2015, s.n. klüüt) sees a probable link between Lithuanian klōtį and klüüt ĭ ‘brush against, be caught in, obstruct’ < *kleuH2- < Proto-Indo-European vkleH2-u- ‘close’ with metathesis of the laryngeal and *u. This same development, with a suffixed -t as in Germanic, will account for Proto-Celtic *klout- < *kleuH2-t-. It is in the specific meaning ‘load’ that these related roots show shared development in Germanic and Celtic, a natural semantic innovation between early Indo-European-speaking groups in a regular trading relationship, exchanging sizable quantities of heavy raw materials.

ROW (verb) (?) *rō-. ● Proto-Germanic *rōan- (< *rā-): Old Norse róa ‘to row’, Old English rōwan ‘to go by water, sail, swim’, Old Frisian rūskip ‘rowing boat’, Middle High German rüejen ‘to row’; ● Proto-Celtic *rāyeti ‘rows’ < Pre-Celtic *rō-yo-: Old Irish ráid ‘rows, sails, voyages’, also the common compound verb Middle Irish imm-rá ‘travels by boat, navigates’, cf. Proto-Celtic *rāmyom ~ *rāmā ‘oar, paddle’: Old Irish rámæ, Scottish Gaelic rāmh ‘oar’, Middle Welsh rau, raw ‘spade, shovel’ < *‘oar, paddle’, Middle Breton reuff ‘oar, shovel’; the vowels of Modern Breton rañv ‘spade’ and French rame ‘oar’ can be explained as continuing Gaulish *rāmā ‘oar’. ¶ Lexicographers often fail to differentiate between the meanings ‘rowing’ versus ‘paddling’ and the nouns ‘oar’ versus ‘paddle’, though as a matter of water-craft technology and social organization of boats’ crews the difference is significant (cf. Clausen 1993; Crumlin-Pedersen et al. 2003; Ling 2012; Austvoll 2018; Prescott et al. 2018). On images of vessels propelled by oars or paddles in Bronze Age Scandinavia, see Kaul 1998; 2003; Bengtsson 2017. ¶ There is clearly a root common to Post-Tocharian Indo-European here: Lithuanian irklas, Latvian īkls, Sanskrit aritra- < Proto-Indo-European *H-erH1.tlom ‘oar, paddle’, cf. Greek ἔρημτον ‘oar’. What is uniquely Celto-Germanic is for ἕρησσον ‘oar’ as the base of a well attested primary verb, CG *rō-.


STREAM, LIQUID IN MOTION *sret- ~ *sṛt-. ● Proto-Germanic *streþan- < Pre-Germanic *sret-e- [PRE-GRIMM 1]: Old High German stredan ‘to seethe, to swirl’, cf. Middle High German stradem ‘swirl’ < Proto-Germanic *straþma-; ● Proto-Celtic *srito- < *sṛt-o-: Old Cornish stret glossing ‘latex’, Middle Irish srithit ‘stream of milk or blood’ < *sritantis.

Figure 20. (above) ICG *mazdlo- ‘MAST’, CG *pluk- ‘BOATLOAD’, CG *sighlo- ‘SAIL’: Bronze Age rock carving depicting a sea-going vessel with a mast, rigging, and crew: Järrested, Skåne, Sweden.

Figure 19. (left) ICG *mazdlo- ‘MAST’, CG *pluk- ‘BOATLOAD’, CG *sighlo- ‘SAIL’: Bronze Age rock carving depicting a sea-going vessel with a mast, rigging, and crew: Auga dos Cebros, Galicia, Spain (photo: Xabier Garrido).
SWIM < MOVE (?) *swem-. ● Proto-Germanic *swimman- ‘to swim, float’: Old Norse swimma ‘to swim’, svamm ‘swam’, Old English swimman ‘to swim’, swim ~ swom ‘swam’, Old Frisian swimma, Old High German swimman ‘to swim’, swim; ● Proto-Celtic *swemo-: Middle Welsh chwyf ‘motion, movement, agitation, stirr’, cf. Old Irish do-seinn ‘pursues’ < *to-swemnet(i). ¶ A semantic development from ‘movement (in general)’ to ‘movement through water’ is conceivable. Nonetheless, the disparity in meaning requires caution for this etymology.

TROUGH, TUB, WOODEN VESSEL *druk-. ● Proto-Germanic *truga- < [PRE-VERNER] *truxa- < Pre-Germanic *druko- [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse trog ‘trough’, Old English trog ‘hollow vessel, trough, hollow tray, canoe’, Old Frisian, Old Saxon trog, Old High German troc ‘trough’; ● Proto-Celtic *druχto- < *druk-to-: Old Irish drochta ‘tub, vessel’. ¶ < Proto-Indo-European Vḍóru ‘tree, wood’. If Old Irish drochet, drochat ‘bridge, causeway’ is, as per eDIL, a compound of droch ‘wheel’ and sét ‘path, road’, that word is not related to drochta ‘wooden vessel, trough’.

b. Italo-Celtic/Germanic (ICG)

FISH *peisko- ~ *pisko-. ● Proto-Germanic *fiskaz (cf. *fiskijō ‘fisherman’) [PRE-GRIMM 1]: Gothic fískis, Old Norse fískr, Old English, Old Frisian físk, Old Saxon and Old High German físk; ● Proto-Celtic *pēsko- < Pre-Celtic *peisko-: Old Irish iásc, cf. Old Welsh river name Uísc (the Usk flows into the sea and has a tidal estuary, so the name does not necessarily refer only to its freshwater fish); ● Proto-Italic *piski-: Latin piscis. ¶ Explained not implausibly as Proto-Indo-European *p(e)i̯k̂-skό- ‘trout’ < ‘spotted’ < Vpeik- ‘paint, mark’ (Mallory & Adams 2006, 146), but the specific meaning ‘trout’ is not attested, except as a subset of the more general ‘fish’ in Germanic, Celtic, and Italic.
KNOT, KNOTWORK, DEVICE OF KNOTWORK TO CATCH FISH, NET

*ñōd- ~ *nad-. • Proto-Germanic *natja- ~ *nōtā- (< *nātā-) ‘net’
[PRE-GRIMM 2]: Gothic nati, Old Norse net, not, Old English nett ‘net, network, spider’s web’, Old Frisian net, Old Saxon netti, Old High German nezzi;
• Proto-Celtic *nasko- < *nad-sko-: Old Irish nassae ‘bound’ < *nHd-to/eH2-, naíscid ‘binds, makes fast, makes captive, exacts a pledge’, Middle Irish nasc ‘fastening, tie, ring’, Scottish Gaelic nasaq ‘tie-band, cow’s collar made of plaited birch twigs’, Breton naska ‘to bind animals by their horns’ < *nHd-ske-;
¶ Proto-Indo-European *nōtā- (< *nātā-) proto-Germanic *nōd-to- ~ *nōdo- < *noHdo-: Gothic nati, Old Norse net, netti, Old English nett ‘net, network, spider’s web’, Old Frisian nassae, Old Saxon netti, Old High German nezzi.

MAST *mazd- ~ *mazdyo- ~ *mazdlos. • Proto-Germanic *masta- ‘post, mast’ Pre-Germanic < *mazdo-: Old Norse mastr ‘mast’, Old English mæst ‘mast’, Old High German mast ‘stick, pole, mast’;
• Proto-Celtic *mazdyo- ~ *mazdlo-: Middle Irish maide ‘post, stick, beam, log; mizen mast, (figuratively) leader’. The Archaic Welsh word meithlyon in Y Gododdin, occurring in the description of an approaching seagoing vessel and overseas army, would make good sense in context as ‘masts’ < *mazdlo- which regularly have given singular *mathl (cf. Welsh nyth ‘nest’ < *nizdos) and plural meithlyon, with the common Brythonic plural ending -yones, an ending which regularly affected a to become Welsh ei in the preceding syllable, as in Welsh mab ‘son’, meibion ‘sons’: tra merin lleystr, tra merin llu, let lin lu, llu meithlyon ‘an overseas vessel, a transmarine host, a host of mixed lineage, a great number of masts...’
• Proto-Italic *mazdlo- > Latin mālus ‘pole, mast’.
¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] ¶ On evidence for use of masts in Bronze Age Scandinavia, see Bengtsson 2017.

c. Celtic/Germanic/Balto-Slavic (CGBS)

BOATLOAD *phuk-, *pulk- (?), see §39.a. above.

WETLAND *pen- ~ *pē- ~ *ponyo- • Proto-Germanic *fanja-
[PRE-GRIMM 1]: Gothic fanj ‘mud’, Old Norse fen ‘quagmire, fen, bog’, Old English fen(n) ‘low land covered wholly or partially with shallow water, or subject to frequent inundations, a tract of such land, a marsh’, Old Frisian fenne, fene, Old Saxon feni ‘fen’, Old High German fenna, fenni ‘marsh’;
• Proto-Celtic *(p)eno- ~ *(p)anā- < *(p)nā- ‘moor, swamp’: Gaulish anam glossing ‘paludem’ ‘marshy ground, swamp’, Middle Irish en, an ‘water’, enach ‘moor, swamp, bog, fen’ < *(p)enākom. The ancient river name Anas possibly belongs here. Now the Guadiana, it reaches the Atlantic at the Isla Cristina salt marshes on what is now the border of Portugal and Spain.
• Baltic: Old Prussian pannean ‘moor, muddy field, ditch’.

d. Italo-Celtic/Germanic/Balto-Slavic (ANW)

SEA, LAKE *mori-. • Proto-Germanic *mari ‘lake, sea’ < Pre-Germanic *mori-: Gothic mari-saews ‘lake’, Old Norse marr, Old English mere ‘sheet of standing water, lake, pond, pool, sea’, Old Frisian mere ‘sea’, Old Saxon and Old High German meri ‘sea, lake’;
group name Morini, divine name DEO APOLLIN[I] MORITASGO and DEO MORITASGO (cf. Prósper 2002, 203), Gaulish / Ancient Brythonic BRITANNICANVS MORITEX ‘British seafarer’ (CIL XIII, 8164a — Köln), ‘Cimbric’ Morimarusa (see §7 above), Ancient Brythonic personal names Mori-camulus (Verulamium), accusative mori-gamulus (Bath), place-names Μορικαμή ‘crooked sea’, Moridunum ‘sea-fort’ (Modern Welsh Caerfyrddin, Anglicized Carmarthen), Old Irish muir ‘sea’, Scottish Gaelic muir, Old Welsh mor, ‘sea, ocean, the deep, also figuratively plenty, abundance, copiousness’, also merin < *morīn- ‘sea, tidal estuary, firth’, Old Breton mor ‘sea’, mor-gablou glossing ‘aestuaria’ (literally ‘sea-forks’), Middle Cornish mor; ● Proto-Italic *mari- ‘sea, lake’: Latin mare ‘sea, sea water’; ● Proto-Balto-Slavic *morjo-: Old Lithuanian mārios ‘lake, sea’, Old Church Slavonic morje ‘sea’. ¶ Ossetian mal ‘standing water’ is usually also assigned to this root, in which case vmor-i- existed in Post-Tocharian Indo-European, though the meaning ‘sea, lake’ evidently developed only in NW.

§40. Weapons and warfare

a. Celto-Germanic (CG)

AXE *bhei(a)tlo- ~ *bhei(a)-. ● Proto-Germanic *bībla- ‘axe’ [PRE-GRIMM 1]: Old Norse bildr ‘axe’, Old High German bīhal; ● Proto-Celtic *beyatlo- ~ beyali-: Old Irish biail (occurring in the Ulster Cycle tale Fled Bricrenn), Old Welsh baill glossing ‘securis’ ‘axe, hachet’, Middle Welsh buyll, bwell, Middle Breton bouhazl, Middle Cornish boell, būl. ¶ The Germanic and Middle Breton forms point to an intelligible Proto-Indo-European formation *vbheiH- ‘strike’ + instrument suffix *-tlo-, hence ‘striking instrument’.
BATTLE, FIGHTING, VIOLENCE 1 *bhodwo-.

- Proto-Germanic *badwā ‘battle’: Old Norse bǫð, Old English beadu, Old Saxon bodu, Old High German batu-;
- Proto-Celtic *bodwo-: Gaulish personal names Boduus, Boduo-gnatus, Ateboduus, Atebodua, Boduognatus, Boduacos, Boduogenus, Boduos (GPN 151); Ancient Brythonic BODVOCI (ECMW 229), coin legend BODVOC (Van Arsdell nos. 1052–1–1057–1–15, c. 10 BC), Middle Irish bodb, badb ‘war-god(dess); scald-crow (i.e. bird on the battlefield and manifestation of the war-goddess)’ < *bodwā, cf. Gaulish goddess name [C]ATHUBODVAE, Old Welsh personal names Artbodgu, Elbodgu, Boduan, Gurbodu, Lann Arthbodu; Old Breton bodou glossing ‘ardea’ ‘heron’, Old Breton Personal names Eubodu, Tribodu, Catuuodu.

2 *katu-.

- Proto-Germanic *hāpu- ‘battle’ [PRE-GRIMM 1]: Ancient Nordic hāpu (Strøm whetstone, Sør-Trønelag, Norway ~AD 450, Antonsen §45), Old Norse hōd and god’s name Hōdr, Old English heado-, Old Saxon hathu-, Old High German hadu-, personal name Hadumār;
- Proto-Celtic *katu- ‘battle’: Galatian KATOMAROS, Gaulish names Catu-māros (~ Old High German Hadumār), Catuvirix, Catu-slougi, &c., divine epithet MARTI CATVRIGI (8 examples, Jufer & Luginbühl 2001, 33), Old Irish cath, Ogamic Primitive Irish ROCATTO, CATOTIGIRNI, CATUBUTTAS, AMBIKATOS; Ancient Brythonic group name Catuvellauni > Old Welsh personal name Catguolaun, Old Breton Catuwallon, Old Welsh cat ‘battle’.

3 *weik- ~ *wik- < NW Indo-European *weik- with unique specific CG meaning.  

- Proto-Germanic *weih-,* wigana- ‘to fight’ < [PRE-VERNER] *wijana- [PRE-GRIMM 1]: Gothic weihan (cf. Gothic dative singular du wigana ‘in order to fight’), Ancient Nordic uui-gaz ‘warrior’ (Eskatorp/ Väsbö bracteate rune ~AD 440–560 (Wicker & Williams 2012)), Old Norse vega ‘kill, fight’, Old Norwegian viga ‘to kill’, Old English and Old High German wihan ‘fight’; BATTLE Proto-Germanic *wiga-: Old Norse vīg, Old English wīg, Old Frisian wīch, Old Saxon, Old High German wīg;  

¶ Contrast nasal infixed Latin vincō ‘conquer’, Lithuanian veikti ‘make, work’. 


6 *nant-*. ● Proto-Germanic *nanþjana ‘to dare, strive, be bold’ [PRE-GRIMM 1]: Gothic ana-nanþjan ‘to take courage’, Old Norse nenna, nenda ‘to have a mind to, to intend’, Old English nēban ‘to venture, to risk’, Old Frisian binēþa ‘to venture’, Old Saxon nāðian ‘to strive’, Old High German gi-nenden, nanta ‘to apply oneself, to have courage’; ● Proto-Celtic *nanti-: Gaulish personal names NANTIVS, patronym NANTONICNOS, Ancient Brythonic MATRIBVS, M. NANTONIVS ORBIOTAL. V.S.L.M. (RIB I–618 — Doncaster), Old Irish nēit ‘battle, combat, fighting’, Nēit ‘god of battle, husband of the war-goddess Nemain or Badb’. ¶ Tocharian A nati, Tocharian B nete ‘might, strength’ cannot be closely related, as the second *-n- would be preserved if from the same proto-form (Matasović 2011, s.n. *nanti-).


BATTLE-WOLF > HERO *katu-wik~o- ~ *katu-wolk~o-. ● Proto-Germanic *habuwlafaz [PRE-GRIMM 1]: Ancient Nordic personal name haþuwlafaz (Istby runestone, Blekinge, Sweden, probably 7th century AD); ● Proto-Celtic *katuwolkos ‘hero, battle-hawk’ < ‘battle-wolf’: Gaulish Catuvolcus (a chief of the Belgic Eburones †51 BC (Caesar, Bello Gallico §5, 24)), Middle Welsh katwalch, plural [c] adweilch ‘hero, champion, warrior’.

CLUB, CUDGEL, STAFF, STICK *lurk-*. ● Proto-Germanic *lurkaz? [PRE-GRIMM 2]: Old Norse lurkr ‘club, thick stick’; ● Proto-Celtic *lorgā or *lurgā: Old Irish lorg ‘staff, stick, rod, club, cudgel’, Old Cornish lorch glossing ‘baculus’ ‘staff’, Archaic Welsh (Peis Dinogat) llory ‘hunter’s club, cudgel’, Breton lorchenn ‘cart shaft’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] It is likely that this word is a Celtic-to-Germanic loan, but unclear whether this occurred in the prehistoric period or Viking Age. A borrowing
of Proto-Celtic *lurgā before the operation of Grimm 2 would best explain the u and k of the Old Norse. On the other hand, the distribution of the Germanic forms limited to Scandinavian languages would be consistent with borrowing in the historical period. The first element of the Old Norse compound jarn-lurkr ‘iron staff’ is from Old Irish ñarn.


CUTTING WEAPON AND/OR TOOL (?) *skey- ~ *ski-. Proto-Indo-European vskey- ‘cut’ is attested in its original basic meaning as Middle Breton squeiaff ‘to cut’. Given the differences in meaning and word formation and the limitation of the Germanic cognates to Scandinavian, it is more likely that Old Irish scīan ‘knife’ = Middle Welsh ysgien ‘knife, sword’ and Old Norse skeggia ‘axe’ reflect independent developments from this root in Celtic and Germanic rather than the shared formation of word ‘cutting weapon’ at a common stage.


FELLOW TRAVELLER, COMRADE, PARTNER *sentiyo-. ● Proto-Germanic *ga-sinþja- ‘retinue’ [PRE-GRIMM 1]: Old English gesēpscipe ‘following, fellowship’, Old Saxon gesiðskepi ‘following, fellowship’, Old High German gisindi ‘war retinue’; ● Proto-Celtic *sentiyo- ‘fellow traveller’: Middle Welsh hennydd ‘opponent joined in combat, comrade, fellow’, Breton hentez ‘neighbour’, Old Irish sēitig ‘wife, consort, fellow, companion’, suffixed forms derived from Proto-Celtic *sento- ~ *sentu- ‘road, path, course’ < *sentos ‘way, passage’. ¶ The suffix of Old Irish feminine ī-stem sēitig < *sentikī has probably been influenced by a form like the source of Old Welsh gurehic, Old Cornish grueg, Middle Breton gruec ‘wife’ < Proto-Celtic *wrakī. ¶ Proto-Indo-European ∫sent-, ‘head for, go’.

Figure 26. CG *ghaiso- ‘SPEAR’, *lust- ‘SPEAR’, *dhelgo-, *dholgo- ‘DRESS PIN, BROOCH’, *gùstis ‘DIGIT, FINGER’, ICG *arkwo- ‘BOW AND ARROW’, NW *skeltu- ~ *skelto- ~ *skoito- ‘SHIELD’. Late Bronze Age stela from La Pimienta, Badajoz, Spain, showing two warriors with swords, a bow and arrow, a large notched shield, and spear (photo: Jane Aaron).

GOAD 1 *bhrozdo- ~ *bhrzdo-. ● Proto-Germanic *bruzda- < Pre-Germanic *bhrzdo-: Old Norse broddr ‘spike’, Old English brord ‘point, grass shoot’, Old High German brort ‘spear, edge’ (cf. Icelandic bradd ‘edge’, Old English brēard ‘brim, margin’ Old High German brart ‘edge’ < Proto-Germanic *brazda- < Pre-Germanic *bhrozdo-); ● Proto-Celtic *brozdo-: Old Irish brot ‘goad, spike’ (part of the stock descriptions of chariots in the Irish sagas), Middle Welsh brath ‘bite, stinging, prick, piercing, stabbing’.  


GREAT/FAMOUS IN VICTORY *Seghi-mēros ~ *Segho-mōros. ● Proto-Germanic *Segimēraz: Ancient Germanic Σεγιμερος = Segimēros (Strabo), Ancient Nordic sigimaraz (Ellestad stone, Östergötland, Sweden ~AD 550–600, Antonsen §114), Old Norse Sigimarr, Old English Sigemær, Old High German Sigimar; ● Proto-Celtic *Segomāros: Hispano-Celtic SEGMARVS (HEp, 3, 201 — Aroche, Huelva), Gaulish (Gallo-Greek) CEGOMAPOP (RIG 1, G–153 — Vaison), genitive SEGOMARI.  

MILITARY COMMANDER (as divine epithet) *koryonos. ● Proto-Germanic *harjanaz [PRE-GRIMM 1]: Old Norse Herjann (a name of Óðinn); ● Proto-Celtic *koryonos: Ancient Brythonic group name, as Latin genitive plural CORIONOTOTARVM (RIB 1–1142) ‘commander+tribe’. ¶ The Indo-European word occurs also as Greek κοίρανος koiranos ‘ruler, commander, lord’, but Meid (following Charles-Edwards’s proposal on Corionototae) argues that *koryonos functions uniquely in Germanic and Celtic as a god’s name or epithet (Hyllested 2010, 110; Meid 1991, 48–9; Charles-Edwards 1974).
OVERCOME IN BATTLE *uper-weik-~*uper-wik-  ●  Proto-Germanic *uber-wih-< [PRE-VERNER] *ufer-wix- [PRE-GRIMM 1]: Old High German ubarwehan ‘to overcome’;  ●  Proto-Celtic *u(p)er-wik:- Old Irish for-fich ‘conquered’, Middle Welsh past tense guoruc < Proto-Celtic perfect *u(p)er-woike. The Welsh verb has been absorbed analogically into the forms of the nearly homophonous vwrég- ‘work’ > ‘make, do’ (Proto-Celtic perfect *wewroige). However, etymologically guoruc must also derive from the CG compound verb *uper-wik- ‘over’+‘fight’.

SHIELD (?) 1 OF WICKER *kleibho-  ●  Proto-Germanic *hliib- [PRE-GRIMM 1]: Gothic hleibjan ‘take the part of’, Old Norse hlif ‘shield, protection’, Old High German lipen, lippen ‘protect’;  ●  Proto-Celtic *klëbo-: Old Irish clìab ‘basket, hamper, beehive, cradle, coracle, rib cage’. ¶ See Hyllested 2010, 117.

SLING, SNARE *telm-.  ●  Proto-Germanic *pelmi- [PRE-GRIMM 1]: Old Norse þjálmi ‘a sort of snare’ (the operation of Grimm 1 precludes a Viking Age loanword);  ●  Proto-Celtic *telmi-: Middle Irish teilm, tailm ‘sling’, Old Breton talmorion gl. ‘cum funditoribus’ ‘with slingers, sling men’, Middle Breton talmer ‘slinger’, Middle Welsh telm ‘spear, trap, springe’. ¶ LEIA (s.n. tailm) suggests that the lack of lenition of m in the Brythonic forms (i.e. one might expect **telf) could be explained by a preform such as *talksmi-. On the other hand, a borrowing from Goidelic to Brythonic would also account for this feature. A metathesized variant of the native Brythonic form possibly underlies the common verb of obscure derivation Middle Welsh taflu ‘to throw, cast, fling’, Middle Cornish teyl ‘throws’, Middle Breton taulet ‘is thrown’, cf. the Early Welsh compound (Gododdin) tawløyw ‘spear cast’ or possibly ‘spear thrower’ < *tamlo-gaiso-. ¶ Possibly Proto-Indo-European Vtelk- ‘beat, hit’ (Matasović 2009 s.n. *telmi-).

SPEAR 1 *ghaisó-.  ●  Proto-Germanic *gaizaz ‘spear, tip’ < *gaiso-: Old Norse geirr, Old English gār, Old Saxon gēr, Old High German gēr;  ●  Proto-Celtic *gaisom ‘spear’: Gaulish gaesum, cf. personal names Ario-gaisus, Gaesorix, Gesatorix, Galatian Γαισατοριξ (Freeman 2001, 56), group name Γαισαται Gaesati, Old Irish gae, Old Cornish hoch-wuyu glossing ‘venabulum’ ‘hunting spear’, literally ‘swine-spear’, Middle Welsh gwayw. ¶ Proto-Indo-European ĭghyes- ‘wound’: Sanskrit hināsti ‘wounds’. ¶ The Brythonic forms may (in part or entirely) reflect the compound *u(p)o-gaiso- = Old Irish foga.

2 *lust-.  ●  Germanic: Old Norse ljóstr ‘fish-spear’;  ●  Proto-Celtic *lustā: Middle Irish los ‘end, butt, foot, point of a staff, stick, &c.; stem of a drinking horn; tail of an animal’, Middle Welsh llost ‘tail, spear, lance, javelin’, Middle Cornish lost, Breton lost ‘tail’.

SPEAR-KING *Gaizo-rīg-<*-rēg-.  ●  Proto-Germanic *Gaizaraiks, Latinized Gaisericus was the name of the long-lived king of the Vandals (~AD 389–477);  ●  Proto-Celtic *Gaiso-rīg-: Gaesorix (Caesarix in some texts) was the name of the chief of the Cimbri captured by the Romans in 101 BC; the form of the name is completely Celtic (like of the Cimbri’s other leaders Boiorix and Lugius), though the Cimbri were probably originally Germanic speakers (§7).

STRENGTH, FORCE, VALOUR *nert-.  ●  Proto-Germanic *nerpu-[PRE-GRIMM 1] in the divine names Nerthus ‘terra mater’ said to have been worshipped by the Suebi by Tacitus (Germania §40), Old Norse god’s name Njörðr, father of Freyr;  ●  Proto-Celtic *nert-: Old Irish nert ‘strength’, Old Welsh nerth glossing ‘ui’ and the verb nertheint ‘they are strengthened’, Old Breton nerth glossing ‘robur’ ‘hard wood, hardness’, cf. Old Irish sonirt = Middle Welsh hynert ‘strong’ < *su-nerti-, cf. Celtiberian place-name Nertobriga/ nertobis ‘strong hillfort’ (Cabezo Chinchón, Calatorao/La Almunita de Doña Godina, Zaragoza), Gaulish personal names NERTA, NERTVS, NERTACOS, NERTINIVS, NERTONVS, NERTOMAROS ‘great in strength’ (= Old Irish nertmar, Middle Welsh nerthfawr), NERTOMARIVS NERTONVS, COBNERTVS, ESNERTVS.

¶ Formally and semantically similar CG developments from Proto-Indo-European VH₂,ner- ‘man, hero, be strong’. 
STRIKE (IN BATTLE) 1 *kelto- ~ *keltyo- (?). The Celtic evidence is limited to names, so their meanings can only be inferred. Various etymologies have been offered for the group name(s) Kełtoũ, Celtae, Celtici, Kελτιβηρες, &c. (cf. McConé 2008). On balance, a derivation from Proto-Indo-European *kleH₁- ‘strike’ giving *kelto- ~ *keltyo- ‘battle’ commonly in Germanic and Celtic is particularly plausible in the light of the values and naming practices of ancient Celtic-speaking groups. • Proto-Germanic *hildja- [PRE-GRIMM 1]: Old Norse hildr ‘battle’, Old English hild ‘war, battle’, Old High German hilita, early Germanic male names e.g. Old High German Hildebrand, Frankish Childebert, more numerous female names e.g. Old Norse Brynhildr, Frankish Nanthechilde. This usage can be understood as result of a feminine personification of ‘Battle’ *Hildja-, as found in the Norse mythological figures Hildr the valkyrie and Hildr Högni’s daughter who each night magically revives the slain warriors of the never-ending battle. • Proto-Celtic *kelto- ~ *keltyo:- group names Kełtoũ, &c., personal names Gaulish Celtus, Celtiǔs, Celtillus, Celtilla, Old Irish Celtchar.

¶ Celtic < *keltoys recurs as a Palaeohispanic personal name:


¶ Proto-Indo-European *kleH₂- in the sense ‘strike’ is best attested, possibly exclusively, in NW: • Celtic: Middle Irish cellach ‘contention, strife’ < *kellάko-; the Gaulish god’s name Sucellus often interpreted as ‘good striker’; • Proto-Italic *kelne/o:- Latin cellā ‘strike’; • Proto-Balto–Slavic *kolt- ‘beats’, Old Church Slavonic *kol’ta- ‘beat, forge’, Latvian kālti ‘beats, forge’, Lithuanian kūlti ‘thresh, beat’, Old Church Slavonic klati ‘kill’, Russian kōlot ‘to prick, stab, chop’; *kolptó ‘striking instrument’: Lithuanian kūtás ‘chisel’, Latvian kālts ‘chisel, small hammer’, Russian dialect kōlot ‘wooden sledge hammer, small club’. Greek κλάω ‘break (off)’, for which Beekes suggests a Pre-Greek origin, has a somewhat different meaning.

STRIKE (IN BATTLE) 2 *slak- • Proto-Germanic *slagiz ‘blow, stroke’, *slahan- ‘to slay’ [PRE-GRIMM 1]: Gothic slah ‘stroke’, slahan ‘strike’, Old Norse slagr ‘stroke’, slá ‘strike’, Old English slēan ‘to strike to death’, slege ‘blow, stroke’, Old Frisian slei ‘stroke’, slān, slá ‘to slay’, Old Saxon slegi ‘stroke’, slahan ‘to slay’, Old High German slag stroke’, slahan ‘to slay’; • Proto-Celtic *slak-: Middle Irish slachta ‘struck’, glossary word slacc ‘sword’, Scottish Gaelic slathd ‘strike with a club’. ¶ Middle Irish sleg ‘spear’ (a word common in the Ulster Cycle) is possibly related to these words, though more probably connected to the Sanskrit verb *sṛjāti ‘throws’.

STRIVE, SUCCEED *pleid-. • Proto-Germanic *flihana- ‘strive’ [PRE-GRIMM 2] [PRE-GRIMM 1]: Old English flitan, Old Saxon anflian ‘to exert oneself’, Old High German flizan ‘attempt, try hard’, sih flizan ‘to apply oneself to’; • Proto-Celtic *(p)ledo-: Middle Welsh llwydaw ‘to succeed, flourish, prevail, promote’.

TROOP 1 *dhru(n)gh-. • Proto-Germanic *druhtiz ‘warband’: Gothic driugan ‘to serve as a soldier’, gadrauhts ‘warrior’, Old Norse drótt ‘company, following’, Old English dryht ‘companion’, Old Frisian drecht ‘wedding party’, Old Saxon druht-folk ‘multitude, throng’,
Old High German *trœht* ‘troop’; • Proto-Celtic *drungos*: Gaulish *drungos* ‘groups of enemies’; Middle Irish *drong* ‘troop’, Old Breton *drogn* glossing ‘cetus’, *drag* glossing ‘factionem’ ‘assembly, troop’, possibly also Middle Welsh *dronn* ‘multitude’. ¶ Unique CG meaning for this root: cf. Old Church Slavonic *drugă* ‘friend, other’, Lithuanian *draugas* ‘friend’ < NW *dhroughós* ‘comrade, companion’.

2 *worīn*-. • Germanic: Old English *worn*, *weorn*, *wearn* ‘troop, crowd, company, multitude, flock, many, progeny’; • Proto-Celtic *worīnā*-: Old Irish *foireann* glossing ‘factio’ ‘group, band, troop, company, set of board-game pieces’, Scottish Gaelic *foireann* ‘auxiliary band, ship’s crew’, Old Welsh *guerin*, Middle Welsh *gwerin* ‘people, populace, folk, troop, host, throng, rank and file of an army, ship’s crew, set of board-game pieces’, Old Breton *guerin* glossing ‘in duas factiones’, Middle Breton *gueryn* ‘people’.

3 *pluk-* (see §39.a) BOATLOAD/CREW OF A BOAT.

WEREWOLF — WOLF, PREDATOR = WARRIOR OUTSIDE THE TRIBE

2 *wiro-kō(n), PRE-GERMANIC [PRE-GRIMM 1]: Old English *werewulf*, Middle Dutch *weerwolf*, Middle High German *werwolf*, Danish and Norwegian *varulv*, Swedish *varulf*, Old Northern French *garwall* < Old Norse *varulfr*; • Proto-Celtic *wiro-kū*, genitive *wiro-kunos*, accusative *wiro-konam*: Celtiberian *uiroku*, Ancient Brythonic place-name *Viaiconium* ‘Wroxeter’, Old Irish personal name Ferchu, cf. Middle Irish common noun ferchu ‘male dog, fierce dog’, Old Welsh *Guurci*, Old Breton Gurki, note also Old Breton don-bleid ‘human-wolf’ glossing ‘Lupercus’ (the name of Roman god with wolf-like and human attributes). ¶ Unusual parallel compound with cognate first element and common meaning. Mythological literature in Vedic, Old Norse, and Middle Irish provide evidence for an Indo-European cult focused on dogs and wolves identified with an age grade of young, unmarried warriors (McCone 1987; 2002; Kershaw 2000; Meiser 2002; Mallory 2007). Archaeological evidence for this cult has recently been adduced from a site of the Late Bronze Age Srubnaya culture on the Middle Volga Steppe (Anthony & Brown 2017b; Brown & Anthony 2019).

WILD DOG, WOLF, PREDATOR = WARRIOR OUTSIDE THE TRIBE 3 *wolkos.* • Proto-Germanic *walhaz* ‘foreign warrior’ > ‘Italo-Celt’? > ‘Romano-Celt’ [PRE-GRIMM 1] [predates Pre-Germanic *ō > *ō (Fulk 2018, 47)]: Ancient Nordic *walhaz* = *widuhundaz* (Himlingøje clasp 2, Sjælland, Denmark, ~AD 200, Antonsen §5) [PRE-GRIMM 1]; Proto-Celtic *widukū* plural *widukones*: Early Welsh (*Gododdin*) plural gwȡwydawn (Koch 1980), possibly the Gaulish divine epithet MERCVRIO VIDVCO.

WOLF, PREDATOR = WARRIOR OUTSIDE THE TRIBE 2 *widhu-kō(n), nominative plural *widhu-kones*, unique CG compound (‘woods’+’dog’). • Proto-Germanic *widuhundaz*: Ancient Nordic *widuhudaz* = *widuhundaz* (Himlingøje clasp 2, Sjælland, Denmark, ~AD 200, Antonsen §5) [PRE-GRIMM 1]; Proto-Celtic *widukū* plural *widukones*: Early Welsh (*Gododdin*) plural gwȡwydawn (Koch 1980), possibly the Gaulish divine epithet MERCVRIO VIDVCO.
gwalch ‘hawk, falcon; noble warrior, brave fighter, hero’, Old Breton personal name Uualcmoel. What is probably the earliest occurrence in Welsh is in Y Gododdin, where the variants of the line as written by the B and A scribe must be compared: bu guanar gueilgig gwrymde (B2.33) = bu gwyr gweilch gwrymde (A.69), which can be reconciled as bu guanar gueilc[h] ing gwrymde ‘he was a captain of warriors in dark-coloured [armour]’, in which the context of gueilc[h] is reminiscent of that of its cognate foilc in the Old Irish passage above, dark clothing being one of the comparative attributes identified for bands of Indo-European-speaking landless young warriors emulating wolf/dog attributes (McCone 2002; Mallory 2007). ¶ If correctly interpreted, the Ancient Nordic kenning walha-kurne “‘Welsh’ corn’ for ‘gold’ is noteworthy in highlighting the idea that the *Walhiz lived by exotic metals rather than agro-pastoral subsistence. ¶ *wolkos is probably a development of Proto-Indo-European *wlk’os ‘wolf’ (Jenkins 1990). The first step in the phonological derivation is *wolk’os as an ablaut grade. In the paradigm of this, there would have been forms, such as dative singular *wolkūi and accusative plural *wolkūs, in which the probably Proto-Celtic development of */k’ū/ > */kū/ occurred. From there *k < *kw spread through the paradigm. Alternatively, as proposed by Jenkins, *k < *kw could have arisen by dissimilation triggered by the initial *w- in *wolk’o-. Lepontic uklos probably reflects a different Celtic syllabification of Proto-Indo-European *wlk’os ‘wolf’. ¶ This word has helped to underpin the idea that the Celto-Germanic words arose largely in contact in the Iron Age in Central Europe, at a time and place of expansion of Germanic-speaking groups into what is now Central and South Germany (cf. De Vries 1960, 32–3, 68). Undoubtedly, this line of thinking has been suggested because the form Volcae is first encountered in historical records as a group name current shortly before the Roman conquest of Gaul, leading naturally to the thought that the Germanic forms represent a borrowing of the name of this group at more or less this time. Of course, we have no records for Transalpine Europe before this, and there is no linguistic or anthropological reason that *wolkos ‘landless young warrior’ < Proto-Indo-European *wlk’os ‘wolf’ must be as late as the La Tène Iron Age. The facts that the word is attested in Ancient Nordic and Old Norse and that it entered the Germanic stream before the operation of Grimm 1 and *ō > *ā are consistent with an earlier scenario. The shift of meaning in Germanic suggests that the word was encountered mainly in connection with hostile mobile warriors from other groups. ¶ A second large group found in the Hercynian region—thought the group name once again was widely distributed—were the Boii. Their name occurs as the first element of the place-name Boiohaemum, i.e. Bohemia. Boii can be etymologized as Pre-Celtic *g’owyōs, ‘cattle owners’, i.e. men of property and status (cf. Anreiter 2001, 157). This gives Old Irish būe ‘native, as opposed to foreign, a person with legal rights, man of property’ < ‘cattle owner’. In Old Irish legal terminology, the opposite of the būe was the ambuae, the cow-less man without possessions or legal connections, a person from outside the tūath. That is close to what is proposed here as the older sense of *wolkos, before the term changed meaning, becoming attached to specific large armed groups on the move. As I previously proposed, the original distinction of Boii versus Volcae, ‘cattle owners’ versus ‘wolves’, had been that of legally competent adult tribesmen versus mostly younger, landless men seeking property and portable valuables, to win status in foreign lands (Koch 1990). ¶ Also in Old Irish legal terminology, the term cú glas ‘wolf’ (literally ‘grey dog’) is used to mean a mercenary warrior outside his own tribe (tūath), thus lacking legal standing. The metaphor and concept are essentially the same as that proposed here for *wolkos. The byname Tectosages, meaning ‘journey pursuers’ or the like, also supports this interpretation. The combination Volcae Tectosages is applied by Caesar to the group in Central Europe and is also the name of the group living near Toulouse and said to have had a leading role in the attack on Delphi in 278/279 BC, according to Strabo (v.1.12–13), citing Timagenes. According to Justinus’s Epitome of the Philippic Histories of Trogus Pompeius (xxxii.3),
the Volcae Tectosages brought a great treasure (back?) to Tolosa (Toulouse) from the raid on Delphi. Might the walha-kurne ‘grain of the Volcae’ = ‘gold’ of the Tjurkö rune be another reference to this story? Tectosages is also the name of one of the principal tribes of the Celtic Galatians who established themselves in Central Asia Minor around Ankara ~270 BC.


2 *knit- ~ *kneit-. • Proto-Germanic *hnītana- [PRE-GRIMM 1]: Old Norse hnīta ‘wound to death’, Old English and Old Saxon hnītan ‘thrust, stab’; • Proto-Celtic *hnītā-: Old Irish *chned ‘a wound, sore’. ¶ Contrast Greek κνίζω ‘scratch’ verb.


4 *gwen- ~ *gwôn-. • Proto-Germanic *banjô- ‘a wound’: Gothic banja ‘strike, wound’, Old Norse *ben, genitive singular benjar, Old English ben(n) ‘slayer, murderer’, Old Frisian *bona, Old Saxon, bano ‘death, murder’, beni-wunda ‘wound’, Old High German bano ‘death, bringer of death, bane, killer’; • Proto-Celtic *gwen- ‘wound’: Old Irish guin ‘wound, injury’, cf. Welsh gwaniad ‘stab, thrust, prick, wound’. ¶ From Proto-Indo-European *gwen- ‘kill’, also the source of Old Irish *go*nai* ñd, Early Welsh gwenynt ‘wounds, slays, advances upon’ < Proto-Celtic *gweni-. ¶ For a different etymology in Germanic, see Kroonen 2013, s.n. *banjó. ¶ Proto-Germanic *wunda- ‘a wound’ (Gothic *wunds, Old Norse und, Old English wund, Old High German wunda) is not related.

5 *koldo-. • Proto-Germanic *halta- ‘lame, limping’ [PRE-GRIMM 2] [PRE-GRIMM 1]: Gothic halts, Old Norse haltr, Old English *heal* ‘lame, crippled, limping’, Old Frisian hal, Old Saxon hal, Old High German halz; • Proto-Celtic *koldo-: Old Irish *coll ‘destruction, spoiling, injury, loss, castration, deflowering’, Middle Welsh *coll ‘loss, damage, hurt, destruction, harm caused by loss’, ar-choll ‘wound, cut, gash, hurt, injury’, Middle Breton *coll. ¶ Proto-Indo-European *Vkold- ‘strike, cut’.

6 *kre(n)g- ~ *krog-. • Proto-Germanic *hrakjan- < Pre-Germanic *krog-éye- [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *hrekja ‘to drive away, worry, vex, damage, abuse’; • Proto-Celtic *krenxtu- ~ *kreng-tu-: Old Irish *crecht ‘wound, ulcer’, Old Breton creithi gl. ‘ulcer’, Middle Breton singulative creizenn ‘scar’, Middle Welsh creith ‘scar, wound’.

7 *sai-. • Proto-Germanic *sairaz: Gothic *sair, Old Norse *sár ‘wound, pain’, Old English *sær ‘pain, wound, suffering; painful, grievous’, *særig ‘sorry’, Old Frisian *sēr ‘pain’, Old Saxon *sēr ‘pain’, Old High German seró ‘painfully, in a difficult way’, whence Finnish *sairas ‘sick, ill’; • Proto-Celtic *saí-tu-: Old Irish saeth ‘trouble, hardship, distress, tribulation (both physical and mental), disease, illness’, Middle Welsh *hoet ‘longing, sorrow, grief, vexation’.
b. Italo-Celtic/Germanic (ICG)

BOW AND ARROW *arkʷo-.

- Proto-Germanic *arhʷ-sō- ‘arrow’ (PRE-GRIMM 1): Gothic arhu azna, Old Norse gr, Old English earwe, earh; 
- Proto-Celtic *arkʷo- ‘bow (and arrow)’: very common Hispano-Celtic name Arquius ‘bowman’, feminine Arcea, place-name Arco-brigā ‘bow-shaped hill’ (see below); Middle Welsh arffet ‘lap, groin’ < *arkʷetā; 
- Proto-Italic *arkuo- ~ *arkʷo- ‘bow’: Latin arcus, gen. arquī. ¶ As Mallory explains, ‘... there is no certain evidence that the bow was employed in Ireland between 1500 BC and AD 800’ (2016, 195).

The earlier meaning of the word is probably reflected in Greek ἄρκευθος ‘juniper’, Latvian ėrcis, Russian rakīta ‘juniper’, a wood suitably flexible for making bows. The transference to the weapon made from juniper was confined to ‘Italo-Celtic/Germanic’. ἄρκευθος ‘juniper’ is hard to reconstruct Russian word is probably reflected in Greek ἄρκευθος, Latvian ėrcis, 1500 BC and AD 800’ (2016, 195). ¶ The earlier meaning of the word is probably reflected in Greek ἄρκευθος ‘juniper’, Latvian ėrcis, Russian rakīta ‘juniper’, a wood suitably flexible for making bows. The transference to the weapon made from juniper was confined to ‘Italo-Celtic/Germanic’. ἄρκευθος ‘juniper’ is hard to reconstruct as a Proto-Indo-European root and therefore probably goes back to one of many plant names borrowed into the European branches from non-Indo-European.

¶ The numerous Palaeohispanic attestations, most of which are in the West, have been explained as derived from PIE *H₂r̥tkos ‘bear’ (see above). In the light of phonological difficulties for this explanation, an alternative possibility may be considered, such as, assigning the Arco- names to ICG *arkʷos ‘bow and/or arrow’.

In favour of this derivation, it may be noted that the most certainly locatable of the four places called Arcobriga listed by Guerra is the hill of Cerro Villar, Monreal de Ariza, Zaragoza (2005, 813; see below for the other examples). That hill itself has yet to yield Bronze Age or Iron Age remains. But viewed from the direction of Iron Age necropolis and Roman town of Arcobriga on the plain, Cerro Villar presents the shape on the horizon of a symmetrical bow, convex side skyward, with pronounced shoulders at either end and a depression in the middle corresponding to the section of a bow form that would be gripped by the hand with the arrow passing over. The shape is similar in particular to the simplified abstract form of the 11 bows with arrows depicted in the South-western warrior stelae compiled by Harrison (2004, fig. 7.15). In other words, the striking view from the ancient settlement is a strong point in favour of the argument that Arco-brigā meant ‘bow(-shaped) hill(-fort)’.

The appearance of simple velar in Arco- in the place of an inherited labio-velar would not be surprising given the probably Proto-Celtic development of */kʷʊ/ > */kʊ/, as for example in silva Hercynia < *Ferkun- < Pre-Celtic *perkʷun- ‘oak wood, wood of the oak god’ > ‘THUNDER, THUNDER GOD’ (before the operation of the rule of *p...kʷ* assimilating to */kw*/). In a nasal-stem inflection this phonemic convergence of */kʷʊ/' and */kʊ/ would have occurred in nominative singular *arkʷʊ > */arkʊ/, after which */k/ could naturally have spread through the paradigm. Similarly, with the -o-stems, there would have been neutralization with dative singular *arkʷʊ > *arkū, and accusative plural *arkʷūs > *arkūs, followed by levelling of the paradigm generalizing the phoneme */k/ throughout.

On the phonetic level, the process envisioned would not be a matter of */[kʊ]/ losing its labialization in the environment preceding */[uː]/, but rather that the phoneme */k/ was labialized before */[uː]/ to such an extent that it ceased to contrast with */[kʊ/ in this environment, and the phoneme */kʊ/ fell together with the more common phoneme */k/ as */k/. This stage was reached in Proto-Celtic. A similar phonetic conditioning would also have existed for the combination */ko/, in which the velar would tend to be labialized as */[kʊ]/ undermining the contrast with */[kʊ]/. The unusual family name of L. VALERIVS L. F. ARQVOCVS (Palol & Vilella 1987, 96; HEp, 2, 151; HEp, 13, 199 — Peñalba de Castro, Burgos) may be inaccurately spelled and identical to that of FL[ORIN]A LIBERTA ARQVIOCVM (AE, 1985, 604; Abascal 1994, s.v. — Alcalá de Henares, Madrid). Note also ACCAE DEOCENAE
QVORONICVM CADANI F (ERSg, 6; HEp, 13, 576; AE, 2003, 963 — San Miguel de Bernuy, Segovia) which probably contains the Palaeohispanic name element usually spelled CORO-,

and QVOELIA (CIL II, 5698; ERPL, 270 — León) which is surely the same name as COELIA (IRPL 224, 287 — Noceda, León).

CELTIBERIAN REGION. Place-name ARCOBRIGA (Cerro Villar, Monreal de Ariza, Zaragoza).

CENTRAL REGION. REBVRRVS ARCONIS F. (HAE, 149 — Talavera de la Reina, Toledo). DIVINE NAME. ARCONI (ERSg, 59 — Saldaña de Ayllón, Segovia); ARCONI (HAE, 394; HEp, 2, 425; ERSg, 58; Abascal 1983, 34 — Saldaña de Ayllón, Segovia).

WESTERN PENINSULA. AVRELIAE ARCONIS F(ILIAE) ANNITAE (HAE, 847; HEp, 6, 1021 — Vale de Vargo, Serpa, Beja); [...]DA ARCONI F. (AE, 1971, 160 — Serpa, Beja);
ARCO MELBI (HEp, 7, 1165; ERBRagança, 23 — Castro de Avelãs, Bragança); ANNIVS ARCONIS (CIL II, 948; Encarnação 1986, 328; CPILC, 130 — Cáceres o Vila Ruiva, Cuba, Beja); ARCO CANTONI F. (HEp, 1, 151; HEp, 2, 191; HEp, 3, 113; CILCC I, 29 — Alcântara, Cáceres); ARCO (CIL II, 737; CPILC, 43; CILCC I, 80 — Arroyo de la Luz, Cáceres); ARC[O]NI AMBATI F. CAMALICVM (CPILC, 660 = CPILC, 803 — Villar del Pedroso, Cáceres); CILIA ARCONIS F. (CIL II, 671; CPILC, 399 — Puerto de Santa Cruz, Cáceres); ARCONI (HAE, 781; CPILC, 802 — Villar del Pedroso, Cáceres); MAXSVMA TEIA ARCONI TVRCALE(NSIS) (CIL II, 5307; CPILC, 469 — Sierra de Fuentes, Cáceres); ARCONI VARI FIL[I]VS (AE, 1956, 161, nº 31; HAE, 1085 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); COMALIVS ARCONIS F. (AE, 1967, 153; HEP, 17, 223 — Alpedrinha, Fundão, Castelo Branco); MARCIO ARCONIS F. (HAE, 1147 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); NEPOS ARCONIS F. (AE, 1977, 365 — Fundão, Castelo Branco); TOVTONVS ARCONIS F. (HAE, 1113 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); ARCONI DVATI F(ILIO) (HEP, 13, 893 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); ALBINO ARCONIS F. (ERCon, 35 — Condeixa-a-Velha, Condeixa-a-Nova, Coimbra); [A]RCEA ARCO(NIS) (FE, 351 — Condeixa-a-Velha, Condeixa-a-Nova, Coimbra); ARCONI (FILIVS) (ERCon, 35 — Condeixa-a-Velha, Condeixa-a-Nova, Coimbra); ARCO MANCI F. (Encarnação 1975, 259; HEP, 4, 1055 — Oliveira do Hospital, Coimbra); AVITVS ARCONIS F. (EE, IX 32; Rodrigues 1959–1960, 131 — Condeixa-a-Velha, Condeixa-a-Nova, Coimbra); [---] VS ARCONIS (HEP, 6, 1045 — São João Baptista, Porto de Mos, Leiria); [---] PINTILI FIL++ ARCONICVM (Abascal 1999, 296; AE, 1999, 883; HEP, 9, 500; HEP, 10, 493 — Saldeana, Salamanca); ARCONIS TAGINI F. (HEP, 11, 378 — Puebla de Azaba, Salamanca); PINTOVIVS ARCONIS (HAE, 1257 — Campilduero, Salamanca); ARO ARCONIS (AE, 1983, 511 Yecla de Yeltes, Salamanca); ANNIVS PRISCIANVS ARCONIS (HEP, 18, 284 Yecla de Yeltes, Salamanca); ANDAMV[S] ARCONIS (HEP, 4, 1082; HEP, 5, 1048; HEP, 9, 759 — Ferreira do Zêzere, Santarem); TAL[T]ICVS ARCONIS F. (AE, 1988, 693; FE, 110; HEP, 2, 835; HEP, 3, 488 — Mouriscas, Abrantes, Santarem); MV[N]IA BROCINA ARCONIS F. (Encarnação 1984, 153; HEP, 7, 1203 — Alvalade-Sado, Santiago do Cacém, Setúbal); ARCO BETVNI (AE, 1978, 433; ERZamora, 111; CIRPZ, 212 — Villalazán, Zamora); CAENO ARCONIS (AE, 1977, 491; ERZamora, 79 — Carbajales de Alba, Zamora); CLOVTIO ARCONIS (HEP, 5, 906 — Villardiegua de la Ribera, Zamora); CVDIAE ARCONIS F. (HAE, 935; ERZamora, 59; CIRPZ, 313 — Villardiegua de la Ribera, Zamora); CHILO ARCONIS F. (ERZamora, 15; HEP, 5, 895; HEP, 10, 632 — Villalazán, Zamora); MAC(---) ARCO(NIS) F. (CIL II, 2615; ERZamora, 107; CIRPZ, 116 — Pino de Oro, Zamora); REBVRRO ARCONIS (HAE, 929; ERZamora, 47; CIRPZ, 274 — Villalcampo, Zamora); TOTONO ARCONIS (ERZamora, 123; HEP, 5, 909 — Villardiegua de la Ribera, Zamora); TVRENIO ARCONIS (HAE, 900; CIRPZ, 263; ERZamora, 40 — Villalcampo, Zamora); ARCOTVRVS PISIRI F. (HEP, 11, 378 — Puebla de Azaba, Salamanca); place-names [CE]LICVS FRONTO ARCOBRIGENSIS AMBIMOGIDVS FECIT TONGOE NABIAGOI // CELICVS FECIT // FRONT[O] (CIL II, 2419; EE, VIII 115; HEP, 1, 666; HEP, 5, 966; HEP, 7, 1160; Búa 2000; Elena et al. 2008 — Braga); *ARCOBRIGA/ARCOBRIGENSES (Dehesa de Arriba, Perales del Puerto, Cáceres); ARCOBRICA (Terrão, Alcácer do Sal, Setúbal); divine name NAVIAE ARCONVIECAE (IRLugo, 72 — San Mamede de Lousada, Guntin, Lugo).

Proto-Italic *χαστα*: Latin hasta ‘spear-shaft, lance’. [POSSIBLY NON-INDO-EUROPEAN SOURCE]

HATRED *καδα*: Proto-Italic *χαστα* and Latin *hasta* ‘spear-shaft, lance’. [PRE-GRIMM 2]

POSSIBLY NON-INDO-EUROPEAN SOURCE

HATRED *καδα*: Proto-Italic *χαστα* and Latin *hasta* ‘spear-shaft, lance’. [PRE-GRIMM 1]: Gothic *hatis* ‘hatred’, ON *hattr* ‘hatred, persecution’, Old English *hete* ‘hatred’, Old Frisian *hát* ‘hate’, *hatia* ‘to hate’, Old Saxon *hatan* ‘to hate’, Old High German *haz* ‘hatred’; Proto-Celtic *κατσι*: Middle Irish *cais* ‘both love and hatred’, Old Welsh *cas* ‘hatred, enmity’ (*ir ni be cas igridu* ‘that there would be no enmity between them’), Middle Welsh, Middle Breton *cas* ‘hatred’; at least some of the Ancient Celtic personal names with *Cassi-* probably belong here: e.g. Gaulish divine epithet VICTORIAE [CASSI[B]ODVAE, Ancient Brythonic *Cassia-vellaunos* ‘excelling in hostilities’, Galatian *κασσίτερος* ‘accustomed to hostilities’ (though other senses are possible, such as ‘tin bronze’); see below next item); Proto-Italic *kαττιδ*: Latin *cassis*, genitive *cassidis* ‘metal helmet’ (figuratively ‘war’), also *cassida*. Cf. Greek κασσίτερος, Attic καττίτερος ‘tin’, κασσιτερίδες νῆσοι ‘tin islands’, thought to be situated in the North Atlantic. Middle Irish *att* ‘hat, helmet’ is borrowed from Norse.

SHARP EDGE *ak- ~ *āk-*: Proto-Germanic *agjō-* < [PRE-VERNER] *axjā-* < Pre-Germanic *akyā-*: Old Norse *egg* ‘edge’, Old Frisian *edze* ‘edge, blade’, Old English *ēcg* ‘edge’, Old Saxon *eggia* ‘edge, corner, point, sword’, Old High German *ecka*, *egga* ‘edge, point, corner’; Celtic: Middle Welsh *awch* ‘(cutting) edge (of blade, &c.), sharpness, keenness’, Modern Welsh *κασσίτερος*); Gaulish *cassidanos* and South-western Celtic *kασετανα* most probably mean ‘overseeing officer of tin’ and/or ‘bronze’ (cf. Gaulish ARGANTODANNOΣ ‘overseeing officer of silver’ or ‘money’), probably also Cisalpine Gaulish woman’s name *Cassimara*; Proto-Italic *καττιδ*: Latin *cassis*, genitive *cassidis* ‘metal helmet’ (figuratively ‘war’), also *cassida*. 

HELMET OF TIN-BRONZE (?): *καττι- ~ *kāt-. Proto-Italic *καττι-*: Oscan genitive singular *cadeis* ‘hostility’. [PRE-GRIMM 1]: Old Norse *hǫttr*, *hattr* ‘hat, hood, cowl, turban’, *hetta* ‘cap’, Old English *hætt* ‘head covering, hat’, *hōd* ‘guard, watch’, *hod* ‘hood, cap’, Old Frisian *hath* ‘item of clothing for the head’, *hōd* ‘hood’, *hōde* ‘guard, watch’, Old High German *hōde* ‘guard, watch’, *huot* ‘hat, helmet’; Proto-Celtic *κατστι-*: there are numerous Ancient Celtic personal names with the element *Cassi-*, probably of multiple origin (see above), cf. in particular CASSIDIENVS and ΚΑΣΣΙΤΑΛΟΣ (in which the second element means ‘brow, forehead’, cf. Old Welsh Talhaern ‘having an iron brow’ = ‘wearing an iron helmet’; Beekes mentions a possible link with Ancient Brythonic *Cassia-vellaunos* (2010 s.n. *κασσίτερος*))...
awch and awg ‘sharpness, keenness, ardency, eagerness, desire’;
- Proto-Italic *akyā- ~ *aku-: Latin acīēs ‘keenness, edge’, acūtus ‘pointed, sharp’, acūmen ‘sharp point’, acure ‘to sharpen’.

The Celtic comparandum is isolated to Welsh, though with extensive and relatively early attestation there. awch is hard to reconstruct as a proto-form identical to the Germanic and Italic words of like meaning, despite a broad phonetic similarity. The Middle Welsh implies a reconstruction as Proto-Celtic *āk- or *āxs-. The variant awg permits the more easily analyzed *ā-.. The long *ā occurs also in Latin ācer ‘sharp’ < Proto-Italic *ākri-. The vowel of Middle Welsh hogi ‘to sharpen, whet, give an edge to’ was probably originally *ō rather than *ā, as shown by Middle Welsh present indicative, 3rd person singular hyc ‘sharpens’ and also the Old Welsh derived noun cemedic glossing ‘lapidaria’ ‘tool for dressing millstones’. Cf. HARROW below (§44b).

**STRIKE, BEAT 3 *bheud-**;
- Proto-Germanic *bautan [PRE-GRIMM 2]: Old Norse bauta ‘to beat, to chase’, Old English bēatan ‘beat, pound, strike, thrust, injure’, Old High German bōzan ‘to hit, beat’;
- Proto-Celtic *bibud- ‘guilty’ < perfect participle Pre-Celtic nominative singular *bibhudwōt-s, plural *bibbudwōtes ‘beaten’: Old Irish bibdu ‘one who is guilty, liable, condemned, a criminal, a culprit, enemy’, nominative plural bibdid, Old Welsh bibid glossing ‘rei’ ‘accused’, Middle Breton beuez ‘guilty’;

**WOUND, HAFTED METAL-TIPPED WEAPON 8 *snad-**;
- Proto-Germanic *snat- [PRE-GRIMM 2]: Old Norse snata ‘spear’, Old High German snazo ‘pike’, snatta ‘wound, scar, bruise’;
- Proto-Celtic *snado-: Middle Irish snaidid ‘cuts, chips, hews, carves’, Middle Welsh naðu ‘to cut with a sharp implement, hew, chip, whittle, engrave’, Old Welsh nedim ‘axe, hatchet’ by dissimilation < *naðið < Proto-Celtic *snadiyos ‘cutter, chopper, wonder’, cf. Middle Welsh kledyf ‘sword’ < *kledið < *kladiyos ‘striking/cutting implement’, from which Latin gladius; Old Irish claideb ‘sword’ is a loanword from dissimilated Late Ancient Brythonic *kladībha < *kladīðeð; • Slavic: Old Russian snastъ ‘instrument, weapon’.

**c. Celto-Germanic/Balto-Slavic**

AR quyos. • Proto-Germanic *harjaz [PRE-GRIMM 1]: Ancient Germanic compound personal name harigasti ‘guest of the warband’ (Negau B helmet ~200–50 BC), Ancient Nordic harja (Vimose comb, Fyn, Denmark ~AD 160), harija (Skåäng stone, Södermanland, Sweden ~AD 500), Gothic harjis ‘army’, Old Norse herr ‘host, troop, army’, Old English here, Old Frisian here, heri, Old Saxon heri, Old High German hari, heri; • Proto-Celtic *koryo-: Gaulish group names Cori-solites, Uo-corii (possibly ‘two troops’), Tri-corii ‘three troops’, Petru-corii ‘four troops’, personal name Ate-corius, Middle Irish cuire ‘troop, host, company’, Ancient Brythonic Corieltauvia ‘(tribe) having a broad warband’ < *koryo-(p)itawī-, Tricurius, Old Welsh cas-goord ‘retinue’, Middle Welsh corô ‘tribe, clan, multitude, troop’; • Baltic: Lithuanian kārias ‘war, army regiment’, Old Prussian karjiz ‘host’, caryago ‘military campaign’, cf. Latvian karš ‘war, army’. • Cf. Old Persian kāra- ‘people’, Greek κοῦρος ‘high-status youth, capable of bearing arms’. The martial sense was probably incipient in Post-Tocharian Indo-European, but fully developed or surviving uniquely in CGBS as the principal word for ‘warband’.
d. Italo-Celtic/Germanic/Balto-Slavic (ANW)

SHIELD 2 *skeltu- ~ *skeito- ~ *skoito-. ● Proto-Germanic *skelduz
< [PRE-VERNER] *skelpus < Pre-Germanic *skel(H)-tú- [PRE-GRIMM 1]:
Gothic skildus, Old Norse skjoldr, Old English scield, scyld, sceld,
Old Frisian skeld, scild, Old Saxon skild, Old High German scilt,
skilt; ● Proto-Celtic *skêto- < *skeito-:
Old Irish sciatth, Old Welsh scuit, Old Breton scoit, scoet in names, Middle Breton scoet ‘écu’
(coin name < Latin scūtum). In Y Gododdin, Early Welsh ysgeth
can be explained as a loanword from Archaic Irish *scēth ‘shield’
< *skêto- in the line *ny nodi nac ysgeth nac ysgwyt ‘neither [Irish/
Scottish-type] shield nor shield gave protection’. ● Proto-Italic
*skoitom: Latin scūtum; ● Proto-Balto-Slavic *skóitu-:
Old Prussian staytan, scaytan ‘shield’, Russian ščit ‘shield’. ¶
Proto-Germanic *skeiþa- ‘sheath’ < Pre-Germanic *skeito-
is the cognate of Celtic ‘shield’: Old Norse skíði, Old English scēað, Old High German sceida. ¶
In both Celtic and West Germanic words for
‘SHIELD’ and the closely associated ‘SHOULDER’ are similar in
form and have probably influenced each other analogically, being
associated logically: Proto-Germanic *skuldra- ‘shoulder’:
Swedish skuldra, Old English sculdor, skuldur, Old Frisian skolder, Old High
German scultirra, scultera; Proto-Celtic *skêdo-:
Old Irish sciatth ‘wing’ (which has assimilated fully to the form of ‘SHIELD’),
Middle Welsh ysgwyð ‘shoulder’, Middle Breton scoaz, Old Cornish scuid
glossing ‘scapula’.

STRIKE 4 *bhlag- (?). ● Germanic: Old Norse blekkja ‘strike’, cf.
Old High German bleven ‘to strike’, bloh ‘block’; ● Proto-Celtic
*blagā: Middle Irish blog, blag ‘(broken) fragment, piece, bit’;
● Proto-Italic *flagro- < *bhHl-g-ro-: Latin flagrum ‘whip’; ● Baltic:
Lithuanian blaškaũ ‘throw, fling’.

Figure 33. Proto-Celtic *skeito-, Proto-
Italic *skoito-, Pre-Germanic *skeltu-
‘SHIELD’: Detail of Late Bronze Age
rock art panel from Hede, Killev
parish, Bohuslän, Sweden, showing
a warrior holding at his left a round
shield with a pattern of concentric
circles (one of seven such shields
surviving visibly on the panel) and a
sword on his right in a scabbard with
a winged chape. The form below
him to his right is an acrobat leaping
backwards towards a partly obscured
shape that probably depicted a boat
(photo: J. Koch).

Figure 34. Scan of Late Bronze Age
stela from Brozas, Cáceres, Spain,
with large central carved image of
v-notched Herzsprung shield, viewed
from the back showing the hand
grip, spear, sword, mirror, comb, and
brooch (image: B. Schulz Paulsson)
§41. Horse and wheeled vehicle

a. Celto-Germanic

**AXLE** *aksil- ~ *aksil̥-. ● Proto-Germanic *ahsula- [PRE-GRIMM 1]: Old Norse oxull ‘axle’, Faroese aksil; ● Proto-Celtic *aΧsilā: Middle Welsh echel, also achel ‘axle-tree, axle, axis, pivot’, Middle Breton ahel ‘axle’. ¶ The root √H2ek̃s-i- ‘axle’ is Proto-Indo-European: Sanskrit ākṣa- ‘axle’, Avestan aša- ‘arm-pit’, Greek ἄξων ‘axle’. The suffix with *-(V)l- with the meaning ‘axle’ is a uniquely shared by Celtic and Germanic.

HORSE 1 *markos. ● Proto-Germanic *marhaz ‘horse, steed’ [PRE-GRIMM 1]: Old Norse marr, Old English meah, Old Frisian marh, Old High German marah, cf. East Germanic personal names Marafredus, Marabodus; ● Proto-Celtic *markos ‘horse, steed’: Gaulish accusative mařkan and truḫarka ‘a cavalry unit of three riders’ (Pausanias X.19.11), marcosior ‘may I ride’, calliomarcus glossing ‘equi ungula’, Gaulish place-names Marcedunum—Marquin (Hainault), France; Marcedunum—Marquion (Pas-de-Calais), Old Breton marh, Old Cornish march glossing ‘equus’, Middle Welsh march, Middle Irish marc; several forms derived from *markos are also attested in early Celtic languages: Old Irish marcach glossing ‘eques’ ‘horseman’, accusative plural marcachu, Old Welsh marchauc ‘horseman, rider, mounted warrior’, Old Breton marhoc and marchoc glossing ‘aequester’ ‘cavalryman, equestrian, horseman’ < Proto-Celtic *markākos. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

2 *kankistos ~ *kanksikā. ● Proto-Germanic *hangistaz~ *hanhistaz ‘horse, stallion, &c.’ [PRE-GRIMM 1]: Ancient Nordic niu hagestumz ‘nine stallons’ (Stentohen Runestone, Blekinge, Sweden, probably 7th century AD), Old Norse hestr ‘stallion’, Old English hengest, hengst ‘gelding, horse’, Old Frisian hengst ‘horse’, Old High German hengist, chengisto ‘gelding’; cf. Ancient Nordic hahai = hanhai ‘horse’ (dative) (Mōjbro stone, Uppland, Sweden ~AD 300, Antonsen §11); ● Proto-Celtic *kanχsikā - *kank-s-ikā: Gaulish personal names Cassicius, Cassicia, Middle Welsh cassec, Breton kazeg ‘mare’. ¶ The widely attested Indo-European word for ‘horse’ *H1ekwós also survived in both Germanic and Celtic.

HORSE+RIDE *ekwo-reidho-. ● Proto-Germanic *eh*-a-rīdaz [PRE-GRIMM 1]: Old Norse personal name Æ-reiðr, Old English ēored ‘troop, band (of retainers)’, Old Saxon eo-rid-folc ‘cavalry’; ● Proto-Celtic *ek*-o-rēdo-: Gaulish personal name Epo-ridingrix ‘horse-ride+king’ (Caesar, Bello Gallico §7.38) = Galatian Ἐπορηδοριξ (Freeman 2001, 55), Cisalpine Gaulish place-name
Eporedia ‘Ivrea’, Middle Welsh ebrwyð ‘quick, swift, sudden’, possibly also Middle Irish echrad ‘steeds, two horses yoked to a chariot, a chariot-riding host, a cavalcade’, though its second element could be Proto-Celtic *reto- ‘series’ < ‘run’. ¶ Unique CG compound.

**MANE** *mongo- ~ *mongā-. ● Proto-Germanic *mankan- ‘mane, upper part of a horse’s neck’ [PRE-GRIMM 2]: Old Norse makki, Danish manke, and without the *k < *g Old Norse môn, Old English manu, Old Frisian mana, mona, Old High German mana ‘mane’; ● Proto-Celtic *mongo- ~ *mongā-: Old Irish mong glossing ‘cirrus’, glossing ‘coma’ ‘tuft of hair, crest, horse’s mane’, Old Breton plural mogou gl. compost ‘manes’; Early Welsh (Gododdin) mwng ‘mane (of horses and other animals)’, cf. Middle Irish mongach = Middle Welsh myngawc ‘maned’ < Proto-Celtic *mongāko- ~ *mongākā-.

**RIDE (A HORSE OR HORSE-DRAWN VEHICLE)** *reidh-. ● Proto-Germanic *řidan- ‘to ride a horse or vehicle; to move, swing, rock’: Old Norse rīða ‘to ride’, Old English rīdan, Old Frisian rīdan, Old Saxon rīdan, Old High German rītan, cf. Old High German bi-reiti ‘ready’; ● Proto-Celtic *rēde- < *reidh-e-: Latin from Gaulish rēda ‘travelling carriage with four wheels’, cf. Gaulish
uerēdus ‘steed’ (para-uerēdus > German Pferd), Old Irish réidid ‘rides (a horse, in a horse-drawn chariot), drives (a horse), breaks in, trains (a horse), levels, makes smooth’ < Proto-Celtic *rēdeti, Middle Irish verbal noun riad, cf. Middle Welsh ruita (= rhiwydda) ‘facilitate, expedite’, gorwyō ‘steed’, Old Breton ruet ‘ready, quick’, Old Welsh ruid. ¶ Baltic: Lithuanian riedėti ‘rolling’ < NW √(H)reidh-e- ‘roll’. CG has developed a more specialized meaning.

**WHEELED VEHICLE** *weghnos*. ● Proto-Germanic *wagna-*: Old Norse vagn, Old English ṣægn, weg, Old Frisian wuign, Old High German wagan; ● Proto-Celtic *wegno-*: Old Irish fén (also féne < *wegnyā-). Cf. Gaulish divine epithet MARTI VEGNIO (Grevenmacher, Luxembourg). An Ancient Brythonic word for two-wheeled war chariot is couinnus (used for Caledonian war chariots in Tacitus, Agricola) probably from *ko(m)-wegno-*. ¶ Proto-Indo-European Vwegh- ‘move’. The same suffixed formation *weghnos* can be reconstructed for Tocharian B yakne, but that word means ‘way, manner’, as opposed to say ‘the way one rides’, is uncertain. Different formations from the same root include *weghitlom* giving Sanskrit vahítram and Latin vehiculum (Mallory & Adams 2006, 247), also Greek ὄχος ‘chariot’ < ϝόχος < *woghos*, Sanskrit vāhana ‘chariot’.

d. Italo-Celtic/Germanic/Balto-Slavic (ANW)

**WHEEL** *rotos ~ *rotā*. ● Proto-Germanic *rađa-* [PRE-GRIIMM 1]: Old Frisian reth, Old High German rad, hrad; ● Proto-Celtic *rotos*: Gaulish place-name Roto-magus (but also attested as Ratomagus), Old Irish roth ‘wheel, something circular or wheel-shaped’ (part of the stock descriptions of chariots in the Irish sagas), Middle Welsh rot ‘wheel’, Middle Cornish ros, Breton rod; ● Proto-Italic *rotā*: Latin rota; ● Baltic: Lithuanian rūtas ‘wheel, circle, ring, (plural) cart’, Latvian rats ‘wheel, (plural) cart’. ¶ It is likely that Proto-Indo-European *(H)rōth2-o/eH2- originally meant ‘wheel’ rather than ‘wheeled vehicle’, cf. Sanskrit rāthya- ‘belonging to a chariot’ < *(H)rōth2-yo-. That correspondence raises the interesting possibility that this word for ‘wheel’ and ‘wheeled vehicle’, with its more limited distribution than the nearly synonymous *kwekwlo-, arose to differentiate an innovative vehicle with spoked wheels, such as the early chariots associated with the Sintashta culture.
§42. Exchange and metallurgy

a. Celto-Germanic

BOOTY, PROFIT *bhoudi- ~ *bhudi-: • Proto-Germanic *buti- [PRE-GRIMM 2]: Old Norse býti ‘exchange, barter’, Middle English botye, buty ‘plunder, gain, profit shared amongst winners’, Middle Low German bûte, buite ‘exchange, booty’, German Beute ‘booty’; • Proto-Celtic *boudi-: Gaulish Boudi-latlis, Galatian Bouðo-p, Hispamo-Celtic BOVDIVS (AE, 1975, 514 & 515 — Coria, Cáceres) and BOVDENNA CAMALI F. (CIL II, 625 / 5274; CPILC, 521 — Trujillo, Cáceres), BOVDICA SEMPRONI (HAE, 1090 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); BOVDAE


COAL, CHARCOAL *gulo- ~ *geulo- ~ glōwo-. • Proto-Germanic *kulo- ~ *kulan- [PRE-GRIMM 2]: Old Norse kol (plural), Old English col, Old Frisian kôle, kôl, Old High German kolo, kol; • Proto-Celtic *glăuo-: Middle Welsh glo(u) ‘charcoal, coal’ and Proto-Celtic *gulo-: Middle Irish gúal ‘charcoal, coal’. ¶ Sanskrit jvalati ‘burns’, Tocharian B śoliye ‘hearth’, Lithuanian žvilti ‘to shine’ < Proto-Indo-European *gul̥H-. The meaning ‘coal’ appears to be uniquely Celto-Germanic.

COUNTING, NUMBER *rīma-. • Proto-Germanic *rīma-: Old Norse rim ‘computation’, Old English rim ‘number’, Old High German rīm ‘account, series, number’; • Proto-Celtic *rīma-: Old Irish rim ‘act of counting, enumerating, number’, Middle Welsh rif ‘sum, number, counting, reckoning’; cf. cyfrif ‘(numerical) account, computation’, Old Breton ri[m] glossing ‘summa’. ¶ Unique CG form and meaning from Proto-Indo-European VHₐ′re(He₁)- ‘count out’.

INNUMERABLE, COUNTELESS *n-rīm-. • Proto-Germanic *unrīma-: Old Saxon unrīm ‘huge number’; • Proto-Celtic *amrīm- < *anrīm-: Early Welsh ebrifet ‘innumerable’. ¶ The negative prefix becoming Proto-Celtic *am- < Proto-Indo-European *n- before *l- and *r- is due to a generalization of negative compounds where there had been, before Pre-Celtic weakening and loss of *p, *mpl- and *mpr- by assimilation from Proto-Indo-European *ŋ-pl- and *m-pr-.

IRON *isarno- ~ *ïsarno-. • Proto-Germanic *ïsarna- ~ *izarna-: Gothic eisarn, Old Norse ísarn, Old English, Old Saxon, Old High German isarn; • Proto-Celtic *isarno-: Gaulish place-name Isarno-dori ‘ferrei ostii’, Old Irish iarn; common in personal names Old Welsh haearn, Old Breton hoiaarn, also iarın- as an initial element in compound names, Old Cornish -hoern, also iarın-, Middle Welsh haearn. ¶ Usually interpreted as a prehistoric loanword from Celtic to Germanic, possibly early in the Iron Age (Schmidt 1984; 1986a; 1991; Fulk 2018, 7). However, iron, though relatively rare, was known before it became the standard fabric for weapons and tools. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] However, derivation from Proto-Indo-European VHₐ′eSHₗr- ‘blood’, then transfer of Proto-Celtic *isarnom ‘iron’ to Germanic, is proposed by Schumacher (2007, 173).

POLISH, SHARPEN, WHET *sleimo- ~ *slimo-. • Proto-Germanic *(slimo-: Old High German slimen ‘polish, rub smooth’; • Proto-Celtic *(slimo-: Middle Irish limaid ‘sharpen, grinds, polishes’, limsat ‘they polished’; also Proto-Celtic *slim(o)no- ‘polished, smooth’; Old Irish slemon, slemain ‘smooth, sleek, polished’, Old Welsh limnint ‘they polish’, Middle Welsh llyfn ‘polished, smooth’, Old Breton limn glossing ‘lentum’ ‘tough,
resistant, unyielding’, Breton levn ‘smooth’; • Italic (?): possibly Latin *lima ‘carpenter’s file’, *limāre ‘to rub smooth, polish’.

Possibly derived from Proto-Indo-European *(s)ley-m- ‘smear (with grease), polish’ > ? ‘slick, smooth’, cf. Proto-Germanic *slīma- ‘slime’, Latin limōsus ‘slimy, muddy’. • Old Irish *slém ‘smooth, sleek, flat’ is possibly related. More clearly related to that formation are Middle Welsh llym ‘sharp, pointed’, Middle Breton lemm ‘smooth, slick’ and the verbs Old Breton lemaam glossing ‘acuo’ ‘I sharpen’, Middle Welsh llymhaeu ‘sharpen, whet, hone, make a sharp edge or point, file’. It is possible that Middle Irish lámid is borrowed from Latin limare.

RED METAL, METAL THE COLOUR OF RAW MEAT *ēmo- ~ *omyom < *omó-. • Proto-Germanic *ēm-: Old English ēm ‘rust’, ēmian ‘become rusty’, ēmig ‘rusty, rust-coloured’; • Proto-Celtic *omyom: Old Irish umae ‘copper, bronze’, Old Welsh o emid glossing ‘ex aere’ ‘of bronze’, plural emedou glossing ‘aera’, Middle Welsh efyð ‘bronze, brass, copper; brazen, copper-coloured’. • Proto-Indo-European *H1ēH1-mon- ~ *H1oH1-mó- ‘red, raw’ is attested beyond the NW languages: Greek ωμός ‘raw, uncooked, crude, immature, rude, unrefined’, Armenian *emam ‘raw, cruel, savage’, as well as Old Norse áma, Old English *om ‘erysipelas’ (a skin ailment with a characteristic red rash), Old Irish om ‘raw, uncooked, bleeding (of flesh), crude, immature, rude, unrefined’, Middle Welsh of ‘crude, untreated, uncooked’ < Proto-Celtic *omó-, possibly also in the Gaulish personal name OMVLLVS. The use of a special related formation from this root for distinctively red metals is uniquely Celto-Germanic.

WORTH, PRICE, VALUE *werto-. • Proto-Germanic *werþaz [PRE-GRIMM]: Gothic wairbs, Old Norse verðr, Old English weorp, Old Frisian, Old High German werd ‘worth’; • Proto-Celtic *werto-: Old Breton uuert ‘worth’, Middle Breton guerz ‘sale’, Middle Welsh gwerth ‘worth, price, value, sale, exchange’, cf. the legal term Old Breton enep-uuert = Middle Welsh wyneb-werth ‘honour price’, literally ‘face price’, also the Old Cornish personal name Wenwærthlon, a compound of ‘white, blessed’ and ‘valuable’. • CG semantic development from Proto-Indo-European *wert- ‘turn’: Sanskrit vārtati ‘turns’, Mitanni Indic wartana occurring in several terms for turning of chariots in the horse-training manual of Kikuli (Raulwing 2000; 2009), Latin uertō ‘turn’, Lithuanian virsti, Old Church Slavonic věrtěti ‘turns around’. • Although English worth has now influenced the usage of Modern Welsh gwerth, as in cnegwerth ‘penny’s worth’, Old Breton enep-uuert shows that Brythonic gwerth is not a loanword from English.

b. Italo-Celtic/Germanic (ICG)

BENEFIT, PRIZE (?) *lou- ~ *lu-. • Proto-Germanic *launa- ‘reward, recompense’ < Pre-Germanic *louno-: Gothic laun, Old Norse laun, Old English lēan, Old Frisian lōn, Old Saxon lōn, Old High German lōn; • Proto-Celtic *louk- ~ *lukā: Old Irish lóga, lúag, lúach ‘value, equivalent, worth, reward, payment, price, wage, fee’, Middle Irish luach, Middle Welsh lloc ‘interest, profit, benefit, fee’; • Proto-Italic *luklom: Latin lucrum ‘material gain, profit’. • The ICG meanings are especially close, but not far removed from Dorian Greek λαία ‘booty’ < *laxeia. • In view of the close correspondence of meaning, the Irish and Welsh are clearly the same word, but they cannot be exact cognates, but must either reflect different vowel grades (Primitive Irish *loukos vs. Ancient Brythonic *lukā) or a loan between Goidelic and Brythonic.

LEAD (metal) *plobdho-. • Proto-Germanic *lauđa- [borrowed after the loss of *p in Celtic]: possibly Old Norse laud, Old English lead, Old Frisian lōd, Middle High German lōd; • Proto-Celtic *(p)loudy-o-: Middle Irish lúaide; • Proto-Italic *plumbo- < *plumdo-: Latin plumbum. • [POSSIBLY NON-INDO-EUROPEAN SOURCE] These forms look like prehistoric loanwords between
languages with sound substitutions, rather than an item of Post-Proto-Indo-European inherited vocabulary. Cf. also Greek μόλυβδος ‘lead’. The limited distribution within Germanic and the loss of *p- deriving from the Celtic (definitely not Italo-Celtic) source point to a relatively late borrowing. The more widespread reflexes of Proto-Germanic *bliwa- ‘lead’ (Old Norse blý, Old Saxon bli, Old High German blio) probably reflect an earlier borrowing of the same word, spread through international trade and Bronze Age technological transfer. The later borrowing could be either Germanic *lauda- < Proto-Celtic *loud(y)o- after Grimm 2 or Pre-Germanic *laudha- < Pre-Celtic *(p)loudho- before Grimm 2.

ORE, METAL OXIDE *raud- ~ *arud (~ *rutu-). ● Proto-Germanic *arut- [PRE-GRIMM 2]: Old English òra ‘unwrought metal, ore’, Old Dutch arut ‘ore’, Old High German aruz, ariz, aruzi, arizi ‘ore’, Low German Ur, Uurt, Uhr, Urt ‘rust-coloured, reddish yellow or reddish brown soil containing iron’. Also possibly the first element of Old Norse ørtog, ertog ‘monetary unit’ < Proto-Germanic *arut-taugo- (Kroonen 2013 s.n. *arut-). ● Proto-Celtic *rutu-: cf. Ancient Brythonic place-name Rutupias ‘Richborough’, at the mouth of river Stour near Thanet in East Kent where the Claudian invasion landed in AD 43 (cf. also the Gaulish river name Rutuba now Roya in France), Middle Welsh rwt ‘rust, oxide, corrosion, sediment, dirt’, Old Breton rod in a 9th-century gloss on eruginem ‘corrosion, burnishing, tarnishing’; ● Proto-Italic *raud- ~ *rūd-: Latin raudus, rūdus, rōdus ‘lump of ore, piece of copper or brass, piece of copper used as a coin’. [POSSIBLY NON-INDO-EUROPEAN SOURCE] The range of phonological variations in both Germanic and Latin suggests the repeated borrowing of a foreign trade word, cf. Sumerian urudu, uruda, urud: ‘copper, metal’ (Iversen & Kroonen 2017; Halloran 2006; 2020). ● The Ancient Brythonic place-name Rutupiae is sometimes related to Welsh rhwd in the meaning ‘dirt’, thus seen as referring to the mud flats at the mouth of the Stour. However, Old Breton rod implies that an older Brythonic sense had to do specifically with the oxidized or discoloured surface of metal. As an ideal harbour in Britain’s south-eastern extremity, it is likely that British metal was traded from here to mariners embarking for the Continent. When Thanet was still an island, Richborough/Rutupias lay ~5km across the Wantsum Channel from Cliffs End at the southernmost point of the Isle of Thanet. Cliffs End was the find spot of an unusual site of the Late Bronze Age to Early Iron Age, which included interments of oddly manipulated human remains. Isotope testing revealed that these included, along with some individuals who had grown up locally, others probably from Scandinavia and from South-west Europe (McKinley et al. 2013; 2014). It should be considered that this prehistoric port at Britain’s south-eastern corner was known to travellers from afar as a haven where ‘copper’ (*arud- ~ *rutu-) could be exchanged. ¶ Middle Welsh compound amrwt ‘raw (of food), uncooked, crude, unprocessed’ could belong here. If so, it is very close to the semantics of Proto-Celtic *omyom ‘copper’ < ‘(metal) the colour of uncooked meat’; however, *ŋ-bhrutó- ‘not boiled’ would also explain the form and meaning of amrwt.
c. Celto-Germanic/Balto-Slavic (CGBS)

METALLURGY *(s)mei- ~ *(s)mi-. ● Proto-Germanic *smiƀu- ‘smith’ < Pre-Germanic *smi-tu- [PRE-GRIMM 1]: Gothic aiza-smiƀa ‘copper smith’, Old Norse smiƀr, Old English smiƀ, Old Frisian smeth, Old Saxon -smīǣ, Old High German smid; ● Proto-Celtic *mēni- ‘mineral, metal’ < *(s)mei-ni-, *(s)moi-ni-: Gallo-Latin mina ‘mine’ (the source of the English word), Old Irish mēin, mian ‘ore, metal, mineral’, cf. Old Irish móin, main ‘treasure, something very valuable’, Middle Welsh mwyn ‘ore, mineral, mine’, Welsh mwyn-glwd ‘mine, pit, mineshaft’ = Breton men-gleuz, cf. Middle Irish claide mianna ‘delving mines’; ● Balto-Slavic: Old Church Slavonic mina ‘mineral’, Russian mēdī ‘copper’, cf. possibly Lithuanian maĩnas, Old Church Slavonic mēna ‘exchange’. ¶ This example is not counted in the statistics for Germanic words pre-dating the operation of the Grimm 1 sound shift, because the evidence for the change is evident only in the suffix *(s)-tu- (>*-ƀu-), which is found only in the Germanic examples.

SILVER *silVbr-. ● Proto-Germanic *silubra-: Gothic silubr, Old Norse silfr, Old English siləfər, siolfr, Old Frisian selover, selver, Old Saxon silubar, siolbar, Old High German silabar; ● Celtic: Celtiberian silabur; ● Balto-Slavic: Lithuanian sidãbras, Old Prussian sipris, Old Church Slavonic sъrebro. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] Kroonen (2013, 436): ‘A non-IE Wanderwort whose distribution appears to be “circum-Celtic”’. Cf. Basque zilhar, also zilar, zildar, zirar. ¶ It is possible that the group name Silures in what is now South-east Wales belongs here, likewise the Silurus mons in Spain near the Greek colony of Mainake and present-day Malaga (Avienus, Ora Maritima 433).

§43. Ideology and social organization

a. Celto-Germanic (CG)

BLAME *lok-. ● Proto-Germanic *lahana- ‘to reproach’ < Pre-Germanic *loka-e/o- [PRE-GRIMM 1]: Old Norse lá, Old English lēan, Old High German lahan; ● Proto-Celtic *loχtus < *lok-tu-: Old Irish locht ‘fault, shortcoming, error, vice, offence, physical blemish’.

FOREIGNER *alyo-morgi- ~ *alyo-mrogi-. • Proto-Germanic *alja-markiz [PRE GRIMM 2]: Ancient Nordic aljamarkiz (Kárstad cliff inscription, Sogn og Fjordane, Norway post-~AD 400, Antonsen §40), cf. Gothic alja- ‘other, foreign’, Old English ele-, Old Saxon and Old High German eli-; Gothic marka ‘boundary, district, march’, Old Norse mørk ‘woods’, Old English mearc ‘boundary, border, march’, Old High German marca, marcha; • Proto-Celtic *alyo-mrogi-: Gaulish group name Allobroges, derivatives ALLOBROX, ALLOBOXVS, Latinized dative ALLOBROGICINO (Delamarre 2007, 18), Middle Welsh (14th-century copy of 10th-century text, Armes Prydein) allfro ‘foreigners’ collective; cf. Old Irish aile ‘other, second’. ¶ CG *alyo-morgi- ~ *mrogi- is a compound of words meaning ‘other’ and ‘border area’. Cf. Latin alius and margō ‘border, border district’. It shows the secondary meaning in the second element found also in Gaulish broga and Brythonic bro as ‘country, district’ (compare also the compound names Brogimaros, Bergitaros, Nitiobroges, Old Irish bruig, Middle Irish bruig ‘inhabited or cultivated land’), rather than the earlier sense ‘borderland, march’. The Welsh compound allfro is the exact formal opposite of Welsh Cymro ‘Welsh person’ < *kom-brog- ‘person of the same country’. ¶ Persian marz ‘region’ implies that *morg- ‘frontier’ was not limited to CG or NW vocabulary.

FREE *priyo- ~ *priyā-. • Proto-Germanic *frija- ‘free’ [PRE-GRIMM 1]: Gothic freis, Old English frēo, Old Frisian fri, Old Saxon frī, Old High German frī; also Gothic frei-hals, Old Norse frials, Old English freols ‘free’, cf. also the Germanic goddess name Frīg; • Proto-Celtic *(p)riyo- ‘free’: Old Breton rid ‘free’, Middle Welsh ryd ‘free’, not in slavery, having civil and legal rights, not oppressed, not imprisoned, unrestricted, loose, gratis, lawful, generous’, Middle Welsh abstract noun rydōt, rydōt ‘freedom, liberty, political independence, opposite of captivity’ < notional *(p)riyotūt-, Old Cornish benen-rid glossing femina, i.e. ‘free woman’, as opposed to a female slave (ancilla), a meaning also reflected in Old Saxon frī ‘woman, wife’. ¶ Contrast Old Church Slavonic prijati ‘be appealing to’, Vedic priyā-, Avestan friia- ‘beloved’, Latin proprius ‘one’s own, peculiar, specific’ < Proto-Indo-European *priH.ōs ‘beloved, of one’s own’.

FRIEND, RELATIVE 1 *wenu-. • Proto-Germanic *wena- ‘friend’: Ancient Nordic uiniz ‘friend’ (bracteate rune, Sønder Rind, Denmark ~AD 450–530), Old Norse vinnr, Old English wine, Old Frisian winne, Old Saxon wini, Old High German wini ‘friend, beloved’; • Proto-Celtic *wena- ‘kindred’, Old Irish fine ‘a group of persons of the same family’, Gaulish personal name Venicus, Ancient Caledonian group name Veni-kones (Koch 1980), Old Breton coguenou glossing ‘indigena’, Middle Breton gouen(n) ‘race, kind’. ¶ Cf. Latin venia ‘favour, permission’.


HOSTAGE *gheislo- common in Germanic and Celtic in forming compound names. • Proto-Germanic *gīsla-: Ancient Nordic asugisalas = ansu-giṣlas genitive singular (Kragehul spearshaft, Fyn, Denmark ~AD 300, Antonsen §15), Old Norse gisal, Old English gisel, Old Saxon gisal, Old High German gisal; • Proto-Celtic *gēslō- ‘hostage’: Old Irish giall ‘human pledge, hostage’, Middle Welsh gwystyl ‘pledge, surety, hostage’; cf. Gaulish genitive personal name CONGEISTLI ‘co-hostage’ (Noricum), probably the
same name as the coin legend of the Boii COCESTLVS, Old Welsh Cat-quistl, Old Cornish Cat-gustel ‘war hostage’, Old Cornish Tancwoystel ‘peace hostage’ (= Old Welsh Tancoyslt), Wurgustel ‘(adult) mead hostage’, Medquystyl ‘mead hostage’.

INHERITANCE *orbhyom. • Proto-Germanic *arbija: Ancient Nordic arbija (Tune stone, Østfold, Norway ~AD 400, Antonsen §27), Gothic arbi ‘wake’, Old Norse arfr ‘inheritance, patrimony’ (< *arba-), erfi ‘wake’, Old English ierfe ‘inheritance’, Old Saxon erbi, Old High German arbi, erbi ‘inheritance’; • Proto-Celtic *orbiyo- ‘inheritance’: Old Irish orbe, Early Welsh (Gododdin) wryδ ‘inheritance, legacy’ (perheid y wrhyt en wryδ ‘his [the deceased hero’s] valour endures as a legacy’). ¶ Notional Proto-Indo-European *H₂orbh-yo-.

INTENTION, DESIRE *mēn- ~ *moin-. • Proto-Germanic *main(j)oo-: Old Frisian mēne ‘opinion’, Old High German meina ‘meaning, intention, opinion’; • Proto-Celtic *mēnom < *mēn- ~ *moin-: Old Irish mian ‘desire, inclination, object of desire’, Old Cornish muin glossing ‘gracilis’ ‘desirable, amiable’, Old Breton moin glossing dulcis ‘sweet’, Middle Welsh mwyn ‘sweet, pleasant, amiable, tender’, mwynhau enjoy, take delight in, enjoy possessing’, go-funed, damunaw ‘to desire, wish’ < *to-ambi-moin-.

JOKER, FOOL *drūto-. • Proto-Germanic *trūba- [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse trúðr glossing ‘histrio’ ‘juggler, fool’, Old English trūd ‘trumpeter, actor, buffoon’; • Proto-Celtic *drūto-: Middle Irish drūth ‘professional jester, fool; legally incompetent, idiot’, cf. drūthacht ‘buffoonery’, Middle Welsh drut ‘reckless (in battle), furious, foolish, foolhardy, expensive’. ¶ The Welsh vowel implies a preform *druto-. A loanword from Primitive Irish *drūto- datable to the Roman Period (i.e. after Ancient Brythonic *ū had become *ŭ and *ō < *ou had become *ū) is one possible explanation for the Brythonic form.

KING, LEADER *ríg- (< *rēg-). • Proto-Germanic *rík- ‘ruler, king’ [PRE-GRIMM 2] [borrowed after Celtic *ī < *ē]: Gothic reiks, cf. also Gothic reiks ‘rich, powerful’, reikinon ‘to rule’, Old Norse ríkr ‘ruler, king’, Old English rice, Old High German rīhhi; • Proto-Celtic *rīks ‘king’: Hispano-Celtic ERMÆE DEVORI (dative) epithet of Hermes < Pre-Celtic *Deiwo-rēgei (CIL II 2473 — Outeiro Seco, Chaves, Ourense), Gaulish place-name Rigomagus (of three different places), group name Bituriges, Ancient Brythonic nominative singular RIX (coin legend), derived form TASCIO[|ANOS] | RICON- (coin legend), divine names/epithets DEO MARTI RIGISAMO (RIB 1–187 — West Coker), DEO MARTI RIGONEMETI (RIB 1–254b — Nettleham, England), RIGOHENE (CIL no. 419 — Llanymawddwy) < *Rīgo-senā, royal name or title with superlative suffix Rīothamus < *Rīgo-tamos, Ogam Irish genitive personal name VOTECORIGAS, Old Irish rī, Old Welsh singular ri, dual in Dou Rīg Habren ‘the Two Kings of the Severn’ (HB §68). ¶ Proto-Italic *rēks = *rēg-s: Latin rēx, genitive rēgis < Proto-Indo-European *H₂rēg-s ‘ruler, leader of ritual’. Although found also inItalic andIndic (Sanskrit rāj- ‘king’), the long *ī n the Germanic forms imply a prehistoric borrowing from Pre-/Proto-Celtic *ríg-s.

KING OF THE PEOPLE *teuto-rīg-. • Proto-Germanic *piuda-rīk- [borrowed after Celtic *ī < *ē] [PRE-GRIMM 2] [PRE-GRIMM 1]: Gothic *Piudareiks ‘Theodoric’, Old Norse Þjóðrīk, Old English Deodric, German Dietrich; • Proto-Celtic *Touto-rīxs, genitive *Touto-rīgos: Gaulish Latinized genitive TOVTORIGIS [to be read for TONTORIGIS, AE 1969/70 no. 502 — Vienne-en-Val], dative divine epithet APOLLINI TOVTIORIGI (CIL XIII no. 7564 — Wiesbaden), Old Welsh Tutir, Tutiri. ¶ Although both elements of this compound occur in Italic, there is no trace of the compound outside Germanic and Celtic. In the Germanic languages, the fame of Theodoric the Great of the Ostrogoths contributed to the popularity of the name. In modern Wales, the Tudor dynasty helped to revive the popularity of Tudor. In the post-Roman Migration Period Germanic Deodric, &c., and Brythonic Tutir were
not recognized as equivalent names, and the Germanic name
was borrowed as Old Welsh Tewdric, which became Middle
Welsh Tewdric, reminiscent of the borrowing/adaptation of Greek
Theodōros as Old Welsh Teudubr > Middle Welsh Tewdwr.

KINGDOM, REIGN, REALM *rīgyom ~ *rīgyā  ●  *

* rēgyā  ●  NURTURER, PERSON ACTING AS A PARENT (?). But when
alþizō- is used, it is evidently derived from the noun, not the adjective
substantivized, i.e. ‘older (person)’ > ‘parent’, although a noun
Eltern
föräldrar
Swedish
this is possibly a
example, Old English ealdor
Germanic.

This etymology is complicated in some cases by the phonological
convergence of two related suffixed forms: the comparative
adjective ‘older’, e.g. Gothic ambīta, and the noun *ambahta-
[PRE-VERNER] *alpra- < Pre-Germanic *alto- [PRE-GRIMM 1], both from Proto-Indo-European *H2el- ‘grow, nurture’. When, for
example, Old English ealdor (= Old Norse aldr) means ‘lifetime,
age’, it is evidently derived from the noun, not the adjective
alpra-. But when ealdor means ‘parent, ancestor, master,
chief’, cf. German Eltern, Swedish föräldrar, this is possibly a
substantivized, i.e. ‘older (person)’ > ‘parent’, although a noun
meaning ‘parent’ derived from the verb ‘grow, nurture’ is also
understandable. ● Celtic: Old Irish com-altar ‘joint-fosterage’
< Proto-Celtic *kom-altro- is usually seen as cognate with Old
English aldor ‘lifetime’ from the noun*alpra- < Pre-Germanic
*alto-, similarly widely attested nouns derived from Proto-
Celtic *altrawo- ‘nurturer, person acting as a parent’: Middle
Irish altró ‘foster father, nourisher’, Middle Welsh athro ‘teacher,
tutor, foster parent’, and its variant alltraw ‘godparent, sponsor’
(feminine elltrewyn), likewise Old Breton altró(u) ‘foster father’,
Cornish altrou ‘stepfather’, cf. also Old Irish comaltae ‘comrade’ <
‘foster-brother’ < *kom-altiyos = Scottish Gaelic comhalta ‘foster-
brother’, MW cyfeill(t) ‘friend, fellow, companion, an intimate’, cf.
Old Welsh cimalted ‘wife’ (Tywyn inscription) < *kom-altiyā, Old
Breton personal names Comalt-car, Comal-car. In light of these
Celtic forms, it is most likely that the sense ‘parent’ in Germanic
came originally from the noun *alpra- (the cognate of altró, &c.)
rather than the comparative adjective *alpīa-.  ●  Cf. Olsen 2019,
157.

PERSON ACTING (AT DISTANCE) ON BEHALF OF A SUPERIOR

mbhakto- ~ *mbhakta-  ●  Proto-Germanic *ambahta- ‘servant, representative’: Gothic andbahts ‘servant, minister, διάκονος’, Old
Norse ambátt ‘bondwoman, concubine’ < feminine *ambahta-,
Old English ambithe ‘office, service, commission, command,
attendant, messenger, officer’, Old High German ambait ‘servant,
employee, official’;  ●  Proto-Celtic *ambaxto- ~ *ambaxtā-
‘representative, vassal’ < Pre-Celtic *mbhi-ag-tō- ‘one sent
around’, cf. Old Irish imm-aig ‘drives around, pursues’: common
Hispano-Celtic name Ambatos, feminine Ambata (see below),
Gaulish AMBACTVS, AMBACTOS ‘vassal’, Old Breton ambait
‘agriculture’, Middle Welsh amaeth ‘ploughman, farmer’ (cf. the
mythological ploughman Amaethon < *Ambaytonos in Culhwch
ac Olwen and other early Welsh sources).  ●  Etymologically
Proto-Indo-European past passive participle of the compound
verb *H2mbhi + *H2eɡ-.  ●  Words for ‘servant’ in other Indo-
European languages have the same preposition as their first
element: Sanskrit abhi-cara ‘servant’, Greek ἀμφίπολος ‘(female)

 Instances of the Palaeohispanic personal name AMBATVS and related forms are widely attested from Galicia across North-central Iberian Peninsula to Celtiberia and Basque Country. The most usual etymological explanation is as the cognate of Gaulish AMBACTOS, a form appearing on the coins of the Mediomatrici (Allen & Nash 1980, 206); the word is also used by Caesar for clients of Gaulish chieftains (Bello Gallico 6, 15). However, doubt has been expressed about whether the phonetic change PC *χt > t was complete in all Hispano-Celtic dialects; if it were not, we might expect at least some instances of **AMBACTOS or **AMBAXTOS amongst the numerous Hispanic examples. *χt > t is a sound change well attested in examples from the Iberian Peninsula that are undoubtedly Celtic. It is probable that this is a relatively early change that represents an innovation shared by all Hispano-Celtic–Celtiberian and the western varieties—thus a feature distinguishing this group from the other Ancient Celtic languages.

The earliest example, by five centuries or more, in this series is anbaatiia in the SW inscriptions, the same adjectival -yā-stem formation, in origin, as AMBATIA attested much later in Roman script at Villardiegua de la Ribera, Zamora. However, the ‘Tartessian’ writing system, as all the other Palaeohispanic semisyllabaries, would have been incapable of representing [χt] accurately. It is, therefore, possible that anbaṭiia stands for [ambaχtia:] rather than [ambatia:].

Vallejo (2005, 140) proposes that Hispanic AMBATVS, &c., possibly has a different etymology, with the same suffix found in the Hispanic names BOVTATI, CELTIATVS, TONGATI, VENIATI, and VRIATVS. Against this possibility, it may be noted that these forms are not closely comparable with AMBATVS, as they are suffixed nouns, whereas *ambi- is a preposition and preverb. There is an apparent variation of retukenos in Celtiberian script (which could not represent χt), but the name is also spelled without the velar in Roman script in RETVGENOS DOMITIANI S. (CIL II, 2324; HEp, 17, 57 — Almodóvar del Pinar, Cuenca) and RETVGEN(I) ELOCI (HEp, 10, 172 — Saelices, Cuenca), contrasting with ATTA ABBOI OCVM RECTVGENI F. L. VX. (CIL II, 6294; AE, 1987, 623 — Almadrones, Guadalajara), T. MAGILIVS RECTVGENI F. VXAMA ARGELA (CIL II, 290 — Herramélluri, La Rioja); RECTVGEN(VNS) ARG(---) CAPREI F(ILIVS) (HEp, 1, 336; HEp, 2, 387 — Saelices, Cuenca); RECTVGE[NVS] (HEp, 4, 903 — Toledo; see also Raybould & Sims-Williams 2007, 69–70). The last four forms (with -C-) could be seen to imply that PC *χt
was sometimes retained in Celtiberian. However, it is likely that the spelling \textit{RECTVGENVS} was influenced by the correct perception that the first element of the name was related to Latin \textit{rectus} ‘direct, &c.’, cf. the phrase \textit{RECTVS RVFI F}. who made a dedication to the indigenous deity \textit{REVE LANGANIDAEIGVI} (AE, 1909, 245 — Idanha-a-Nova, Castelo Branco). Note the hypercorrect Latin spelling in the second-to-last word of the epigraphic text \textit{DVATVS APINI F. BANDI TATIBAEICVI VECTO SOLVI} (AE 1961, 87 — Fornos de Algodres, Viseu), where faulty \textit{VOC}T\textit{O} for \textit{VOT}O implying that Latin \textit{rectus} was commonly pronounced \(\textit{[retus]}\) in Hispania. If it is valid to take Romanized Celtiberian \textit{RECTVGENI} out of consideration as proposed, an early and thorough change of Proto-Celtic *χt to Hispano-Celtic *t would also be consistent with a dialectal configuration in which Hispano-Celtic went its own way at an early date and ceased to share innovations with Gaulish, Brythonic, and Goidelic.

\textbf{AMBATA}, the basic feminine form of the name, does not occur in the west and is rare to non-extant in the central region, but is very common in Celtiberia and eastward to the western Pyrenees.

\textbf{Celtiberian Region.} \textbf{AMBATA} (Abásolo 1974a, 99; Albertos 1975a — Lara de los Infantes, Burgos); \textbf{AMBATAE [---] SEGEI F.} (Abásolo 1974a, 194 — Quintanilla de las Viñas, Burgos); \textbf{AMBATAE AIONCAE T[---]TI F.} (Abásolo 1974a, 155 — Lara de los Infantes, Burgos); \textbf{AMBATAE AIONCAE LOVGEI F.} (Abásolo 1974a, 185 — Lara de los Infantes, Burgos); \textbf{AMBATA ALBEAVCA? SEGOVETIS F.} (CIL II, 2855; Abásolo 1974a, 18 — Iglesia Pinta, Burgos); \textbf{AMBATA BETVCA AMBATI F.} (Abásolo 1974a, 60 — Lara de los Infantes, Burgos); \textbf{AMBATA CAELICA CAI F.} (Abásolo 1974a, 24 — Iglesia Pinta, Burgos); \textbf{AMBATA COR[---]} (HEp, 10, 88 — Belorado, Burgos); \textbf{AMBATAE [D] ESSIC[A]E RVFI [F.] (SOCERAE)} (AE, 1983, 600; HEp, 4, 198 — Lara de los Infantes, Burgos); \textbf{AMBATAE MEDICAE VERATI F.} (HEp, 10, 81 — Belorado, Burgos); \textbf{AMBATAE MEDICAE PLACIDI F.} (Abásolo 1974a, 81; HEp, 4, 199 — Lara de los Infantes, Burgos); \textbf{AMBATA PAESICA ARGAMONICA AMBATI VXOR} (CIL II, 2856; Abásolo 1974a, 177 — Lara de los Infantes, Burgos); \textbf{AMBATAE PEDITAGE AMBATI} (Reyes 2000, 24; HEp, 10, 87 — Belorado, Burgos); \textbf{AMBATAE PLANDIDAE} (EE, VIII 172; Abásolo 1974b, 63–4 — Pancorbo, Burgos); \textbf{AMB[A] TAE VENIAENAE VALERI CRESCENTI[S] F.} (CIL II, 2878 = CIL II, 2882; Abásolo 1974a, 214; HEp, 5, 153; HEp, 6, 172 — San Pedro de Arlanza, Hortigüela, Burgos); \textbf{[CA]LPVRNIAE AMBATAE LOVGEI F.} (AE, 1980, 587 — Lara de los Infantes, Burgos); \textbf{SEMPRONIAE AMBATAE CELTIBERI} (Abásolo 1974a, 209 — San Millán de Lara, Burgos); \textbf{AMBATAE TERENTIAE SEVERI F.} (CIL II, 2857; Abásolo 1974a, 212 — San Pedro de Arlanza, Hortigüela, Burgos); \textbf{VALERIA AMBADAES} (CIL II, 2909; Abásolo 1974b, 30 — Villafranca, Montes de Oca, Burgos); \textbf{[---] AMBATI L.} (CIL II, 2884; Abásolo 1974a, 141 — Lara de los Infantes, Burgos); \textbf{[A]MBATVS} (CIL II, 2790; Palol & Vilella 1987, 219 — Peñalba de Castro, Burgos); \textbf{[A]MBATO ALEBBIO [B]ODANI F.} (Reyes 2000, 5 — Belorado, Burgos); \textbf{AMBATO BVGRAE SEGILI F.} (HEp, 10, 84 — Belorado, Burgos); \textbf{AMBATVS VEMENVS ATI F.} (Abásolo 1974a, 55 — Lara de los Infantes, Burgos); \textbf{AMBATO VIROVARCO} (HEp, 9, 246 — Ubierna, Burgos); \textbf{ARCEA [---] AMBATI F.} (Abásolo 1974a, 188 — Lara de los Infantes, Burgos); \textbf{ARCEA [---]AVCA AMBATI TERENTI F.} (EE, VIII 150; Abásolo 1974a, 188 — Lara de los Infantes, Burgos); \textbf{CABEDVS SEGGVES AMBATI F.} (CIL II, 2863; AE, 1977, 447 — Carazo, Burgos); \textbf{MADICENVS CALAETVS AMBATI F.} (CIL II, 2869; EE, VIII 154; Abásolo 1974a, 108 — Lara de los Infantes, Burgos); \textbf{SECONTIO EBVREN[I]Q(VM) AMBATI F.} (Reyes 2000, 18 — Belorado, Burgos); \textbf{SEGILO AESPANCO(N) AMBATAE FILIO} (HEp, 10, 83 — Belorado, Burgos); \textbf{TALAVIS CAESARIVS AMBATI F.} (Abásolo 1974a, 13 — Hortencia de la Cantera, Burgos); \textbf{METELIO REBVRRO AMBATI F.} (HEp, 10, 102 — Belorado, Burgos).
CENTRAL REGION. AMBAT[O] (HEp, 4, 103; ERAv, 30 — Ávila); AMBATO (HEp, 4, 72; ERAv, 11 — Ávila); ATA AMBATICORVM HIRNI F. (HEp, 10, 8; ERAv, 143 — Candeleda, Ávila); VERNACVLVS AMBATIC(VM) MODESTI F.[- ---] (HEp, 1, 79; HEp, 9, 83; ERAv, 143 — Candeleda, Ávila); ACCETI CARIQO AMBATI F. (HEp, 2, 618; ERSg, 5 — Coca, Segovia); AMBAT(A) (CIL II, 94*/5320 — Talavera de la Reina, Toledo).

WESTERN PENINSULA. FVSCI CABEDI AMBATI F. VADINIENSIS (CIL II, 2709; ERAsturias, 51 — Corao, Cangas de Onís, Asturias); MACER AMBATI F. OBISOQ(VM (Roso de Luna 1904, 127 — Casas de Don Pedro, Badajoz); AMBATI F. (HEp, 1, 668; ERRBragança, 95; HEp, 12, 587 — Donai, Bragança); AMBATVS (CIL II, 738, 739; CPILC, 44 = CPILC, 45; HEp, 9, 248 — Arroyo de la Luz, Cáceres); AMBATVS (CPILC, 50; CILCC I, 75 — Arroyo de la Luz, Cáceres); AMBATVS PE[EL]LI (CIL II, 853; CPILC, 392 — Plasencia, Cáceres); A[N]DERCIA AMBATI F. (AE, 1978, 393; AE, 2006, 625; HEp, 15, 92 — Monroy, Cáceres); ARC[N]I AMBATI F. CAMALICVM (CPILC, 660 = CPILC, 803 — Villar del Pedroso, Cáceres); CAMIRA AMBATI (CIL II, 623; CPILC, 527 — Trujillo, Cáceres); CORIA AMBAT(I) F. (CPILC, 146 — Cáceres); IRINEVS AMBATI F. (CPILC, 367 — Pedroso de Acim, Cáceres); AMBATVS (CPILC, 527 — Trujillo, Cáceres); AMBATVS PE[L]LI (CIL II, 853; CPILC, 392 — Plasencia, Cáceres); ANBATA APPAE F. (CIL II, 2950 — Contrasta, Álava); AMBATO (HAE, 2522 — Angostina, Álava); AMBATVS SERME F (CIL II, 2951 — Contrasta, Álava); AMBATVS PLENDI F. (CIL II, 2948 — Eguilaz, Álava); AMBATVS [A]RAVI F. (HAE, 2571; HEp, 4, 1 — Urabáin, Álava); CVS AMBATI F (HAE, 2563; HEp, 4, 11 — San Román de San Millán, Álava); ELANVS TVRAESAMICIO AMBATI F(ILIVS) (CIL II, 5819; Albertos 1975a, 13. nº 74 — Iruña, Álava); SEGONTIVS AMBATI VECTI F. (CIL II, 2956 — Contrasta, Álava); AMBATIA (Castillo et al. 1981, 48 — Gastián, Navarra); DOITENA AMBATI CELTI F. (EE, VIII 167; Castillo et al. 1981, 53 — Marañón, Navarra); DOITERVS [- ---] AMBATI F. (Castillo et al. 1981, 55; HEp, 4, 11 — San Román de San Millán, Álava); IVNIA AMBATI VIRO[N]I F. (CIL II, 5827; Castillo et al. 1981, 45 — Gastián, Navarra); PORCIA AMBATI SEGONTI FILIA (CIL II, 5829; Fita 1913b, 565 — Gastián, Navarra); AMBATVS [S] (HAE, 185; Alföldy 1975, 337 — Tarragona); L. POSTVMIVS AMBATVS (CIL II, 4024 — Villa del Arzobispo, Valencia).
PLEASANT, FAIR *teki-. ● Proto-Germanic *bakkja- ~ *bekka-[PRE-GRM IM]: Old Norse bekkr ‘pleasant’, Old High German decki ‘dear’; ● Proto-Celtic *teki- ‘beautiful, fair, handsome, dear, pleasant’: Old Cornish teg glossing ‘pulcher’ ‘beautiful’, Middle Welsh tec ‘fair, beautiful, handsome, pretty, rine, neat; agreeable, amiable, dear, pleasant; impartial, just reasonable’, cf. negatived Old Irish étig ‘unnatural, unseemly, ugly, repulsive’ = Middle Welsh annhec ‘unbeautiful, inelegant’ < Proto-Celtic *an-teki-.

RELATIVE, FRIEND < ONE WHO LOVES 2 *priyânt-. ● Proto-Germanic *frijand- ~ *frijōnd- [PRE-GRM IM]: Gothic frijonds ‘friend’, Old Norse frændi, frjöndi ‘relative, friend’, runic frændi (the meaning is ‘relative’ in the modern Scandinavian languages), Old English frēond ‘friend, loved one, relative’, Old Frisian friūnd, friūnd ‘friend, loved one, relative’, Old High German friunt ‘friend, loved one’; ● Proto-Celtic *(p)riyant-: Middle Welsh ryeini, reenyi, also rienni, hrienni (with double nn < *nt) ‘parents, forefathers, ancestors, close family, kindred, descendants, heirs’, Welsh rhiaint ‘parents, ancestors, elders’, singular rhiant. ¶ This is a specialized CG lexicalized development of the participle of Proto-Indo-European *priyant-, glossing ‘one who pleases, loves’ corresponding to English ‘friend’. The name of the Welsh mythological figure Rhiannon *(p)riyant-, *(p)riyant: Middle Welsh riein ‘lady, queen’ < Proto-Celtic *rigani, the compounds *(p)ro-geno- (cf. Latin prōgenies ‘progeny, offspring’) and *(ṛ)igo-geno- ‘king’+‘be born’, and the participle *(p)riyant- ‘one who pleases, loves’ corresponding to English ‘friend’. The name of the Welsh mythological figure Rianhon, Riannon is usually reconstructed as Ancient Brythonic *Rīgantōnā glossed ‘Divine Queen’ or similar (e.g. Bartrum 1993, 552–3; Koch 2006); the stem in -nt- reflects conflation of the Proto-Celtic *(ṛ)igani ‘queen’ (Old Irish rigain) and the participial formation of *(p)riyant-. The attributes of the figure Rhiannon overlap with those of Modron < Mātronā, the divine mother.

Conflation occurs more widely in Brythonic in examples like Middle Breton rōuantelez ‘kingdom’. ¶ Latin parēns, parentis ‘parent’ is similarly formed as a present participle, but the verb on which it is based, pariō, parere ‘give birth, bear’ < Proto-Indo-European ṭ-ver- ‘appear, bring forth’, is different.

SON, YOUTH *maghûs. ● Proto-Germanic *maguz ‘son, boy’: Ancient Nordic dative magōz ‘son’ (Veteland stone, Rogaland, Norway ~AD 0, Antonsen §18), accusative magu (Kjølevik stone, Rogaland, Norway ~AD 450, Antonsen §38), Gothic magus ‘boy, son’, Old Norse mōgr ‘son, youth’, Old English magu ‘child, son, young man’, Old Saxon magu, cf. feminine Proto-Germanic *mawi-: Gothic mawi, genitive mawijos ‘girl, maid’, Old Norse mær, genitive meyjar ‘girl, daughter’; ● Proto-Celtic *magus: Gaulish personal names MAGVRIX, MAGVANVS, MAGVNA, MAGVSVATIA, Old Irish mag ‘male slave, servant, monk’; Ancient Brythonic VEDOMAVI (CIIC no. 408 — Margam), Middle Welsh meu-dwy ‘hermit, monk’ < ‘servant of God’, Middle Breton maoues ‘girl’. The Old Breton personal name Gallmav can be understood as ‘foreign (i.e. Gallo-Roman) youth/servant’ < *gallo-magus. Note the use of mug with pagan god’s names in the genitive to form Old Irish men’s names, such as Mug-Nuadat ‘servant/youth/son of Núadú’ and Mug-Nét. This usage possibly contributed to the Insular Latin practice of referring to a druid as magus, echoing the native low-status word, and almost never the Latinized Celtic druides corresponding to Old Irish druīd. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] The meaning of Proto-Germanic *maguz ‘son, boy’ favours a link with Proto-Celtic *makwos ‘son, male descendant, boy’ (cf. Jordán 2019, 257), which, from an Indo-European perspective, is of uncertain origin: Gaulish and Ancient Brythonic god’s name and divine epithet Maponos (= Middle Welsh Mabon), Organic Primitive Irish genitive MAQQI, MAQI, Old Irish macc (cf. also the Old Irish kinship term maccu ‘descendant of the ancestor’, and the formula in Organic Primitive Irish MAQQI MUCCO), Old Welsh, Old Breton, and Old Cornish map. The variation between
CG *magus* ‘son, youth’ and Proto-Celtic *mak*əs ‘son’ would be explained as repeated borrowing and sound substitution from a non-Indo-European language or related non-Indo-European languages. Another possible factor is hypocoristic or ‘baby-talk’-deformation. In the word for ‘son’, the medial consonant was simplex in Brythonic but geminate in Goidelic. ¶ CG *magus* might less probably be explained as a development from an Indo-European root also reflected in Avestan maδava- ‘unmarried’.

**TRUSTWORTHY, RELIABLE** *drousdo- ~ *drusd- ● Proto-Germanic *trausta- [PRE-GRIMM 2]: Old Norse trastr ‘reliable’, Middle English truste ‘confident, safe, secure’, cf. Old Norse treysta ‘to fasten, to trust’, Old Saxon trōstian, Old High German trōsten ‘to comfort’; ● Proto-Celtic *druzd- ~ *drust- (<? *druzd-to-): Middle Irish druit ‘close(d), firm, trustworthy’, also the verb drut ‘act of closing, shutting, making secure’, cf. the Pictish personal names Drust, Drustan, Drost, Drostan, Ancient Brythonic DRVSTANVS. ¶ CG *drousdo- can be explained as a compound of Indo-European roots *wdōs* ‘tree’ and *wshed- ‘sit down, set’. ¶ Cf. also CGBS ‘LOYAL, TRUSTWORTHY’ *drewu- below.

**WITNESS** *weidwōts* ● Proto-Germanic wītōws < *weitwāps: Gothic weitwōps ‘witness’ [PRE-GRIMM 2] [PRE-GRIMM 1]; ● Proto-Celtic *wēdūnts: Old Irish *fiadu, fiado, fiada ‘witness’, cf. *fiad ‘presence’, Middle Welsh gwŷd. ¶ Old Prussian waidewut ‘priest’ is formally identical to the CG word, but has developed a different secondary meaning from Proto-Indo-European *weitwōts ‘seeing, knowing’, cf. Greek participle εἰδώς ‘knowing’. ¶ Old Irish *fiadu* is inflected as an *n-stem. As Thurneysen recognized, this is probably secondary and due to analogy (GOI §330). ¶ Proto-Indo-European *weitwōts* ‘see, look, know’.

**SACRIFICE, OFFERING, RITUAL MEAL** *dapno- ~ dāpnā-. ● Proto-Germanic *tafna- < Pre-Germanic *dapno- [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *tafn* ‘sacrificial animal, sacrificial meat’; ● Proto-Celtic *dāwnā < *dā(p)nā: Middle Irish dūan ‘poem, song, verse composition, poem to be recited for payment’ (Watkins 1995, 118, 237); ● Proto-Italic *dāno-: Latin damnūm ‘loss, expense’. ¶ Possibly cognate with Armenian *dawn ‘religion feast’. Note with the same root, but not the suffix, Latin *daps* ‘sacrificial meal’, Hittite *tappla- ‘person responsible for court meal’, Tocharian A *tāp ‘to eat’ < Proto-Indo-European *Vdāp ‘apportion’, possibly also Greek δάντω ‘to devour’, though Beekes considers Pre-Indo-European origin possible for that (s.n. δάπτω).
The common Middle Welsh *dawn*, usually means ‘gift’ in general and is, therefore, probably the cognate of Old Irish *dán* < Proto-Celtic *dānu*- (Latin *dōnum*) in most instances. However, especially in some early examples, *dawn* refers specifically to a praise poem offered by a professional poet to a patron and may derive from an originally separate word cognate with Middle Irish *dúan* < *da(p)nā*.

**SELF *selbho-~*selwo-**. • Proto-Germanic *selba(n)*- ‘self’: Gothic *silba* ‘self’, Old Norse *sjalfr* ‘self’, Old English *self*, *sself*, Old Frisian *self*, Old Saxon *self*, Old High German *selb* ‘self’; • Proto-Celtic *selwo-* (? *selbo-*)-: Old Irish *selb* ‘property, appurtenance, domain, possessions, ownership’; Middle Welsh *elw*, *helw* ‘profit, possession, gain, protection’; • Proto-Italic *sello-*: Venetic *sselboi-sselboi* ‘to oneself’. ¶ The semantic development in Celtic, from pronoun to noun, is nearly replicated in Middle Welsh *eiðau* ‘property, possession, asset, estate’ < ‘belonging to’ from Proto-Celtic (Latin *eiδau* ‘property, possession, asset, estate’ < ‘belonging to’ from *eiδ* ‘to oneself’. ¶ The interchange of Celtic *b* > *w* after a liquid is found in other examples, e.g. Welsh *syberw* ‘arrogant’ < Latin *superbus* but as this change is found only in Welsh, it is probably later, though throwing light on Proto-Celtic *selwo-* < *selbho-* as a natural and typologically similar change at an earlier stage of the same family. With Old Irish *selb* [s‘el’β] < Primitive Irish *selba-* < Proto-Celtic *selwo-* , we see the reverse change, which is regular in Goidelic.

**THINK (?) *tong-**. • Proto-Germanic *bankjan- [PRE-GRIMM 2] [PRE-GRIMM 1]: Gothic *págkjan* ‘to think, plan’, Old Norse *píkki* ‘to perceive, notice, comprehend, know, recognize’, Old English *pencan* ‘to think’, Old Saxon *thenkian* ‘to think, consider, watch’, Old High German *denkan*, *denchen*, cf. Old Norse *þókki* ‘pleasure’ < Proto-Germanic *þankō*; • Proto-Celtic *tongeti* ‘swears’: Old Irish *tongid* ‘swears’, Middle Welsh *twng* ‘swears, affirms strongly, curses’, probably also Gaulish *toncsiontio* ‘that they will swear’; • Proto-Italic *tong-eye-*: Latin *tongēre* ‘to know’, dialectal *tongitiō* ‘idea’, Oscan accusative *tanginom*, genitive singular *tangineis*, ablative singular *tanginud* ‘decision, opinion’. ¶ Proposed derivations for this Celtic verb vary. This entry follows Ringe (2017, 119; cf. Koch 1992c).

**The numerous Palaeohispanic names in Tong-**, which are heavily concentrated in the Western Peninsula, probably belong in this entry: **TONCIVS ANDAIL[-* F.*] (EE, VIII 10; Encarnação 1984, 574 — Elvas, Portalegre); TONGIVS (CIPILC, 738 — Calzadilla de Coria, Cáceres); TONGIVS [S] (CIPILC, 592 — Valencia de Alcántara, Cáceres); TONGI (Almeida 1956, 227, nº 135 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); BOVDCIACI TONGI F. MATRI (AE, 1967, 170; Albertos 1983, 872 — Telhado, Fundão, Castelo Branco); CELTIVS TONGI F. (AE, 1934, 22; Encarnação 1984, 638 — Montalvão, Nisa, Portalegre); TONGIVS BOVTI F. (CIPILC, 47; CILCC I, 71 — Arroyo de la Luz, Cáceres); TVOVTAE TONGI F. (HAE, 1172; Almeida 1956, 133 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); CATVENVS TONGI F. (CIPILC, 221; HEp, 8, 77 — Coria, Cáceres); CILVRA TONGI (AE, 1967, 167 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); MAELONI TONGI F. (AE, 1977, 364 — Fundão, Fundão, Castelo Branco); ALEINIVS TONGI F. (CIL II, 749; CIPILC, 89; CILCC I, 107 — Brozas, Cáceres); AVITAE TONGI F. (AE, 1967, 167 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); C. IVLIVS TONGIVS (CIL II/7, 956; HEp, 7, 147 — Monterrubio de la Serena, Badajoz); CAMIRA TONGI F. (CIL II, 757; CIPILC, 25; Albertos 1977b, 38; CILCC I, 26 — Alcántara, Cáceres); RVFVS TONGI F. (CIL II, 729; AE, 1968, 214; CIPILC, 586 = CIPILC, 596 — Valencia de Alcántara, Cáceres); TITANVS TONGI F. (CIL II, 795 & p. 826; CIPILC, 202; Beltrán 1975–1976, 26; Melena 1985, 498; AE, 1977, 388 — Ceclavín, Cáceres); FLACCO TONGI

c. Celtic/Germanic/Balto-Slavic (CGBS)

DEBT, OBLIGATION *dhlg- ~ *dhlg-. ● Proto-Germanic *dulga-'debt': Gothic dulgs 'debt' (possibly also Old Norse dolg, Old English dolg, Old Frisian dolg, dulg 'enemy'); ● Proto-Celtic *dlig-e/o-: Old Irish dligid 'is owed (as debt), is entitled to, deserves, merits, has a claim to', dliged 'law, duty, principle, rule, reason', Middle Irish dlecht 'lawful, due, rightful, permitted', Middle Welsh dyly 'is obliged, is indebted, ought, is in debt; has a right to, claims, merits, deserves', dylyet 'debt, claim, due, obligation, duty', Middle Breton dleout 'must'; ● Slavic: Old Church Slavonic dlogs, Russian dolg 'debt'. ¶ If related, Albanian ndal 'halt, stop' would indicate a CGBS semantic development from an earlier stage in the Indo-European dialects. Semantically, that is close to Early Welsh dyleith 'bar, door-bolt, barrier, defence', but that form can be derived from Proto-Celtic *dlixtā < vdelg-'hold', Middle Welsh daly.

HOMESTEAD *koimo-. ● Proto-Germanic *haima- [PRE-GRIMM 1]: Cf. Ancient Germanic Boiohaemum 'Bohemia, i.e. homeland of the Boii' (Velleius Paterculus §2, 109, 5, ~AD 20), Βουιαιμον (Strabo §7, 1, 3), genitive Boihaemi (Tacitus, Germania §28, 2), Gothic haims 'village', Old Norse heimr 'home, world', Old English haam, hām, Old Frisian hēm, Old Saxon hēm, Old High German heim 'abode, residence, homestead'; ● Proto-Celtic *koimo-: Old Irish cóem 'dear, precious, beloved, belonging to the family', Middle Welsh cu 'dear, beloved, amiable, pleasant, beautiful, intimate', Middle Breton cuff, cf. Lepontic tunal | koinila (Morandi 2004, 69 — Levo, near Stresa, Italy, ~150–100 BC); Primitive Irish COIMAGNI FILI CAVETI (CIIC no. 434 — Llandeilo, Llwydiarth) = Ogam COIMAGNI (CIIC no. 166; McManus 1991, 65, 107, 113 — Baile an Bhóthair/ Ballinvoher, Kerry Ballinvoher, Co. Kerry;
Ahilisky, East Carbery, Co. Cork); Old Welsh Cuncuman < *Kunocimagnos, Cuncum < *Kunocoimos, Guincum ‘Fair and Dear’ also Guinecum < *Windo-koimos, cf. Southern Welsh mam-gu ‘grandmother’, tad-cu ‘grandfather’, Old Breton cum, Middle Breton cunff, cuff ‘easy-going, good natured, pleasant’, Breton kuñv, cf. Breton mamm-guñv great-grandmother’, tad-kuñv ‘great-grandfather’, Old Cornish personal name Leucum < *Lugu-koimos, Middle Cornish cuñv, cuēf ‘grandfather’, Breton cum, Middle Breton cunff, cuff ‘easy-going, good natured, pleasant’. It is possible to see below for numerous attestations of these NW words existed in Proto-Indo-European and is derived from Vkei- ‘lie down’, cf. Greek κεῖται ‘lies down, is laid down’. This clarifies the semantic development: ‘lie down’ > ‘where one lies down’ > ‘home’ > ‘close relatives and positive feelings about home’. The less common, but not rare, Palaeohispanic Ancoema/Anquema may be a syncopated form of *ande-koimā ‘very dear’, and so not the negation of the high-frequency Coemea/Quemia. But if Ancoema is a negation (cf. Middle Irish éccam ‘unkindly, unlovely’, Welsh anghu ‘unamiable’), it may have signified a female coming from a different household, such as a foster child or daughter-in-law. There are no corresponding Hispano-Celtic masculine names for Coemea/Quemium or Ancoema/Anquema, although men’s names with Godielic cóem and Brythonic cum are common in Insular Celtic. ¶ The central sense ‘home’ has been generally lost from the attested Brythonic forms. However, it is likely that the original sense of the cognate kinship terms, Welsh mam-gu ‘grandmother’ and tad-cu ‘grandfather’, Breton mamm-guñv ‘great-grandmother’ and tad-kuñv ‘great-grandfather’, had been ‘mother’ and ‘father of the household’, i.e. the most senior of the local kin group, which would account for the disparity of generations between Welsh and Breton.

¶ The Palaeohispanic comparanda are numerous and geographically widespread:

CELTIBERIAN REGION. COEMEAE SEMPRONIE PATERNIE L. (CIL II, 2867; Abásolo 1974a, 20 — Iglesia Pinta, Burgos); COEMEA AGOLIECA APLONI F. (Abásolo 1974a, 173 — Lara de los Infantes, Burgos); COEM(A) ALTICA PATERNIE L. (CIL II, 6298 — Olleros de Pisuerga, Palencia); ANCOEMA PLANDICA SEGVETI F. (Abásolo 1974a, 84 — Lara de los Infantes, Burgos); COEM(E)AE DESICA SEGVETI F. (Abásolo 1974a, 170 — Lara de los Infantes, Burgos); COEMEA PLANDICA PEDOLI F. (Abásolo 1974a, 183 — Lara de los Infantes, Burgos); COEMEA DESICA VIASDI AQVINI F. (CIL II, 2866; Abásolo 1974a, 158 — Lara de los Infantes, Burgos); COEMEA B[OV]DICE (Abásolo at al. 1982, 164 — Fuentebeza, Burgos); VEMIA ARIA (Palol & Vilella 1987, 57; HEp, 2, 120 — Peñalba de Castro, Burgos); COEMAE DESICAES VISADI AQVINI F. (CIL II, 2866; Abásolo 1974a, 183 — Lara de los Infantes, Burgos); COEMEA DESICAES VISADI AQVINI F. (Abásolo 1974a, 84 — Lara de los Infantes, Burgos).
LOYAL, TRUSTWORTHY *

LUCK *kobom. ● Proto-Germanic *hap- [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse happ ‘luck’, Old English gehæp ‘suitable, convenient’; ● Proto-Celtic *kobom: Middle Irish cob ‘victory, advantage’ (mostly attested in glossaries and poetry), cf. Gaulish personal names COBVA, COBVNA; ● Slavic: Old Church Slavonic kobi ‘destiny’. ¶ Middle English hæp ‘good fortune, good luck, success, prosperity’ is probably borrowed from Scandinavian (OED s.n. ‘hap’).

d. Italo-Celtic/Germanic/Balto-Slavic (ANW)

GUEST *ghostis. ● Proto-Germanic *gastiz: Ancient Germanic personal name harigasti ‘guest of the war-band’ (Negau B helmet ~200–50 BC), Ancient Nordic personal names hlewagastiz ‘famous-guest’ (Gallehus horn ~AD 400), ...dagastiz (Einang stone, Oppland, Norway ~AD 350–400), widugastiz ‘wood’ + ‘guest’ (Sunde stone, Sogn og Fjordane, Norway ~AD 500, Antonsen §80), Gothic gasts, Old Norse gestr, Old English giest, Old Frisian jest, Old Saxon and Old High German gast, cf. Old Norse gista ‘to spend the night, i.e. act as a guest’ < Proto-Germanic *gestjan; ● Proto-Celtic *gostis: Lepontic personal name UVAMOKOZIS < *U(p)amo-gostis ‘supreme guest’; ● Proto-Italic *xostis: Latin hostis ‘foreigner, enemy’; ● Slavic: Old Church Slavonic gosto, Russian gost’ ‘guest’, these are possibly borrowed from Germanic.

HUMAN BEING < EARTHLING *

the use of the *-yo- suffix in the patronymic system found in early Gaulish and South-western Celtic (Tartessian), as well as in other early Indo-European languages, implies that literal meanings of Proto-Celtic *gdonyos included ‘child of the earth’, cf. Old Irish dū, genitive don ‘earth, place, spot’ and the primeval Children of Dôn (plant Don) of Welsh mythology, which possibly continues the old genitive, Proto-Celtic *gdonos of the earth’ as a poetic circumlocution for *gdonyos; • Proto-Italic *χemō, accusative χemonm̥ ‘human being, man’ < notional Proto-Indo-European *dhēgm̥- ‘earthling’: Latin homō, Old Latin accusative singular hemōnem, Oscan nominative plural humuns, Umbrian dative plural homonus; • Baltic: Old Prussian smunents, smūnets ‘man’, Old Lithuanian žmuō ‘human being’, Lithuanian žmönēs ‘people’ < *dhēgm̥ones. ¶ This is an ICGB semantic development (‘human being’ < ‘earthling’) derived from the word *dhēgm̥- genitive *dhēgm̥ós ‘earth, land’, which had been part of the core vocabulary of the earliest stage of Proto-Indo-European, as shown by Hittite tēkan, genitive taknaš ‘land’, Greek ξῆών ‘earth, ground, land, region’, Vedic kṣām, genitive ksmās ‘earth, ground’, Old Church Slavonic zemlja, Albanian dhe, Tocharian B kem, Latin humus. The sense ‘human being’ is secondary, limited to the languages of the North-west, and therefore clearly later. This is an important development in the belief system of this subset of Indo-European speakers and, on the basis of geographical distribution and relative chronology, possibly a concept that spread together with the Beaker phenomenon. Compare, for example, the transformations taking place at this stage that can be linked with emerging concept of the individual, discussed by Harrison & Heyd 2007 (cf. Needham 2016). ¶ The superficial similarity of Basque gizon ‘man, human being, husband’ and the Aquitanian personal names CISON, CISONIO, and CISONTEN (Gorrochategui 1984) is probably coincidental and not a borrowing from Proto-Celtic *gdonyo-.


• Proto-Italic *luβē- ‘to desire’: Latin lubīdo ‘desire, lust’; • Slavic: Old Church Slavonic ljubs ‘sweet pleasant’, ljubiti ‘to love, desire’, Church Slavic ljuby ‘love’. ¶ A specialized meaning has developed in the NW languages. Proto-Indo-European Vleubh-eH₁-: Sanskrit lobhāya- ‘to make crazy’.
Proto-Germanic *kāros ‘lover’ (< *χāros < Pre-Germanic *kāros [PRE-GRIMM 1]: Ancient Nordic horaz (Fyn 1 bracteate rune ~AD 440–560 (Wicker & Williams 2012)), Gothic hōr, Old Norse hōrr ‘adulterer’, cf. Proto-Germanic *χāran- > *χōrōn- ‘lover’ > ‘whore’: Old Norse hora, Old English hōr, Old Frisian hōr, Old High German hōrra ‘adulterer’; • Proto-Celtic *kar-o- ‘to love’, Old Irish caraid ‘loves, likes’, Middle Welsh caraf ‘I love, woo, court’, • Ancient Baltic: Lithuanian kārs ‘lustful’. ¶ There is extensive and geographically widespread Palaeohispanic comparanda:

Palaeohispanic forms: Celtiberian personal name CARACA (MLH IV, K.14.2; HEp, 9, 245; HEp, 11, 96 — Sasamón, Burgos), Latinized genitive plural CARORVM, personal names ACCETI CARIQO AMBATI F. (HEp, 2, 618; ERsg, 5 — Coca, Segovia), AIAE CARAVANCAE BODDI F. CELTIGVN (CIL II, 6298 — Olleros de Pisuerga, Palencia), ALBVRTA CARISI F. (EE, VIII 118 — Braga), place-name NICER CLVTOSI CARIACA PRINCIPIS ALBIONVM (AE, 1946, 121; ERAsturias, 14 — La Corredoir, Vegadeo, Asturias).

Proto-Italic *kāro- ‘dear’ < *keH₂-ro-: Latin cārus ‘dear, precious, esteemed, affectionate’; • Baltic: Latvian kārs ‘lustful’. ¶ The formations with the suffix *-ro- are limited to NW, but Proto-Indo-European VkeH₂- ‘love’ occurs more widely: Sanskrit kāyamāna- ‘to wish, love, desire’. 

PEOPLE, TRIBE *teutā. • Proto-Germanic *þeuda- ‘nation, people’< [PRE-VERNER] *þeuþa- [PRE-GRIMM 1]: Gothic þiuda, Old Norse þjóð, Old English þeod, Old Saxon thiod, thīoda, Old High German diot; • Proto-Celtic *touþa ‘people, tribe, territory, group and land ruled by a *rīþs’: Gaulish (Gallo-Greek) TOYTIOYC NAMACYTIC ‘citizen of Nîmes’ (RIG 1, G–153 — Vaison), personal names TOVTIA, TOVTIVS and *Touto- in compound names, e.g. TOVTOCAMVLI, TOVTOMARA, Galatian Ambitoutus, Old Irish túath, Old Welsh and Old Breton tut; • Proto-Italic *touþa- ‘town, society’: Oscan touto ‘ciuitas’ ‘community, city’, Venetic teuta ‘ciuitas’; • Proto-Baltic *tauta-: Old Prussian touto, Lithuanian tauta ‘land’, Latvian tauta ‘people’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] It is not certain that Hittite tuzzi- ‘army’ is related. If so, that would establish a Proto-Indo-European root undergoing subsequent special development in the NW branches.

¶ There is extensive and geographically widespread Palaeohispanic comparanda:

Celtiberian region. arkanta toutinikum (B3, III–44 — Botorrita, Zaragoza); bartiltun ekarbilos munika elkuakue koitinas terkinos toutinikum leton (B3, II 50–52 — Botorrita, Zaragoza); sekilos toutinikum me+ (B3, I–7 — Botorrita, Zaragoza); useizunei toutinokum (Lorrio & Velaza 2005; Luján 2009, 703–770; HEp, 5, 989 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); TOVTO[N]I (HAE, 1082 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); TOTIV(S) TREBAQVE B[—] (Gorrochategui 2013c — Clunia).

§44. Material culture and subsistence economy

a. Celto-Germanic (CG)

Dress pin, brooch *dhelgo- ~ *dholgo-. ● Proto-Germanic
*dalka- < Pre-Germanic *dholgo- [PRE-GRiMM 2]: Old Norse dálkr ‘brooch, clasp, pin, dagger’, Old English dālc, dōlc ‘clasp, bracelet, brooch, buckle’; ● Proto-Celtic *delgos < Pre-Celtic *dhelgo-: Old Irish delg ‘pin fastening mantel to the breast, brooch; thorn; spike, peg’, Old Cornish delc glossing ‘monile’ ‘necklace, collar’, Middle Welsh dala ‘catch, seize, hold, restrain, overtake, enclose, contain’. ¶ It is difficult to derive falx, genitive falcis ‘hook, scythe, sickle’ from the same phonological reconstruction as the CG forms. Even if that comparison can be maintained, the semantic development from ‘something sharp and piercing’ to ‘dress pin’ is peculiar to CG. Cf. similarly Lithuanian dilgė ‘nettle’, pointing to an earlier sense ‘sting, pointed piercing object’. If so, the CG meanings ‘brooch, clasp’ and ‘necklace, bracelet’ reflect a development in functional dress ornaments from simple pins to more complex fasteners with moving parts.

Enclosed field *kaghyo-. ● Proto-Germanic *hagjō- [PRE-GRiMM 1]: Old English hecg ‘hedge’ and *hagan- ‘enclosure, fence’: Old Norse hagi ‘pasture with a fence’, Old English haga ‘hedge, wooded enclosure’, Old High German hac ‘hedge’;
● Proto-Celtic *kagyo- ‘pen, enclosure’: Gaulish caio ‘breialo sive bigardio’ ‘field or enclosure’, place-names Caiocum, Matu-caium, Old Breton plural caiou glossing ‘munimenta’ ‘fortifications’, Middle Welsh cae ‘hedge, fence, enclosed field; clasp brooch’, Cornish ke ‘hedge, ditch, enclosed field’. ¶ Possibly related to Proto-Italic *koxo- ‘hole’ or ‘tie, juncture’: Latin cohum ‘the hollow in the middle of a yoke’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]
ENCLOSURE *katr~- *kêtr-. • Proto-Germanic *hêôr- [PRE-VERNER] *xeôr- [PRE-GRIMM 1]: Old English hêadr ‘enclosure, restraint, prison’; • Proto-Celtic *katrîk: Old Irish cathir ‘stone enclosure, castle, fortified town’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] ¶ It is likely that not all the occurrences of Welsh cadair in place-names are based on the borrowing of Latin cathedra ‘chair, seat’, but that some go back to the cognate of this word, e.g. the mountain name Cader Idris.

FLOOR *plôro-. • Proto-Germanic *flôruz < *fl arous [PRE-GRIMM 1]: Old Norse flôr ‘floor of cowstall’, Old English flôr, Middle High German vluor ‘field, plain, floor’; • Proto-Celtic *(p)lôro: Old Irish lôr ‘ground, surface, middle’, Middle Welsh llôr ‘floor, deck, ground, platform’, Breton leur. ¶ Unique CG word formation and meaning: contrast Latin planus ‘level, flat’ < Proto-Indo-European *pl(e)H2-nô- ‘flattened’.

FORK *gabhlô- ~ *gabhîä-. • Proto-Germanic *galôðô - Old English geafal, gafal, Old Saxon gabala, Old High German gabala; • Proto-Celtic *galô- ~ *galô-: Old Irish gabul ‘fork’, Old Breton mor-gabalou glossing ‘aestuaria’ (literally ‘sea forks’), Middle Welsh gafal ‘PC 12ork’. ¶ On flesh forks in the Atlantic Bronze Age, see Needham & Bowman 2005.


¶ In what was arguably the first line of Y Gododdin, before the Sra th Caruin Awdl and ‘Reciter’s Prologue’ were added, there is a reference to a place, most probably Din Eidyn or Edinburgh, which is called Leuure (rhyming), which can be reconstructed as *Lugu-briga (Isaac 1993, 82; Koch 1997, 131).

¶ Palaeohispanic forms: (see especially Guerra 2005).

¶ CELTIBERIAN REGION. Augustobriga (Muro de Agreda, Soria); Arcobriga (Cerro Villar, Monreal de Ariza, Zaragoza); BRIGAEIS, MATRIBVS (Peñalba de Castro, Burgos); Centobrica (Epila, Zaragoza); Deobriga (Arce Mirapérez, Miranda del Ebro, Burgos); Deobrigula (Lodoso?, Burgos); Dessobriga (Osorno, Palencia); Lacobriga (Carrión de los Condes, Palencia); Nertobriga/nertobis (Cabezo Chinchón, Calatorao/La Almunia de Doña Godina, Zaragoza); Segobriga (Cabeza del Griego, Cuenca); M. VALERI[VS] M[ARCI] F. GAL. REBVRVS SEGOBRI(GENSIS) (CIL II, *381; HEP, 2, 382 — Saelices, Cuenca); DOMINAE S[ANCTAE] TVR(IBRIGAE) A(TAECINAE) VLIENSES ARA(M) POSVERVNT EX V(OTO) (CIL II 5877, Saelices, Cuenca).

¶ CENTRAL REGION. Amallobriga = Abelobrica (near Tordesillas, Valladolid); Caesarobriga (Talavera de la Reina, Toledo).

¶ WESTERN PENINSULA. ABOBRICA (Abrega? Pontevedra); ABOBRIGA/AOBURIGA (in the territory of Aquae Flauiae? Vila Real); ADROBRIGA (fortified settlement of the Artabri? A Coruña); AE[D?]JOBROIC (Codesedo, Sarreaus, Ourense); ALANOBRCIAE (Eiras, San Amaro, Ourense); ARABRIGENSES < *Arabriga (Goujoiem, Armaran, Viseu); [CE]LICVS FRONTO ARCOBRIGENSIS AMBIMOGIDVS FECIT TONGOE NABIAOG // CELICVS FECIT // FRONTO) (CIL II, 2419; EE, VIII 115; HEP, 1, 666; HEP, 5, 966; HEP, 7, 1160; Búa 2000; Elena et al. 2008 — Braga) < *Arcobriga; ARCOBRICA (Torrão?, Alcácer, Setúbal); Artabris sinus (referring to the estuaries near A Coruña? Guerra 2005); LAETVS CATVRONIS F. AVIOBRI(GENSIS) (HAE, 1918; AE, 1959, 82; Haley 1986, 183 — Fermedo, Arouca, Aveiro);
Auiliobris castellum (Cores, Ponteceso, A Coruña); BEROBREO (Doñon, Cangas do Morrazo, Pontevedra); BLANIOBRENSI (?)

CASTELLO < *Blaniobris, also Laniobrensis/Lamniobrensis/Lamiobrensis (Luján 2006, 727 ['It is highly remarkable that two stages in the evolution of this word can be attested...']) of the Celtici Supertamarcii, Astorga, León) < *(p)lān-yo-bri- according to Prósper (2002, 427); BRIGAECIVM/BRIGAECINI (Dehesa de Morales, Fuentes del Ropel, Zamora); BANDI BRIALEAECO (HEp, 18, 569 — Guarda); CALVBRIGEN(SIS) < *Calubriga (S. Esteban de a Rúa?, Petín, Ourense); CAETOBRIGA/Καιτουβριξ (Setúbal); Κουλιοβριξ (Ptolemy II, 6.38–48 in Callaecia Bracarensis; García Alonso 2003, 243; 2009, 272 listing this as a Celtic name); IOVEAI CAIELOBRIGOI (CIL II, 416; HEp, 5, 1064; HEp, 9, 765 — Lamas de Moledo, Castro Daire, Viseu); COELIOBRIGA/ CAELOBRIGA (dos Celernos, Castromao, Celanova, Ourense); CONIMBRIGA/ CONIVM BRIGAECENSIS (AE, 1967, 183 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); COTTAEOBRIGA (in Vettonian territory between Salmantica and Lancia Oppidana, Salamanca); ELANEOBRIGENSIS < *Elaneobriga (Braga); Flaviobriga (Castro Urdiales, Cantabria); IERABRICA (near Alenquer, Lisboa); IULIOBRIGA (Retortillo, Campo de Enmedio, Cantabria); Lacobriga (Lagos or Monte Molía, Lagos, Faro); LANGOBRICV (Longrove, V. N. Fozcôa, Guarda); Lambris (Lambre, Ambroa, Irixoa? A Coruña); APANA AMBOLLI F. CELTICA

Figure 43. The zones of Palaeohispanic place-names with Celtic -briga and non-Indo-European iI(t)I and groups called 'Celts'.

Auiliobris castellum (Cores, Ponteceso, A Coruña); BEROBREO (Doñon, Cangas do Morrazo, Pontevedra); BLANIOBRENSI (?)

CASTELLO < *Blaniobris, also Laniobrensis/Lamniobrensis/Lamiobrensis (Luján 2006, 727 ['It is highly remarkable that two stages in the evolution of this word can be attested...']) of the Celtici Supertamarcii, Astorga, León) < *(p)lān-yo-bri- according to Prósper (2002, 427); BRIGAECIVM/BRIGAECINI (Dehesa de Morales, Fuentes del Ropel, Zamora); BANDI BRIALEAECO (HEp, 18, 569 — Guarda); CALVBRIGEN(SIS) < *Calubriga (S. Esteban de a Rúa?, Petín, Ourense); CAETOBRIGA/Καιτουβριξ (Setúbal); Κουλιοβριξ (Ptolemy II, 6.38–48 in Callaecia Bracarensis; García Alonso 2003, 243; 2009, 272 listing this as a Celtic name); IOVEAI CAIELOBRIGOI (CIL II, 416; HEp, 5, 1064; HEp, 9, 765 — Lamas de Moledo, Castro Daire, Viseu); COELIOBRIGA/ CAELOBRIGA (dos Celernos, Castromao, Celanova, Ourense); CONIMBRIGA/ CONIVM BRIGAECENSIS (AE, 1967, 183 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); COTTAEOBRIGA (in Vettonian territory between Salmantica and Lancia Oppidana, Salamanca); ELANEOBRIGENSIS < *Elaneobriga (Braga); Flaviobriga (Castro Urdiales, Cantabria); IERABRICA (near Alenquer, Lisboa); IULIOBRIGA (Retortillo, Campo de Enmedio, Cantabria); Lacobriga (Lagos or Monte Molía, Lagos, Faro); LANGOBRICV (Longrove, V. N. Fozcôa, Guarda); Lambris (Lambre, Ambroa, Irixoa? A Coruña); APANA AMBOLLI F. CELTICA

§44a
Admagentobriga (Bello Gallico); Allobrogia—Moldova;
Arebrigium—near Le Pré-Saint-Didier, Italy; Artobriga—
Traunstein? Germany; Artobriga—Vindelicia, Austria?;
Boudobriga, Bodobrica—Boppardt, Germany; Bricca—Brèches?
France; Briga—Northern England; Briga—Brie (Deux-Sèvres),
France; Briga—Brie (Seine-et-Marne), France; Briga—Brie
(Charentes), France; Briga—Brie-Comte-Robert, France;
Briga—Broye(s) (Marne), France; Briga—Broye(s) (Seine-et-
Loire), France; Briga—Broye(s) (Oise), France; Brigeto—Szöny,
Hungary; briggogalus—Saint-Epain, France; Brigianii—France;
Briginnum?—Serre de Brienne, Brignon, France; Brigiosum/
Briossus—Brioux, France; Brigobannis*—Hüfingen, Germany;
Brigomagus*—Briaçonnet? France; Brigisina—Brixen,
Austria; Brigisavi—Germany; Brixellon, -um—Brescello, Italy;
Brixenetes?—Bessanone, Italy; Brixia—Brescia, Italy; Brixis—
Braye, Reignac-sur-Indre? France; Ebrobriga—Avrolles
(Yonnes), France; Eccobriga/ Ecobrogis—nr. Sorsovus, Turkey;
Erubris fl.—Ruwer, Germany; Gabris/Gabrae*—Gièvres,
France; Litanobriga?—Thiverny/La Haute Pommeraie/Saint-
Maximin, France; Ollobriga—Olbrück, Rhéannia; Onobrisates
—France; Ouoβριξ (= Vobrix)—Morocco; Perbriga—Portugal;
Phlaouia Robrica—Saumur? France; Saliobriga*—Sinsheim/
Steinsfurt, Germany; Segobrigii—France; Triobris fl.—La
Truyère, France; Vindobriga—Vand(o)evure(s) (Aube), France;
Vindobriga—Vand(o)evure(s) (Calvados), France; Vindobriga—
Vand(o)evure(s) (Indre), France.

HIGH ONES, GROUP NAME RELATED TO ‘HILLFORT’ *Bhrgh̀ntes.
• Proto-Germanic *Burgunþaz: Old Norse Burgundar, Old English
Burgendas was the name of an East Germanic-speaking group
recorded during the Roman Imperial Period living between
the Upper Rhine and Upper Danube. They then established
the kingdom of Burgundy in South-east Gaul in the Migration
Period. The Burgundians are often traced to an earlier homeland
on the Baltic island of Bornholm, Old Norse Burgundarholmr.
• Proto-Celtic *Brigantes ~ *Brigantioi: Βριγαντες occurs in
Ptolemy’s Geography for a group in South-east Ireland and
another in North Britain, cf. the Romano-British goddess
Brigantia (Falileyev et al. 2010, 12). Old Irish Brigit (< *Brigantii)
is glossed ‘dea poetarum’ in Sanas Cormaic, also the name of the well
known Irish saint associated with Kildare and the province of
Leinster. Old Welsh brenninh ‘king’ goes back to *brigantinos,
possibly meaning ‘consort of *Brigantii’ ‘Brigantia’” (Binchy
1970; Charles-Edwards 1974) or *Brigantignos ‘son of *Brigantii
‘Brigantia’”. What is probably the same title (possibly used as
a name) occurs as a Gaulish coin legend (in Iberian script) as
birikant (MHL V.1, XII). ¶ As a goddess name or epithet, the
suffixed forms of *bhr̥gh- ‘high, hill’ (whence *bri̯x ‘hillfort’, see
above) go back to Proto-Indo-European; cf., for example, Vedic
brha-ti ‘the high one’ (< *bhr̥ghnti, an epithet of Uṣás, the goddess
of the dawn). Βριγαντιοι (Strabo 4.6.8) is the name of a subgroup
of the Vindelici in West-central Europe. Βριγαντιον (Strabo 4.6.8)
is the Gaulish name of the place that is now Bregenz, Austria.

**BRIGANTIONE** (CIL XII no. 118) is the ancient name of Notre-Dame de Briançon, France. *Brigantinus Lacus* also called Ven(non)etus Lacus is now Bodensee, Germany. Φλαύιον βριγαντιον (Ptolemy II, 6.4; Guerra 2005; García Alonso 2009, 172, listing it amongst Celtic names). Like Βριγαντιον now Bregenz, the Callaecian *Brigantium* also means ‘town of the *Brigantioi*’.

**ENCLOSURE, ENCLOSED SETTLEMENT, HILLFORT** 2 *dūnos*. • Proto-Germanic *tūna*- ‘fenced area’ < [Pre-Grimm] 2 *dūno-*: Old Norse *tún* ‘enclosure, courtyard, homestead; home, field; town’, Old English *tūn* ‘enclosed piece of ground, yard; town’, Old Frisian *tūn* ‘fence, fenced field, garden’, Old Saxon -*tūn* ‘enclosing fence’, Old High German *dūno- ‘fence, fortification’; • Proto-Celtic *dūnos* ~ *dūnom*: Gaulish, Hispano-Celtic *dūno- ‘fortified town, oppidum’, Old Irish *dún* ‘residence of a chief fortified with ramparts, fort, rampart’, Middle Welsh *din* ‘city, fort, fortress, fastness, stronghold’, archaic but common in place-names, such as *Din-nach, Din-lleu bych*, Old Breton *din* ‘stronghold’, archaic but common in place-names, such as *Din-ath, Din Eidin*, also Breton place-names, *Din-fisth, Din-an* ‘fort, rampart’, Middle Welsh *din* also Breton place-names, such as *Dinard, Dinan*. ¶ Latin *fūnum* ‘burial, funeral’ is workable as cognate phonologically from Proto-Italic *fūnos < *dhūnos*, but the meaning is not close.

¶ Numerous Ancient Celtic place-names (Koch et al. 2007, 152–3; cf. Fallileyev et al. 2010, 18): *Acitodunum > Acidunum > Ahun* (Holder, AcS — Creuse, France); *Arandunum* * (Holder, AcS—Calvisson? / Hournières (Sommières), France; *Aredunum—Ardin* (Deux-Sèvres), France; *Arioldunum—Guadalquivir, Spain; *Augustodunum—Autun, France; *Branodunum—Brancaster, England; *Caesarodunum/Civitas Turonorum—Tours; *Caladunum—Vilar de Perdizes, Montalegre, Portugal; *Cambodunum—Champéon,Mayenne), France; *Cambodunum—Kempten, Germany; *Cambodunum—Leeds, England; *Camulodunum—Slack, England; *Camulodunum—Colchester, England; *Carrodonum—Karnberg, Bavaria; *Castellum—Meidunum—Castro de S. Facundo, Orense, Spain; *Dounov—Dorset, England; *Dounov—Baltinglass? Ireland (Toner 2000); *Dounov Koļpoš—Tees Bay, England; *Dunense Castrum—Châteaudun, France; *Dunum—Dhun, France; *Dunum—Dun, France; *Dunum—Dung, France; *Ebrudunon/Eburodunum—Brünn/ Brno, Czech Republic; *Eburodunensis Lacus—Lac de Neuchâtel, Switzerland; *Eburodunum—Averdon, France; *Eburodunum—Ebréon, Charentes, France; *Eburodunum—Embrun, Hautes-Alpes, France; *Ebrudunon/Eburodunum—Yverdon, Switzerland; *Ebrudunon/Eburodunum—Yverdon-les-Bains, Switzerland; *Ebrudunum > Ebrudunum—Embrun, France; *Ebrudunum—Esttledunum*; *Exolidunum* *—Issoudon, France; *Gabrodunum—Jabrun, Cantal, France; *Idunum—Dun-le-Palestel? France; *Karrodunum—Western Ukraine; *Lug(u)dunum—Lyon, France; *Lugdunum Batavorum—Leiden/Leyde, Netherlands; *Lugdunum—Kawijk, Netherlands; *Lugdunum Convenarum—Saint Bertrand de Comminges, France; *Lugdunum Consoramorum—Saint Lizier, Ariège, France; *Lugdunum Vocontiorum—Montlahue, Drôme, France; *Lugudunon—Laon, Aisne, France; *Lugudunon—Lauzun, Lot, France; *Lugudunon—Lion, Loiret, France; *Lugudunon—Loudon, Sarthe, France; *Lugudunon—Lyon, Rhône, France; *Lugunduno—Northern England; *Mag(i)odunum—Médan, Yvelines, France; *Mag(i)odunum—Mehun, Cher, France; *Mag(i)odunum—Mehun, Indre, France; *Mag(i)odunum—Meung, Loiret, France; *Mag(i)odunum—Lois Febre, France; *Mag(i)odunum—Moulins, Allier, France; *Meidunium—Castro de S. Facundo, Orense, Spain; *Meliódunum—Castro de S. Facundo, Orense, Spain; *Meliódunum—Castro de S. Facundo, Orense, Spain; *Meliódunum—Castro de S. Facundo, Orense, Spain; *Nóidóunon Diablintum—Jublains, France; *Noiodounon—Moravia; *Noiodounon—Moravia; *Noiodounon—Moravia; *Noiodounon—Moravia; *Neviodunum—Drnovo pri Krškem, Slovenia; *Neviodunum—Angers, Maine-et-Loire, France; *Neviodunum—Dion, France; *Neviodunum—St Poiret, France; *Neviodunum—Tours; *Neviodunum—Yverdon, Switzerland; *Neviodunum—Yverdon-les-Bains, Switzerland; *Neviodunum—Averdon, France; *Neviodunum—Embrun, Hautes-Alpes, France; *Ebrudunum—Yverdon, Switzerland; *Ebrudunum—Yverdon-les-Bains, Switzerland; *Ebrudunum > Ebrudunum—Embrun, France; *Ebrudunum—Yverdon, Switzerland; *Ebrudunum—Yverdon-les-Bains, Switzerland; *Ebrudunum > Ebrudunum—Embrun, France; *Ebrudunum—Esttledunum*; *Exolidunum* *—Issoudon, France; *Gabrodunum—Jabrun, Cantal, France; *Idunum—Dun-le-Palestel? France; *Karrodunum—Western Ukraine; *Lug(u)dunum—Lyon, France; *Lugdunum Batavorum—Leiden/Leyde, Netherlands; *Lugdunum—Kawijk, Netherlands; *Lugdunum Convenarum—Saint Bertrand de Comminges, France; *Lugdunum Consoramorum—Saint Lizier, Ariège, France; *Lugdunum Vocontiorum—Montlahue, Drôme, France; *Lugudunon—Laon, Aisne, France; *Lugudunon—Lauzun, Lot, France; *Lugudunon—Lion, Loiret, France; *Lugudunon—Loudon, Sarthe, France; *Lugudunon—Lyon, Rhône, France; *Lugunduno—Northern England; *Mag(i)odunum—Médan, Yvelines, France; *Mag(i)odunum—Mehun, Cher, France; *Mag(i)odunum—Mehun, Indre, France; *Mag(i)odunum—Meung, Loiret, France; *Marcedunum—Marquain, Hainault, France; *Marcedunum—Marquain, Pas-de-Calais, France; *Margidunum—Britain; *Μελιοδουνον—Moracia; *Meliodunum—South Germany; *Minnodunum—Moudon? Switzerland; *Moridunum—Devon, England; *Moridunum—Carmarthen, Wales; *Nevidunum—Carniola/Krain, Slovenia; *Nevidunum—Drnovo pri Krškem, Slovenia; *Nóidóunon Diablintum—Jublains, France; *Noiodounon—near Sées, France; *Noiodounon—Neung, Loir-et-Cher, France; *Nóidóunon—Nevers, Nièvre, France; *Nóidóunon—Nieudan, Cantal, France; *Nóidóunon—Nouan le Fuselier,
STRONG/VICTORIOUS FORTIFIED SETTLEMENT *segho-dūno-.

- Proto-Germanic *sigatūna- [PRE-GRIMM 2]: Old Norse Sigtún, a town in Sweden said in the Prose Edda to have been founded by Óðinn, cf. Proto-Germanic *segaz ~ *sigiz- ‘victory’: Gothic sigis, Old Norse sigr, Old English sigor, Old Frisian sige, sige, Old High German sigi, sigu;
- Proto-Celtic *seg-o-ďūno-: Gaulish Segodūnum, town of the Rutenes in Aquitania, also Segedūnum—Britain; Segedunum—Wallsgirt, England; Segodunon, =um—Suin (Saône-et-Loire), France; Segodunon, -um—Syon (Haute-Savoie), France; Segodunum—Rodez (Aveyron), France; Segodunum—Würzburg, Bavaria, cf. Celtiberian place-names se kobirikez, Σηγοβίριζα (Ptolemy II, 6.57), Segovia, Σεγούωμα (Ptolemy II, 6.55), Gaulish group name Sego-uellaun, Ancient Brythonic coin legend SEGΩ, Old Irish seg (also sed) ‘strength, vigour’, Middle Welsh hy ‘bold, brave, intrepid, undaunted’, cf. Old Welsh personal names Catthig, Cethi, Cethig < *Katu-segos, Gelhig, Gel-hi < *Galo-segos. ¶ The compound *segho-dūno- and its second element are CG. The first element is more widely attested in Indo-European: Vsegh- ‘hold fast, conquer’, Sanskrit sáhate ‘overpower’, sáhas-, Avestan hazah- ‘violence, power’.

LEATHER *pletrom. • Proto-Germanic *lebra- [borrowed after loss of Celtic *p] [PRE-GRIMM 1], rather than explaining *p < *t as the result of Celtic lenition (of specifically Goidelic type), most probably a prehistoric loanword from Celtic rather than Celtic loss of Proto-Indo-European *p: Ancient Nordic lebrō ‘leathery one’ feminine nominative singular (Stårup neckring, South Jutland, Denmark ~AD 400, Antonsen §22); Old Norse leðr, Old English leðer, leber, Old Frisian leðar, Old High German leda; • Proto-Celtic *(p)letrom or *letrom: Middle Irish lethar ‘skin, leather’, Middle Welsh lledyr, Middle Breton lezr. ¶ The native Germanic cognate is *fella- ‘skin’, cf. Latin pellis ‘skin’ < *pel-ni-. (Cf. Schmidt 1991, 145.)

a plot for a homestead’; ● Proto-Celtic *wertyā ~ *wertro- ~ *wereto-: Old Irish fertae ‘tumulus, graveyard’, Middle Welsh gwertyr ‘fort’, cf. Pictish group name Verturiones > Old Irish Fortrinn, Middle Welsh gwydyd ‘earth, soil, land, grave’ < *wereto-, Old Cornish gueret, Old Breton gueretreou ‘countries, regions’.


ROOF *togo-. ● Proto-Germanic *paka- [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse pak, Old English peak (cf. Modern thatch, also the obsolete thack ‘roof’), Old High German dach, dah, thah; ● Proto-Celtic *togo- ~ *togyā-: Old Irish tugae ‘roof, thatch, roofing material’, Scottish Gaelic tugha ‘thatch, covering’, < *togyā, Old Irish étach ‘covering garment’ < *intogu-, Old Cornish to glossing ‘tectum’ ‘roof’, Middle Welsh to ‘roof, covering, canopy, layer, ceiling, attic, thatch’, Breton to, cf. Ancient Brythonic personal name TUGIDVBNVS. Gaulish personal names TOGOS, TOGIVS, TOGIMARI, TOGICVS; TOGIRIX, on coin legends of the Sequani (Allen & Nash 1980, 200), probably has the sense ‘(protective) covering + king’. ¶ These words clearly derive from Proto-Indo-European *s()e(t)eg- ‘cover’: Greek (σ)τέγος ‘roof, house’, Latin toga ‘covering garment’, tectum ‘roof’, Lithuanian stogas ‘roof’, Latvian stāgs, Old Irish tech, Old Welsh tig ‘house’. Brythonic and Pre-Germanic *togo- ‘roof’ show especially close developments: identical word formations from the root variant lacking *s-, with the vowel grade o, and the same specific primary meaning.

SETTLEMENT, FARMHOUSE treb- ~ *trb-. ● Proto-Germanic *purpa ‘settlement, crowd(?)’ [PRE-GRIMM 2] [PRE-GRIMM 1]: Gothic purp ‘estate, land, field’, Old Norse porp ‘village, hamlet, farmstead’, Old English porp, prop, drop ‘hamlet, village, farm, estate’, Old Frisian thorpe, therpe ‘village’, Old Saxon thorpe ‘village’, Old High German dorf; ● Proto-Celtic *trebā ‘settlement, home, farm’: Latinized Celtiberian CLOVTER[ICVM] | TOUTIV(S) TREBAQVE B[---] (Gorrochategui 2013c — Clunia), Celtiberian place-name Con-trebia, Palaeohispanic divine name Trebaruna, Gaulish and Ancient Brythonic group name Atrebates (cf.
Old Irish *attrab* ‘habitation, property’, Middle Welsh *adref* ‘homewards’), Old Irish and Old Welsh *treb* ‘village, settlement, holding, residence, habitation, farmstead’, cf. Old Irish verb *trebaid* ‘inhabits, settles, cultivates’, Old Breton *trebou* glossing *turmæ* ‘troops’, Middle Breton *treff* glossing ‘urbs’ ¶ This word might be alternatively be classiﬁed as ANW, but the forms and meanings in italic and Baltic are somewhat different, pointing to specialization limited to CG: Oscaν accusative singular *trībŭm* ‘domum’ ‘house’ ‘aedificium’ ‘building’ < *trēb-*; Lithuanian *trobâ* ‘cottage, farmhouse’, Latvian *traba* ‘hut, hovel’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

SIEVE, STRAINER 1 *sētlā-. ● Proto-Germanic *sēpla- [PRE-GRIMM 1]: Old Norse *sóld*, Finnish (< Germanic) *sieka*, *seula* ‘sieve’; ● Proto-Celtic *sītla-: Middle Irish *síthlaid* ‘strains, sieves, pours out’; Middle Welsh *hidyl* ‘sieve, strainer’. ¶ The Middle Breton form *sizl* could be consistent with an alternative interpretation, as an early borrowing of *śit’la* < Latin *situla* ‘wine bucket’, perhaps in connection with the ancient wine trade. If so, note that the archaic treatment of Welsh *h-* < Latin *s-* is also found in Old Welsh *hestaur* from Latin *sextárius*, a term for a liquid measure.

STRIPE *streibā-. ● Proto-Germanic *strīpa- ~ strīpōn- [PRE-GRIMM 2]: Faroese *strīpa*, Norwegian *stripe*, Middle Dutch *stripe*, Middle High German *strīfe*; ● Proto-Celtic *strēbā-: Middle Irish *strīfe* ‘stripe, line’. ¶ [POSSIBLY NON-INDO-EUROPEAN ORIGIN] suggested by a reconstructed preform with *b*, a rare phoneme in Proto-Indo-European.


VESSEL, CONTAINER FOR LIQUID *gan(dh)-no-. ● Proto-Germanic *kannō [PRE-GRIMM 2]: Old Norse *kanna*, Old English *canne* ‘container’, Old Saxon *kanna*, Old High German *channa* ‘can, jug’; ● Proto-Celtic *gandno-: Middle Irish *gand* ‘vessel, jug, can’ (a rare word).

b. Italo-Celtic/Germanic (ICG)


FURROW *porkā ~ *prkā- ~ *prko-. ● Proto-Germanic *furh- [PRE-GRIMM 1]: Old Norse *for* ‘trench, drain’, Old English *furh* ‘furrow’, Old Frisian *furich*, Old High German *furh*, *furuh*; ● Proto-Celtic *(p)rikā: Gaulish *rica*, Middle Irish *etarχe* < *enter-(p)rikyā, Old Breton *rec* glossing ‘sulco’ ‘furrow’, ro-*ricse[n]ti* glossing ‘sulcavissent’ ‘they had ploughed furrows’, Middle Welsh *rych* ‘trench, ditch, furrow, cleft, wrinkle, cleavage’ < *rīk- or *rīxs-; ● Proto-Italic *porkā: Latin *porca* ‘ridge of soil between ploughed furrows’. ¶ Specialized ICG meaning from Proto-Indo-European, cf. Sanskrit *pārśana* ‘rift’ < *pe/ork-ono-.
HARROW *oketā-. • Proto-Germanic *agibō- ‘harrow, rake’ < [PRE-VERNER] *aĉipā- [PRE-GRIMM 1]: Old English edged, Old Saxon egitha, Old High German egida; • Proto-Celtic *oketā also *okā: Old Welsh ocet glossing ‘raster’ ‘rake’, Middle Welsh oget also oc, Middle Breton oguet, Old Cornish ocet; • Proto-Italic *oketā: Latin occa, derived verb occāre ‘to harrow, break up ground’; • Proto-Balto-Slavic? *eseti-: Old Prussian aketes, Lithuanian ėkė́čios ‘harrow’, Russian ecê(k)šas ‘rack for drying grain’. 

REAPING, MOWING *met-e/o- ~ *mēto-. • Proto-Germanic * mêba- ~ *maþa- [PRE-GRIMM 1]: Old English mǣð, Old Frisian -meth, -mēth ‘mowing, mown grass’, Old Dutch māda ‘pasture, meadow’, German Mahd ‘mown grass’, cf. Old English māwan, Old High German māen ‘to mow’; • Proto-Celtic *metelā ‘band of reapers’: Middle Irish meithel, Middle Welsh medel ‘band of reapers, co-operative work group, troop’; • Proto-Italic *met-e/o- ‘to reap, harvest’: Latin metō, metere. ¶ Lithuanian metū ‘I throw’ and mētas ‘year, time’ may be related with a more specific core meaning being evident in ICG.

SEAT, CHAIR *sedlo- ~ *setlo-. • Proto-Germanic *setla- < *sedlo- ~ *seplo- < Pre-Germanic *setlo- < *sed-tlo-: Gothic sitls, Old English setl ‘seat, stall, residence, throne’, Old Saxon sethal, Old High German sezzal, sedal; • Proto-Celtic *sedlo-: Gaulish CANECOSEDLON (probably referring to type of chair) (RIG 2–1, L–10 — Autun), Middle Irish séol ‘bed, couch’; • Proto-Italic *sedlā-: Latin sella ‘seat, chair, stool’. ¶ Proto-Indo-European Vsed- ‘sit’.

SIEVE, STRAINER 2 *kreidhro-. • Proto-Germanic *hrīdara- ‘sieve’:
Old English hrīder, hrider, hrīdel, Old High German rītera; • Proto-Celtic *krētrom ‘sieve’ < *krei-dhro-: Old Irish criathar, Old Welsh cruitr ‘winnowing-shovel’ (¶ the preform of the Celtic originally probably had the same suffix as that of the Germanic andItalic, i.e. *-dhro-, and the implement suffix *-trom, as found also in Proto-Celtic *aratrom ‘plough’, was probably substituted by analogy; ¶ the Middle Welsh verb krydwra ‘wander, meander’ probably arose from the decorative mesh pattern of strainers), Old Cornish croider glossing ‘cribrum’, Old Breton croitir, Middle Breton croezr; • Proto-Italic *kreipro- < *kreidhro-: Latin crībrum. ¶ Proto-Indo-European V(s)kre(H1)i- ‘separate, sift’.

c. Celto-Germanic/Balto-Slavic (CGBS)


BUTTER *angʷen-. • Proto-Germanic *ankʷan- [PRE-GRIMM 2]: Old High German ancho; • Proto-Celtic *amben-: Old Irish imb, Old Welsh emennin, Old Cornish amenan glossing ‘butirum’ ‘butter’, Middle Welsh ymenyn, Middle Breton amenan; • Baltic: Old Prussian anctan ‘butter’. ¶ Proto-Indo-European VΗ₂engʷ- ‘smear, anoint’: Sanskrit anākti, Latin unguō; the Latin noun unguen ‘grease’ is formed like the Germanic, Celtic, and Old Prussian words cited above, but does not share the meaning ‘butter’. ¶ The double -nn in Old Welsh emennin is probably due to confusion with the masculine form of the singulative suffix -inn.
DOUGH *tais-. ● Proto-Germanic *paismjan- ‘sourdough’ < *teH₁s-mon- [PRE-GRIMM 1]: Old English bæsma, Old High German deismo; ● Proto-Celtic *taisto- < *teH₁stio-: Old Irish taes ‘dough, soft mass, pulp’, Middle Welsh toes ‘lump of dough or pastry, paste, pasty or sticky mass’, Middle Breton toas; ● Slavic: Old Church Slavonic tešto ‘dough’.

HERD (OF CATTLE), SERIES *kerdhā ~ *kordh-. ● Proto-Germanic *herdō- ‘herd, order, queue’ [PRE-GRIMM 1]: Gothic hairda, Old Norse hjǫrð, Old English heard ‘herd of domestic animals’, Old High German herta ‘herd, order, queue’, cf. Gothic hairdeis, Old Norse hirðir, Old High German hirti ‘herdsman’ < Proto-Germanic *herdjaz < Pre-Germanic *kordhyos; ● Proto-Celtic *kordos ~ *kroodos: Middle Irish crod ‘cattle, herds, stock, goods, property, wealth, payments, dowry, stipend’, Scottish Gaelic crodh ‘cattle, herds, dowry’; the Middle Welsh compound korddlan ‘fold, pen for livestock’ more probably contains Proto-Celtic *kordos ~ *maχan-; ● Proto-Indo-European √~ *kane- ‘clings, cleaves, sticks to’;


ROOFED OUTBUILDING *krōpōs. ● Proto-Germanic *hrōfa- ‘roof’ (< *krāfa-) [PRE-GRIMM 1]: Old Norse hrōf ‘roof, ceiling’, Old Frisian hrōf; ● Proto-Celtic *krā(p)o- < *krōpo- ‘roofed outbuilding’: Old Irish cró ‘enclosure, shed, pigsty, hut, cell’, Middle Welsh kreu, also Welsh crou ‘shed, sty, pigsty, hovel, stockade’, Old Breton crou glossing ‘hara i. stabulum porcorum’ ‘pigsty’, Breton kraou ‘cow shed, byre, sty’; ● Slavic: Old Church Slavonic strop – ‘roof’ < *kro-p-o-. ¶ The Celtic etymology, which goes back to Pedersen (VKG i.92; cf. Kroonen 2013, s.n. *hrōfa), is disputed (LEIA s.n. cró; Matasović 2011 s.n. *kruw(y)-). However, on the semantic side, the Celtic words do mostly, and in early attestations, refer to roofed outbuildings, as does the Latin stabulum, which crou glosses. Note also that the Welsh diminutive crewyn ‘pile, heap, hayrick’ refers to something that resembles a small roofed building. As to the phonology, there are no other examples of the outcome of Pre-Celtic *-ōpo- or *-āpo-, but surely the loss of *p between vowels was early enough for the two vowels to have fully coalesced as a diphthong or *[w] to have filled the hiatus between them; either development would account for the attested Celtic forms.


§45. Language and oral tradition

a. Celto-Germanic (CG)

DISCUSSION (?). Old Irish tráchtáid 'comments, annotates, discusses' and Middle Welsh traethu 'to speak, express, declare, relate, discuss, explain, set out' (Old Welsh treidin 'they could express') are, despite the disparity in vowel length, usually compared and both derived as loanwords from Latin tráctō 'drag along, haul, handle, manage'. However, an alternative derivation may be preferable, namely as cognates of Proto-Germanic *prafta- < Pre-Germanic *traptō- [PRE-GRIMM 1]: Old Norse præpt 'gossip', Old English praeft 'contentiousness, quarrel, dispute, chiding'. Proto-Celtic *traxto- (-?): The meanings of Middle Welsh travodi 'to discuss, negotiate, handle, deal with, arrange, manage', for which no Latin borrowing is in question, are close to those of traethu. It is therefore possible that the second verb is based on an old nominal form of the first, i.e. Pre-Celtic *traptō- < *trabh-to-. A split similar to that proposed as underlying traethu and travodi is found in the Brythonic reflexes of Proto-Celtic *tēg- 'go, step forward' < Proto-Indo-European *steigh- 'tread, go': thus the Proto-Celtic verbal noun *tixtā (whence Old Irish techt and Middle Welsh teith 'journey, voyage, tour, progress, circuit') eventually gave rise to a new Welsh verb teithiaw 'journeying, voyaging', whereas forms meaning 'come, arrive' can be explained as reanalyses of *tēg- as compounds built on simplex verbs.
meaning ‘drive’ and ‘be’, *to-ag- and *to-bu-, Middle Welsh daw ‘will come, comes’ and dyuot ‘to come’. Already in Early Middle Welsh traethu traethaud ‘to relate a thesis, to recite a poem’ (with traethaud < Latin tractātus ‘handling, treatment’, cf. Old Irish trachtad) was used as a figura etymologica, but it is possible that the basis was a popular etymology, and not assuredly the actual derivation of traethu.

FAMOUS, GREAT *mēr- ~ *mōro- ~ *mōrā-. ● Proto-Germanic *mēri- ‘famous’: Gothic waila-mers ‘praiseworthy, with a good reputation’, Ancient Nordic wajemariz ‘ill-famed’ (Thorsberg chape, Schleswig-Holstein, Germany ~AD 200, Antonsen §2) ~ Welsh gwaefawr ‘woeful’, Old Norse mærr ‘famous, excellent; bright, shining’, Old English mǣre ‘excellent’, Old Saxon māri ‘bright, known, famous, excellent’, Old High German māri ‘illustrious, noble’; ● Proto-Celtic *māro- ‘great’ < *mōro- (cf. Greek -μωρος in compounds): Old Irish már, mór, Old Welsh maur, Old Breton mor. ¶ The Germanic and Celtic are not always etymologized as cognates, but these words are used to form compounds in the same way and with the same semantic value in Germanic and Celtic: e.g. GREAT/FAMOUS IN VICTORY (§40a).

OATH, TO BIND BY OATH 1 *oitos. ● Proto-Germanic *aibaz [PRE-GRIMM 1]: Goth. aips ‘oath’, Old Norse eiðr, Old English āþ, Old Saxon ēþ, Old High German eid; ● Proto-Celtic *oitos ‘oath’: Middle Irish óeth, cf. Old Welsh an-udonau glossing ‘periuria’ ‘false oaths’, possibly the Gaulish personal name Oitoccius. ¶ Unique CG meaning: contrast Greek οἶτος oítos ‘faith’, all from PIE *Hoi-to-s ‘walking’ < VH:ei- ‘go’, cf. the Old Norse idiom ganga eið ‘take the oath’, literally ‘go the oath’.

2 *leugo- ~ *lugho-. ● Proto-Germanic *leugo-: Ancient Nordic leugaz ‘oath taker’? (Skåang stone, Södermanland, Sweden ~AD 500, Antonsen §73), Gothic liugan ‘to marry’, Old Frisian logia ‘to arrange, allot; join, vouch, marry’; ● Proto-Celtic *lugyom ‘oath, swearing’ (suppletive verbal noun of *tongeti ‘swears’, Old Irish tongaid, Middle Welsh twng), Old Irish lugae, later luige, Middle Welsh llw.

POETRY, STORYTELLING *sketlo- ~ *skōtlo-. ● Proto-Germanic *skāpia- [PRE-GRIMM 1]: Old Norse skáld ‘poet’; ● Proto-Celtic *sketlo- ‘story, tidings’: Old Irish scél ‘saga, narrative’, Middle Welsh chwedl ‘traditional narrative, tidings’, Middle Breton quehezl ‘news’.

SPEAK 1 *rōdhi-. • Proto-Germanic *rōdjan- (< *rādjan-): Gothic roðjan ‘speak’, Old Norse rōða ‘to speak’, cf. Old High German rātan ‘advise’; • Proto-Celtic *rādī-: Old Irish rádadh ‘speaks, says, tells’, Middle Welsh atrawd ‘tells, speaks, declares, tells, relates, repeats’ < Proto-Celtic *atī-rādī-, Old Welsh amrauad ‘mind, thought, intention’ < Proto-Celtic *ambī-rādī-. ¶ Proto-Indo-European *rādha- ‘perform successfully’. Lithuanian rōdyt, Latvian rādi ‘show, indicate, demonstrate’ can be seen as reflecting evolution from the original in the direction of the innovative CG meaning ‘speak’.

SPEAK 2 *yekti-. • Proto-Germanic *jehti- ‘speech, utterance’: Old High German jiht ‘utterance’, bi-jiht, biht ‘confession’; • Proto-Celtic *yekti- ‘language, race, tribe’: Middle Irish icht ‘race, people, tribe, province, district’, Middle Welsh ieith ‘language, human speech, group having the same language, nation, race, tribe’, Middle Breton yez ‘language’. ¶ *yekti- is a noun confined to Celtic and Germanic derived from the ICG verb SPEAK 3 *yek- ~ *yok-, see next item. ¶ As a feminine noun, Celtic *yekti- was probably assimilated in Brythonic to the productive category, the ā-stems, as *yektā-. ¶ Although this noun is not widespread in Germanic, its meaning shows that it was understood to be connected to SPEAK 3 and so should not be explained as a separate and later borrowing from Celtic, which would also be unnecessary phonologically.

SPEAK 3 *yek- ~ *yok-. • Proto-Germanic *jehan- ‘speak, acknowledge, confess, assert’ < Pre-Germanic *yek-e- [PRE-GRIMM 1]: Old Norse já ‘to say yes, to promise’, Old Frisian jā, jān ‘to confess, to acknowledge’, Old Saxon jehan ‘to say, confess’, Old High German jehan, gehan ‘to confess, witness’; • Proto-Celtic *yek- ‘speak’: probably the Gaulish verb īegumī ‘I say’ and paradigmatic forms of the same ḭegumī, īegumī (Châteaubleau); • Proto-Italic *yoko- ‘saying’: Latin iocus ‘joke, jest’, Umbrian accusative plural iuka, iiku ‘words’ or ‘prayers’. ¶ The inclusion of *yekti- and *yek- as CG and ICG words is contingent on assigning Sanskrit yācāti ‘asks, entertreats’ to a different root (LIV 311; Matasović 2011, s.n. *yekVt-). Lithuanian juōkas ‘laugh, laughter, joke’ and Latvian juōks ‘joke’ are probably late loanwords.

c. Celtic/Germanic/Balto-Slavic (CGBS)

BE STILL, BE QUIET *(s)tel-. • Proto-Germanic *stilljan-: Old Norse stilla ‘to soothe, calm, to temper, moderate’, Old English stillan ‘to still, calm’, Old Saxon (gi)stillian, Old High German stillen ‘to make still’; • Proto-Celtic *tolīyo-: Middle Irish tuilid ‘sleeps, falls asleep’ < *tolīyeti ‘make quiet’, also the compound con-tuili ‘sleeps’; • Baltic: Lithuanian tylė ‘quiet person’, tylėti ‘be silent’, tiliti ‘fall silent, abate, subside’.

REACH TO, ENTREAT (?) *tekye-. • Proto-Germanic *pēgjan- ‘to request’ < [PRE-VERNER] *pēxja- [PRE-GRIMM 1]: Old Norse pigja ‘to obtain, accept’, Old English piggen, Old Saxon thiggian ‘to ask, request, to endure’, Old High German dicken, digen ‘to beg for, request’; • Proto-Celtic *teke-: Old Irish ad-teich ‘flees to, resorts to, calls on, prays to, entertreats’; • Baltic: Lithuanian tėkti ‘fall on, fall to, to reach (for), to suffice, to be granted’, Latvian tikt ‘become, attain, arrive at, reach’. ¶ Old Irish ad-teich is sometimes attributed to a different root Proto-Celtic vtekʷ- ‘flees’. It is possible that two nearly homophonous compound verbs (‘flees to’ and ‘reaches out to’) have influenced each other or fallen together.
**d. Italo-Celtic/Germanic/Balto-Slavic (ANW)**


**§46. Beliefs and the supernatural**

**a. Celto-Germanic (CG)**

ALL-FATHER, GREAT-FATHER (DIVINE EPITHET) *Olo-patēr.

● Proto-Germanic *Ala-fader < [PRE-VERNER] *Ala-fafēr [PRE-GRIMM 1]: Old Norse Alföðr (a byname of Óðinn);

● Proto-Celtic *Olo-(p)atīr: Middle Irish Eochu Ollathair was used commonly for the mythological character also known as the Dagdae, the senior leader of the supernatural race, the Túath Dé: thus, Middle Irish in Dagda mór glossing Eocho Oll-athir. ¶ Both the central figure of the Norse divine race, the Aesir, and the Dagdae of the Irish Túath Dé have numerous bynames. However, it is important to note that in both cases Alföðr and Ollathair are the most frequent and significant of these. The second element of the compound means ‘father’ and is found throughout Indo-European. The first element is limited to NW: Proto-Germanic *alla- ‘all’, a suffixed derivative of Pre-Germanic *olo-: Gothic alls ‘all, every’, Old Norse allr ‘all, entire, whole’, Old English eall, Old Frisian al, ol, Old High German al(l) ‘all, every, complete’; Proto-Celtic *olo- ~ *olyo-: Old Irish uilé, Middle Welsh holl, ol ‘all’, Old Breton holl, Middle Breton holl, oll; Proto-Italic *al-no-: Oscan allo ‘whole’; Proto-Balto-Slavic: Lithuanian alių ‘completely’. In both Germanic and Celtic old compounds are found with single l (i.e. the old unsuffixed form of the word ‘all’), for example: the group name Alamanni ‘all men’, Gothic ala-brust ‘burnt offering’, Galatian genitive Oλόριγος, contrasting with the Gaulish divine names OLLODAG[], personal name Olologgatus and other Ancient Celtic examples with double l.

Germanic *alla- ‘all’ can be reconstructed as Pre-Germanic *ol-n-o-.
EVIL *elko- ~ *elkā- ~ *elkyo- ~ *olko- ~ olkā-. ● Proto-Germanic *elhja- ‘evil’ < Pre-Germanic *elkyo- [PRE-GRIMM 1] < notional Proto-Indo-European *Helk-yo-: Old Norse ilr ‘ill, evil, bad, mean’, Faroese illr ‘evil, unfriendly, poor, miserable, angry’; ● Proto-Celtic *elko- ~ *elkā- (< *Helk-o-) ~ *olko- ~ olkā-: Old Irish elc ‘mischievous, bad, capricious’, Old Irish olcc glossing ‘malus’ ‘evil, bad, wrong; bad man, evil doer’, Scottish Gaelic olc. ¶ Note that the second Irish word, olc, is by far the more common and still widely used today. ¶ Finnish elkiä ‘mean, malicious’ and ilkeä ‘bad, mean, wicked’ can be explained as loanwords from pre-Grimm 1 Pre-Germanic.


OMEN, FORESIGHT *kail-. ● Proto-Germanic *hail- < Pre-Germanic *kail- [PRE-GRIMM 1]: Old English hǣl ‘omen’, hǣlsian ‘to augur, to invoke, to implore, to curse’, Old High German heilsōn ‘to interpret omens’; ● Proto-Celtic *kailo- ‘omen’: Old Welsh coiliou ‘omens, auguries, ni choilam ‘I do not believe’; Middle Welsh coel ‘belief, omen, divination, augury’; Old Breton coel glossing ‘haruspiced’ ‘soothsayer’, Old Cornish chuillioc glossing ‘augur’ ‘soothsayer’, cf. Hispano-Celtic place-name Κολυοβριγά (Ptolemy II 6.38–48 in Callaecia Bracarensis; García Alonso 2003, 243; 2009, 272 listing this as a Celtic name); LOVEAI CAIELOBRIGOI (CIL II, 416; HEP, 5, 1064; HEP, 9, 765 — Lamas de Moledo, Castro Daire, Viseu); COELIOBRIGA/CAELOBRIGA (dos Celernos, Castromao, Celanova, Ourense). ¶ Latin caelum ‘sky’ is sometimes seen as related to these forms, but the resemblance may be coincidence as the meanings are not clearly connected. ¶ The similar Germanic word that means ‘healthy’ (Gothic hails, Old Norse heilr, &c., < Proto-Germanic *hailaz) may be unrelated. ¶ Old Irish cēl ‘omen’ was borrowed from Brythonic during the Roman Period or early post-Roman Period.

ONE-EYED, BLIND IN ONE EYE *káikos. ● Proto-Germanic *haiha- [PRE-GRIMM 1]: Gothic hāihs ‘one-eyed’; ● Proto-Celtic *kaiko- ‘blind in one eye’: Old Irish cáech, Old Cornish cuic, Middle Welsh coec ‘blind, one-eyed, squinting’. ¶ POSSIBLY NON-INDO-EUROPEAN SOURCE ¶ Contrast the less specific and different meaning of Latin caecus ‘blind, dark, invisible’. Sanskrit kekara- ‘cross-eyed’ is probably unrelated. ¶ As Hyllested notes, ‘the Celtic god Lug closes one eye in his magic ritual, while in Germanic mythology being one-eyed is a key attribute of Óðinn’ (2010, 117; see further Kershaw 2000). Note also the demonically destructive one-eyed characters in Early Irish tales, such as Balor in Cath Maige Tuired ‘The Battle of Mag Tuired’ and Ingcēl Cáech in Togail Bruidne Da Derga ‘The Destruction of Da Derga’s Hostel’ (cf. Busse & Koch 2006b).

PROSPER, FORTUNE *tenk- ~ *tonk-. ● Proto-Germanic *pinhan- ‘to thrive, prosper’ < Pre-Germanic *tēnk-e [PRE-GRIMM 1]: Gothic āihan, Old English peon, (ge-)pingan, Old Saxon thīhan, Old High German dīhan; ● Proto-Celtic *tonketom ‘fortune, destiny, good luck’: Old Irish tocad glossing ‘fors’ ‘chance, luck’, Middle Welsh tynghet ‘destiny’, Middle Breton tonquaff ‘presage’, cf. Old Welsh tagc, Middle Welsh tanc ‘peace’ < *tnk-o-; also possibly related to Proto-Celtic *tong- ‘swear’ (Delamarre 2003, 298); cf. the cognate
personal names: Ancient Brythonic TVNCETACE (CIIC no. 451—St Nicholas, Pembrokeshire), Ogam TOGITTACC (CIIC no. 172—Ballywiheen [Baile Úí Bhaoithín], Kerry), both genitives meaning ‘fortunate’, Old Irish nominative Toicthech.

¶ Numerous Palaeohispanic personal names attested in the Western Iberian Peninsula are based on this word: TONGETA TANCI F. (CIL II, 5349; CPILC, 80—Belví de Monroy (Cáceres); TONGETA PROBINA Lib. (AE, 1967, 172—Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); TONGETAE PITINNAE (FE, 402—Torre de Coelheiros, Évora, Évora); TONGETA TVLORI F. (FE, 107; HEp, 2, 828—Amieira do Tejo, Nisa, Portalegre); TONGETERI F. CLVN(IENSIS) (HEp, 13, 1003; AE, 2004, 708—São Salvador de Aramenha, Marvão, Portalegre); TONGETA PETOBI (HEp, 2, 896—Lamas de Moledo, Castro Daire, Viseu); TONGETAE ALVQVI F. (CIL II, 5248—Región de Lamego, Viseu); TONGETO ARANTO (HEp, 7, 1286—Cárquere, Resende, Viseu); IVLIA TONGETA (Vasconcellos 1913, 455–457—Cárquere, Resende, Viseu); IVLIA RVFA TONGETI F. (HEp, 5, 55—Badajoz); TONGETAMVS CAVNI F. (HEp, 1, 207—Villamiel, Cáceres); ARA(M) POS(VIT) TONCIVS TONCETAMI F. ICAEDIT(ANVS) MILIS TREBARVNE L.M.V.S. (EE, VIII 15; ILER 941—Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); TALAVS TONCETAMI F. BOVTIE(CVM) (Albertos 1975a, 2. 212. n° 234—Yecla de Yeltes, Alcázar de San Juan); OVRISONI TONCETAMI F. (ERZamora, 171—Domez, Zamora); RVFINA RVFI TONGETAMI F. (CIL II, 447—Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); MAXSVMA[?] TONGATI · F(iia) H(ic) · S(ita) · E(st) · S(it) · T(i) · T(erra) · L(evis) · AVELIVS [vel AELIVS] · TA- (FE, 637—Trujillo, Cáceres). ¶ The suffix in the name Toncetamo-, can be understood as superlative ‘most auspicious’ or with the sense of an ordinal number, ‘son auspiciously sequenced amongst siblings’. ¶ Cf. Lithuanian tiktì (tinkû) ‘to be good (for), to be suitable’ < *tnk-e-, taikyti ‘to arrange, fit’, Ukrainian t’aknutì ‘to be helpful’ < *tnk-neu.-

SACRED GROVE, SANCTUARY *nemet-. • Proto-Germanic *nemîpa-[PRE-GRIMM 1]: Old Saxon nimidas ‘sacred grove’, Swedish farm name Nymden; • Proto-Celtic *nemetom: Hispano-Celtic group name as Greek genitive plural Νεμετατων (Ptolemy II, 6.40), located between rivers Río Ave and Cávado, Spain, Hispano-Celtic place-name NEMETOBIRCA (HEp, 4, 586; HEp, 7, 548; AE, 1991, 1040—Codesedo, Sarreus, Ourense), personal name NEMETI[VS] FIRMVS (AE, 1950, 256—Lisboa), Celtiberian divine name NEM[E]DO AVGUSTO (HEp, 5, 685; HEp, 7, 690; ERSG, 170-032—Pedraza, Segovia), NEMEDO (HEp, 5, 686; HEp, 7, 712; ERSG, 170-054—Pedraza, Segovia), Gaulish SGRAMAROC | OYAXONEOC | TOOYTOOC | NAMAYCATIC | EIPOYROI BYLH | CAMO COCIN | NEMHTON ‘Segomarios son of Uillonos, citizen of Nîmes, dedicated this holy thing/place to Belesama’ = sosin nemeton (RIG 1 G-153—Vaison), personal name from Noricum NEMET (Allen & Nash 1980, 193); Gaulish place-names Ar(e) nemeton—Arlempjes (Haute-Loire), France; Arnemetici (Holder, AcS—in the arch-diocese of Arles on the right bank of the Rhône), Augustonemetum/Mezunemusus/*Medionemeta—Clermont-Ferrand, France; Nemetac, -um—Arras, France; Nemetacum/ Nemetacenna—France; Nemetae Noviomagus—Speyer, Germany; Nemetes—Germany; Nemetodunum/ Nannetodunum—Nanterre (Calvados), France; Nemetodunum—Nanterre (Loiret), France; Nemetodunum—Néméd, Germany; Nemetodunum—Nemeden, Germany; Nemetodurum, Nemetodurum*, Nemptudoro—Nanterre (Hauts-du-Seine), France; Nemetodunum—Némy (Poitou), France; Nemetodunum—Némy (Hainaut), Nemetotacio/Nemetostatio—North Tawton, Devon, England; Nemeturii—upper Verdon or Var valley? France; Nounionemeton—Nonant (Calvados), France; Nounionemeton—Nonant (Orne), France; Tasinemeti—Saint Georg am Sternberg? Austria; Tasinemetum—Norica, near Villach; Vernemetum—near Agen (Fortunat), France; Vernemetis—Vernou-sur-Brenne, France;
**Aquaes Arnemetiae** – Buxton, England; Galatian place-name Δρυνεμέτων (meeting place of council and tetrarchs of the Galatae; Freeman 2001, 83–4), Old Irish *nemed* ‘sanctuary, person of special privilege or exemption’, Ancient Brythonic divine name *NEMETONA* (RIB 1–140 — Bath), divine epithet, DEO MARTI RIGONEMETI (RIB 1–254b — Nettleham, England) Early Welsh *RIGONEMETI* NEMETONA (RIB 1–140 — Bath), divine epithet, *χαρχύσ* (Freeman 2001, 83–4), Old Irish Δρυνεμέτον (meeting place of council and tetrarchs of the Galatae; Aquae Arnemetiae* Brythonic. Middle Irish *carrach* without the suffix.

**STONE LANDMARK, STONE RELIGIOUS MONUMENT** *kar*.

- Proto-Germanic *hargu*: sacrificial mound? [PRE-VERNER] *χαρχύ*: Pre-Germanic *karkú*: (per Kroonen) [PRE-GRIMM 1]: Old Norse *hгрɣr* ‘pile of rocks, sanctuary’, Old English *hearh* ‘pagan temple, idol’, Old High German *harug* ‘grove, place of sacrifice’; - Proto-Celtic: the most formally similar words mean merely ‘rock’ (though these denote rocks of special importance in place-names), namely Old Welsh *creic* < *kraikɨ*: Old Welsh *carrecc*: however, Proto-Celtic *karnom* ‘ancient stone funerary monument’ < *kɾrn-o*: appears to be a related word with the relevant specialized meaning: Old Irish *carn* ‘burial cairn, man-made pile of stones’, Old Welsh *carn* ‘cairn, barrow, tumulus, pile of rocks, heap’. The place-name *Carnac* in Brittany reflects Gaulish *Karnākon* ‘place with pagan stone monuments’ (cf. Falileyev et al. 2010, 13). Cf. the past-tense verb, probably having to do with a cairn or other types of stone funerary monuments Gaulish KAPNITOY [RIG 1, 198–201 — Saignon], Cisalpine Gaulish karantu [RIG 2–1, 42–52 — Todi], plural karntitus [RIG 2–1, 11–24; Lambert 1994, 72–6 — Briona]. [POSSIBLY NON-INDO-EUROPEAN SOURCE] Middle Irish carrac ‘rock, large stone’ is probably borrowed from Brythonic. **carrach** would be expected as a cognate.

**SUPER自然 BEING, PHANTOM, GHOST** 1 *dhroughós*.


2 *skōk-slo*.

- Proto-Germanic *skōhsla* (< *skɤ-sla-*) [PRE-GRIMM 1]: Gothic skōhsli ‘evil spirit, demon’; - Proto-Celtic *skāyslo*: Old Irish *scál* ‘supernatural or superhuman being, phantom, giant, hero; the god Lug’, Middle Welsh *yscaul* ‘hero, champion, warrior’.

3 *ghoistos*.

- Proto-Germanic *gaistaz* (supernatural) spirit’: Old English *gæst, gæst* ‘breath, spirit, soul, ghost’, Old Frisian *gäst, jēst*, Old Saxon *gést* ‘soul, vitality, spirit, demon’, Old High German *geist*, cf. Gothic usgaisjan ‘to terrify’, Old Norse *geisa* ‘to rage’; - Proto-Celtic *goisto*: Old Irish *gäs* ‘sagacity, intelligence, acuteness’.

**THUNDER, THUNDER GOD** 1 *ton(a)ros ~ *tnros*.

- Proto-Germanic *þunraz* [PRE-GRIMM 1]: Old Norse þórr, Old English þunar, ðunar, Old Frisian thuner, Old Saxon *thunar*, Old High German *donar*; - Proto-Celtic *tonaros* > *toranos*: Gaulish divine names *Taranis*, Taranucnos, Taranucnus, dative TAPANOY (RIG 1, G–153 — Vaison), personal name *Taranutius*, possibly include also the personal names Tornionius, Torniss[], Torno, Tornos, Tornus; Old Irish *torann* ‘thunder, noise’, Scottish Gaelic *torunn* ‘thunder’, Middle Welsh *taran* ‘(peal of) thunder, thunderclap’; Old Breton *taran* ‘tonitru’ ‘thunder’, Old Cornish taran ‘tonitruum’ ‘thunder’; Taran also occurs as a name in the prehistoric section of the Pictish King-List, so possibly a euhemerized god. The form *TANARO* (dative; RIG 1–452 — Chester, datable AD 154), which gives the more archaic form of the god’s name without metathesis, occurs on a votive altar dedicated by a Roman
officer from [CL]VNIA, i.e. Burgos, so this may attest the god in Celtiberian steniotes /stentiontes/ (K.17.1 — Gruissan, France, on a portable bronze plate), stenion (Botorrita, Zaragoza); STENIONTE (K.11.2 — Tiermes, Soria), STENIONTIS (Sotodosos, Guadalajara), stena (Botorrita, Zaragoza, 3 examples), stenu (Botorrita, Zaragoza). ¶ A comparison of Celtic Taranus with the Hittite god’s name Tarḫunzaš/Tarḫunnaš has been proposed (Watkins 1995, 343). If so, this would involve a Proto-Indo-European theonym. However, that etymology may be problematic as it would imply that Ancient Brythonic or Celtiberian TANARO, Cisalpine Tanarus, and all the Germanic forms, if these are cognate with the Hittite, had undergone metathesis and that Proto-Indo-European √(s)tenH₂- was unrelated.

c. Celto-Germanic/Balto-Slavic (CGBS)

THUNDER, THUNDER GOD 2 *perkʷunos. ● Proto-Germanic *fergunja- ‘mountain’ < [PRE-VERNER] *φερχυνά < Pre-Germanic *Perkʷunyā < [PRE-GRIMM 1]: Gothic fairguni ‘mountain range’, cf. Old Norse gods’ names Fjǫrgyn ‘earth’ (mother of Thor), Fjǫrgynn (father of Frigg), Old English firgen ‘mountain’, Old High German Firgunnea ‘Ore Mountains’ < *perkʷ-n-ieH₂-; ● Proto-Celtic place-name *(P)erkunyā: Latinized Gaulish silva Hercynia, also the ancient central European group name Hercuniates, Ἔρκουνιατες (Ptolemy II, 15.2), in which the weakening of Proto-Indo-European *p is diagnostically Celtic, possibly also occurring in the Hispano-Celtic personal name ERGVENA (Yecla de Yeltes, Salamanca); ● Balto-Slavic: Lithuanian perkūnas ‘thunder, god of thunder’, perkūnija thunder storm’, Russian perun ‘thunderbolt’, Old Russian Perunъ ‘god of thunder’.

HAMMER OF THE THUNDER GOD = LIGHTNING *meldh-. ● Proto-Germanic *meldunjaz: Old Norse Mjöllnir (Thor’s hammer); ● Proto-Celtic *meldo-: Middle Welsh mellt ‘lightning, thunderbolts’ (in Welsh the basic meaning ‘hammer’ has been
replaced by the related loanword mwrthwl < Late Latin martulus, so that the native word expresses only the fossilized mythological metaphor, ‘lightning’ < ‘god’s hammer’, also the mythological patronym of Mabon son of Mellt), singulative mellt, Gaulish god’s name (dative) MELDIO (Bazan, France), group name Meldi; * Proto-Balto-Slavic *meld-< *melle-: Old Prussian mealde ‘lightning bolt’, Latvian miļa ‘hammer of the thunder god’, Old Church Slavonic mljǫn ‘lightning’ < *mldni, mlát ‘hammer’ < *molH-tlo- ‘grinding device’. ¶ Proto-Indo-European *melmH- ‘grind’: cf. Old Norse mjǫllnir ‘to grind’. Although the semantic development ‘hammer’ > ‘hammer of the thunder god = lightning’ is found only in Celtic, Germanic, and Balto-Slavic, the earlier development ‘grinding device’ > ‘hammer’ occurred more widely: Latin malleus ‘hammer’ < Proto-Italic *mol-tlo- < *molH-tlo-, Hittite malatt- ‘sledgehammer, bludgeon’. The idea of an implement whose primary function was to break something up into small pieces is retained for Mjöllnir, as in the story in the Skaldskaparmál of Thor using Mjöllnir to pulverize the skull of the giant Hrungnir. ¶ As Paulus van Sluis noted at the Indo-European Interfaces conference, deriving Welsh melt from *meldh- and coll from *koldo- looks like an inconsistency. There is more than one possible solution, including, of course, either of the etymologies being wrong. But on the face of it, the simplest is to suppose that Pre-Celtic *ld became *l before *d and *dh fell together, so that Pre-Celtic *ldh and *ld have different outcomes.

SUPERNATURAL BEING, PHANTOM, GHOST 3 *dhwes-.
* Proto-Germanic *dwas< Pre-Germanic *dhwas-: Middle High German getwäs ‘phantom, ghost’; * Proto-Celtic *dwoysos: Gaulish dusios ‘incubus’ ‘daemon’ ‘type of demon’;
* Baltic: Lithuanian dvasiá ‘breath, spirit, soul’, Latvian dvaša.


Middle Welsh hud, Breton hud, Old Cornish hudol glossing ‘magus’; * Baltic: Lithuanian saūtas ‘sign, soothsaying, soothsayer, talisman’, also ‘string, necklace’ (< ‘talisman’), seūtas ‘magic’. Probably originally identical to Proto-Indo-European *soito- ‘string, rope’ < *sēH₂-i- ‘to bind’ with a shift in meaning unique to Germanic, Celtic, and Baltic.

MALEVOLENT FEMALE SPIRIT *morā. * Proto-Germanic *mara: Old Norse mara, Old English mare (cf. Modern night-mare, German Nacht-mahr), Old Saxon māra, Old High German mara; * Proto-Celtic *morā: Old Irish Mor-rígain (principal name of the Irish war-goddess); * Slavic: Croatian Mòrana ‘mythological female demon’, Russian kikimora ‘nocturnal apparition, female house-spirit’, Polish zmora (earlier mora) ‘nightmare’.

§47. Health and healing

a. Celto-Germanic (CG)


HEALER, PHYSICIAN, LEECH *lēgi-. * Proto-Germanic *lēkijaz< Pre-Germanic *lēgos [PRE-GRIMM 2]: Gothic lekeis ‘doctor’, Old Norse lækir, Old English læce ‘doctor, leech’, Old Frisian dative letza, leischa, Old High German lähhi, lāchì, cf. Gothic lekinon ‘to heal’, Old Norse lækna, Old English lācnian, Old High German lāhinnōn; * Proto-Celtic *lēagis (?): Old Irish lieig, liaig ‘physician, healer, leech’.
HEALING PLANT *lubhi- ~ lubhos. ● Proto-Germanic *lubja
‘herbal medicine, poison, magic potion’ ~ *laubaz ‘leaf, foliage’:
Gothic lubja-leisei ‘sorcery, poisoning’, laufs ‘leaf’, lauf ‘foliage’,
Old Norse lýf ‘healing plant’, lauf ‘leaf’, Old English lybb, lēaf, Old
Frisian lāf ‘leaf, foliage’, Old Saxon lōf ‘leaf’, Old High German
luppi ‘magic remedy, strong plant-juice, poison, magic’, loub ‘leaf’;
● Proto-Celtic *lubi-: Old Irish lub ‘herb, wort, edible plant’, cf.
lubgort ‘herb garden’, Early Medieval Brythonic -lub ‘herb, plant’,
cf. Old Welsh luird ‘herb gardens’, Middle Welsh singular lluarth
‘herb garden’. ¶ Contrast the meanings of Greek ὀλόυφω ‘peel’,
Proto-Germanic *suhto- ~ *sukti-.

LEPROSY *truts-. ● Proto-Germanic *bruts- [PRE-GRIMM 1]: Gothic
bruts-fill, Old English ðrúst-fell; ● Proto-Celtic *trussko- ‘leprosus’:
Old Irish trosc ‘leprosy, leprosus’, Old Breton trusci gl. ‘scabiem
‘crusts, scabies, leprosy’, Middle Welsh trwsgl ‘clumsy, unskilful,
rude’, cf. possibly the Gaulish personal names Truxus, Troxus,
Troxo. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

SICKNESS *sukto- ~ *sukti-. ● Proto-Germanic *suhti- ‘sickness,
disease’: Gothic sauhts, Old Norse sótt, Old Saxon suht, cf. Proto-
Germanic *seuks ‘sick’: Gothic suiks, Old Norse sjúkr, Old English
sēoc, Old Frisian siak, sieck, sek, Old Saxon siok, seok, siak, Old
High German siuh, sioh, seoh, siach, siech; ● Proto-Celtic *suspto-:
Old Irish socht ‘silence, gloom, dejection, stupor’. ¶ Western Indo-
European Vseug- ‘be sick’.

c. Celto-Germanic/Balto-Slavic (CGBS)

DEATH *sterbh-. ● Proto-Germanic *sterban ‘to become stiff, to
die’: Old English steorfa ‘plague’, steorfan ‘to die’, Old Frisian
sterv ‘to die’, Old Saxon sterban, Old High German sterbo ‘death’;
● Proto-Celtic *sterbā-: Old Irish ussar ‘death’ < notional Proto-
Indo-European *ster-bheH2- ‘stiffness’. ● Cf. also Russian sterbnut
‘to become solid or hard, to die’.

§48. Anatomy

a. Celto-Germanic (CG)

BEARD *ghrén- ~ ghran-. ● Proto-Germanic *granō-: Gothic
grano, Old Norse grōn, ‘hair of the beard, spruce (needle)’, Old
English granu ‘moustache’, Old High German grana ‘hair of
the beard’; ● Proto-Celtic *grando- ~ *grendo- ‘beard’: Middle Irish
grend ‘beard, hair, bristles’, Middle Welsh grann ‘cheek, jowl,
facing, beard, bristles, hair, eyelid’, Middle Breton grann ‘eyebrow’,
possibly related to Grannus, an epithet of Apollo in Gaul.

BREAST *bhrusn-. ● Proto-Germanic *brunjōn- ‘breastplate, mail
cloth’: Gothic brunjō, Old Norse brynja ‘mail cloth’, Old English
byrne ‘cuirass, corset, coat of mail’, Old Saxon brunnia ‘mail
cloth’, Old High German brunja, brunna ‘mail cloth’; ● Proto-
Celtic *brusnā ~ *brusnyo- ‘breast, bosom, thorax’: Old Irish
bruinne ‘breast, bosom, chest’, Old Breton bronn, Middle Welsh
bron, cf. Middle Welsh bryn ‘hill’ < Proto-Celtic *brusnyo-. ¶ A
development of CGBS’ BREAST, CHEST, ABDOMEN *bhreus- (see
below) found only in Germanic and Celtic. A loanword from Proto-
Celtic to Pre-Germanic or Proto-Germanic is likely. It is not certain
whether the specialized meaning ‘chest armour’ developed only
in Germanic or had already come about in Celtic, from which it
was lost prior to attestation. Corselets made of sheet bronze were
known in Central Europe by the Late Bronze Age and probably also ones of leather, which have not survived. However, a borrowing of Iron Age date can’t be ruled out. With the consonants involved in the reconstructed form, it is not possible to tell whether or not the borrowing predates Grimm’s Law. The attestations, at any rate, show that the Germanic word with this form and meaning go back as far as Proto-Germanic.

**BUTTOCKS, THIGH, HIP** *teuk- ~ *tuk-.*  
- Proto-Germanic *peuha-‘thigh’ < Pre-Germanic *teuko- [PRE-GRIMM]: Old Norse pjó, Old English þéoh, þiōn, Old Frisian thiach, Old High German diōh;  
- Proto-Celtic *tuknī ~ *tuknā: Old Irish tón ‘buttocks, hindquarters, rear’, Middle Welsh tīn ‘arse, buttocks, backside, rump, tail’.  

The Balto-Slavic forms also show the -k- added to Proto-Indo-European VteuH- ‘swell, grow fat’, but not the transference of meaning to a part of the body as in Germanic and Celtic: Proto-Balto-Slavic *toukós ‘fat’ > Lithuanian taukas, Latvian tāuki ‘fat’, Old Prussian taukis ‘lard’, Old Church Slavonic tuků, Russian tuku ‘fat of animals’.

**DIGIT, FINGER, TOE, BRANCH** *gwistis.*  
- Proto-Germanic *kwistiz [PRE-GRIMM 2]: Old Norse il-kvistir ‘toes’, kvistr ‘branch’;  
- Proto-Celtic *bisti- ‘finger, toe’: Old Cornish bis, bes, Middle Welsh bys, Breton biz; the rare Middle Irish dative plural bissib ega ‘icicles’, cf. Old Breton innbisiou glossing ‘ammenta’ ‘straps, thongs’ (~ Middle Welsh enfys ‘rainbow’) < *ande-bist- ‘finger/toe ring’.

**HAIR, STRAND OF HAIR** *doklo-.*  
- Proto-Germanic *tagla- < [PRE-VERNER] *taxla- [PRE-GRIMM 2] [PRE-GRIMM 1]: Gothic tagl ‘a hair (of the head, of a camel)’, Old Norse tagla ‘horse’s hair, tail’, Old English tægl, tægel, Old High German zagal, zagal ‘tail, sting, penis’;  
- Proto-Celtic *doklo-: Middle Irish dúal ‘lock or tress, as of hair, flax’.  

Possible related to Sanskrit dāsā ‘fringe’ with a specialized meaning and *-l-suffix unique to CG.

**LEFT, LEFT-HAND** *kley- ~ *kli-.*  
- Proto-Germanic *hlei- < Pre-Germanic *kley- [PRE-GRIMM]: Gothic hleiduma ‘left, left-hand’;  
- Proto-Celtic *kliyā ‘left’: Old Irish clé, Old Welsh cled (cf. also Middle Welsh gogleδ ‘north’), Middle Breton cleiz.  

The CG words show a specific semantic development, as the opposite of ‘straight, level’ = ‘right’. Contrast Proto-Italic *klo/owyo-: Latin clīius ‘inauspicious, ominous’; Baltic: Lithuanian šleivas ‘bow-legged’.

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**BUTTOCKS, THIGH, HIP**

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The CG words show a specific semantic development, as the opposite of ‘straight, level’ = ‘right’. Contrast Proto-Italic *klo/owyo-: Latin clīius ‘inauspicious, ominous’; Baltic: Lithuanian šleivas ‘bow-legged’.
THICK, FAT *tegus, feminine *tegvī. • Proto-Germanic *þekuz ~ *þikzī ‘fat’ [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse þokkr, þökkr, þykkr, Old English þicce, Old Frisian thiukke ‘extant’, Old Saxon thiukki ‘fat’, Old High German dicchi ‘dense, thick, frequent’; • Proto-Celtic *tegu-: Middle Irish tiug ‘thick, dense, solid’, Old Welsh teu ‘thick, strong, sturdy, fat’, Middle Breton tegu, teo, Cornish tew.

b. Italo-Celtic/Germanic (ICG)

CURLY HAIR *krisp-. • Proto-Germanic *krispon- ‘curl’ < Pre-Germanic *krispā- [PRE-GRIMM 1]: Middle Low German rispe ‘truss’, Middle High German rispe, cf. Old High German hrspahi ‘shrubbery’, Middle High German rispen, rispeln ‘to ripple, curl’; • Proto-Celtic *krixso- ~ *krixsā- ‘curl-haired’ < Pre-Celtic *kripso- ~ *krispo-: Gaulish personal name Crixus, Middle Welsh cych ‘curl, wrinkled, rough’, Middle Breton crech; • Proto-Italic *krispo- ‘curl, crumbled, twisted’: Latin crispus ‘curl, curled’.

HEAD *kāpu-. • Proto-Germanic *ha(u)bida ~ *ha(u)bēda ~ *ha(u)bida < [PRE-VERNER] *χαϕυβα- < Pre-Germanic *kaputo- [PRE-GRIMM 1]: Gothic haubib, Old Norse hófuð, Old English hæfud, Old Frisian hāved, Old Saxon hōbid, Old High German hōbīt; • Proto-Celtic *ka(p)uko-: Old Irish cuach ‘cup, bowl, goblet, cauldron; lock of hair’, Middle Welsh kawc ‘dish, bowl, basin, helmet’; • Proto-Italic *kaput: Latin caput. ¶ Whether Early Welsh kawc could mean ‘helmet’ hinges on the hapax cawgawc in the line cayawc cynhorawc cawgawc fer ‘wearing a brooch, riding in the front rank, equipped with a cawg, [and] steadfast’ in a poem about the historical Cadwallon of Gwynedd ♠634/5.

NECK *kólōsos. • Proto-Germanic *halsaz [PRE-GRIMM 1]: Gothic, Old Norse hàls ‘neck’, Old English heals, hals ‘neck, prow of a ship’, Old High German hals ‘neck’; • Proto-Celtic *kolso-: Middle Irish coll ‘neck, jaw, head’ is a rare word mostly confined to glossaries; • Proto-Italic *kólōsos: Latin collus ‘neck’.

c. Celto-Germanic/Balto-Slavic (CGBS)

BREAST, CHEST, ABDOMEN *bhreus- ~ *bhrous-. • Proto-Germanic *breusta- ‘breast, chest’: Old Norse brjóst, Old English brēost, Old Frisian briast, Old Saxon briost, breost; • Proto-Celtic *brous-, *brus-: Old Irish brū, genitive bronn ‘abdomen, belly, bowels, entrails, womb’ < Proto-Celtic *brusū, *brusnos, Middle Welsh bru ‘womb, matrix, belly’ < *brōus-, Old Irish bruinne ‘breast, bosom, chest’ < *brunyā < *bhrus-n-yā-, Old Breton bronn ‘breast’, Middle Welsh bronn ‘breast, nourishment’ < *brunnā < *bhrus-n-ā-; • Slavic: Russian brjūxo ‘belly, paunch’.

VOMIT, DEFECATE (?) *ski-. • Proto-Germanic *skitan- ‘to shit’: Old Norse skita, Old English sceitan, Old High German scīzan; • Proto-Celtic *ski-yo- ~ *sketeyi ‘vomit’: Old Irish sceid, Middle Welsh chwy’t ‘vomiting, spewing’, Old Breton huidiat glossing ‘uomex’ ‘vomit’, Middle Breton huedaff; • Baltic: Lithuanian skiesti ‘to have diarrhoea’. ¶ A CG/Baltic development if we take these meanings to be close, rather than independent developments for Proto-Indo-European vskei- ‘split, separate’: Greek ἁκίζω ‘split’ < *skid-yo/o-, Latin scindō < Proto-Italic *ski-n-d-e/o- ‘split, cleave’.

§49. Natural world

a. Celto-Germanic (CG)

BOAR *bhasyo-. • Proto-Germanic *bairo- or *baia-: Old English bār, Old Saxon bēr-swīn, Old High German bēr; • Proto-Celtic *basyo-. • Old Cornish bahet glossing ‘aper vel verres’ ‘boar or boar’, Middle Welsh baeð (it is possible that the singular baeð is an analogical back formation from beið that was originally both singular and plural, like Welsh pabell ‘tent’ < pebyll). ¶ If English boar and Welsh baedd are indeed cognates, Russian borovu ‘boar’ would have to reflect a loanword from Germanic.
CLOVER *smeryon-* ~ *semar-*. • Proto-Germanic *směrjōn-*: Old Norse smâri ‘clover’, Icelandic smæra, Faroese smæra, Norwegian smære, Danish smære; • Proto-Celtic *semarā-* and *smelyon-*: Old Irish semar ‘clover, shamrock’ (Irish diminutive seamróg, Scottish Gaelic seamrag whence English shamrock), Old Welsh mellhionou glossing ‘violas’, Middle Welsh meilylon ‘clover, trefoil’, Old Cornish singulative melhyonen glossing ‘vi(o)la’, Middle Breton singulative melchonennn. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

DARK *smeryon-*. • Proto-Germanic *smēra-*. • Proto-Celtic *smeryon-*. • Scottish Gaelic smæra, Old Welsh smærionou ‘dwarf’, Scottish Gaelic seamróg, Old Irish seamróg, ‘clover, shamrock’ (Irish diminutive, Danish smære; • Norse ‘clover’, became the bottom of Llyn Tegid (Bala Lake). name of a legendary ugly and untalented youth who dwelt at what sea’; • auru ‘loam, wet clay, mud’, Old English, Irish inn, ‘tip, point, edge, extremities of the body, tongue, point of a weapon, treetop, hilltop’. ¶ Latin pinna ‘feather, wing, parapet, fin’ is a variant of the unrelated word penna ‘feather, wing’.

GREASE, FAT, MARROW, ANOINT *smeru-*. • Proto-Germanic *smerwa-*: Gothic smairbir ‘grease’, Old Norse smjór, smjör ‘butter, grease’, Old English smeoru ‘fat, grease, tallow’, Old Frisian smere Old Saxon smeoru, smeru ‘fat’, Old High German smero, smer, cf. Gothic smairbir ‘fat’, Old Norse smyrva, smyrja ‘to smear, anoint’, Old English smierwan, Old High German smirwen < Proto-Germanic *smerwjan-*. • Proto-Celtic *smeru-*: ‘marrow’ < ‘fat, grease’, *smerto-~ *smer-‘anointed’: Old Celtic goddess name Ro-smerta ‘anointed one’, possibly also Galatian personal names Ζμερτορίξ ‘anointed king’, Ζμερτομαρα, Ζμερτομαρος, Old Irish smiur glossing ‘medulla’ ‘marrow’, cf. Old Irish smiraid ‘smears, anoints’, Middle Welsh mer ‘(bone-)marrow, sap’, Middle Breton mel ‘marrow’ (not related to the homophonous mel ‘honey’); • Proto-Italic *(s)meru-lo-: Latin medulla ‘marrow, pith, interior’. The $d < r$ in Latin is not regular and possibly arose from the idea that the word was related to medium ‘middle’.

HOLLY *kuleno- ~ *kolino-*. • Proto-Germanic *hulba-~ *hulisa- ~ *hulena- < Pre-Germanic *kuleno- [PRE-GRIMM 1]: Old Norse hulfr, Old English holegn, holen, Old High German hulis, huls; • Proto-Celtic *kolino-*: Old Irish cuilenn, Old Cornish kelin, Middle Welsh kelyn, Middle Breton queilen. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

LARK *laiwad ~ *alaud. • Proto-Germanic *laiwaz-: Old Norse lævirke, Old English læwerce, Old High German læraha; Proto-Celtic: Latin alauda ‘lark’ probably borrowed from Gaulish. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] (Iversen & Kroonen 2017).

LINEAR LANDSCAPE FEATURE *roino-. • Proto-Germanic *raina-: Old Norse -rein ‘strip of land’ (in compounds), Old High German rein ‘ridge of earth as boundary mark’; • Proto-Celtic *roino-: Old Irish róen ‘way, path, route, row, mountain range’, Breton run ‘hill’.

LOUSE *leuo- ~ *lū-s-. • Proto-Germanic *lūs- < *luH-s-: Old Norse lús, Old English lūs, luus, Old High German lūs; • Proto-Celtic *lowo- < *lewHo-: Old Cornish singulative lewen-ki
glossing ‘pediculus’ ‘dog’s louse’, Middle Welsh singulative lleuen, collective lleu, Middle Breton singulative louenn, collective lou.
¶ It is possible that Tocharian A lu, Tocharian B luwo ‘animal’ go back to the same root as the CG for ‘louse’, i.e. vlewH-, showing a different development of the meaning.

NATURALLY OVERGROWN LAND *kaito-. ● Proto-Germanic *haipī- [PRE-GRIMM 1]: Gothic haipī ‘open field, heath, open untilled land, pasture, open country’, Old Norse heîðr ‘heath, barren land, moor’, Old English hǣþ ‘uncultivated land, wasteland, heather’, Old High German heida ‘uncultivated land’; ● Proto-Celtic *kaito-: Hispanic-Celtic place-name CAETOBRIGA/Καιτοβριξ (Setúbal), Old Welsh coit ‘wood, forest’, Old Cornish cuit glossing ‘silia’, Old Breton coet. ¶ The second element of the very rare Latin compound bū-cētum ‘cow pasture’ (noted in OED s.n. ‘heath’) is not likely to be cognate, as the vowel does not correspond. Therefore, *kaito- is more probably a CG rather than an ICG word.

¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

RUSH *sem-. ● Proto-Germanic *semeba- ~ *semebō-: Old Saxon semith, Old High German semida; ● Proto-Celtic *semin-: Old Irish simin(n), seimin(n), sibin(n) ‘rush, reed, corn-stalk, rope made of rushes’.

SEDGE *sek-s-. ● Proto-Germanic *sahaza- ~ *sagja- < [PRE-VERNER] Pre-Germanic *sákas-o ~ *sakyō-: Old English sceg glossing ‘gladiolus’ ‘gladiolus, sword lily’, secg glossing ‘carix’ ‘sedge, sword’, Old Saxon saher-ahi, Old High German sahar, sahor, sahir ‘sedgy place; scirpus, juncus, carex’; ● Proto-Celtic *seyskā/i- ‘rushes, sedge’: Middle Irish seas, Middle Welsh singulative hescenn, Middle Breton hesq, Old Cornish heschen glossing ‘canna, arundo’ ‘reed’. ¶ This CG name for a plant with sharp leaves is probably derived from a more widespread word meaning ‘cut’: Latin secō, secäre, Old Norse sog ‘saw’, Old English sagu, Old Saxon saga, Old High German sega, saga ‘saw’, Old Church Slavonic sěṣti ‘you cut’, Lithuanian -sėkti.


SKIN 1 *kenno-. ● Proto-Germanic *hinnō- ‘thin skin, membrane’ [PRE-GRIMM 1]: Old Norse hinna, Old English hion; ● Proto-Celtic *kenno-: Old Irish ceinn glossing ‘scamae’ ‘peel, rind’, Old Welsh ceenn glossing ‘murex’ ‘type of shellfish’, Middle Welsh kennis ‘skin, hide, scale, peel, membrane’, Old Breton cennen glossing ‘membrana’; possibly related to Latin centō ‘blanket, patched cloth’.

SKIN, HIDE 2 *sekyā-. ● Proto-Germanic *segja- [PRE-GRIMM 1]: Old Norse sigg ‘hard skin’; ● Proto-Celtic *sekyā-: Middle Irish seiche ‘an oxhide, human skin’. ¶ Probably from Proto-Indo-European vsek- ‘to cut’.

WILD, WILDMAN *g’helti-. ● Proto-Germanic *wilbijaz ‘wild’, *wilbaz ‘wild beast’ [possibly borrowed after Gallo-Brythonic *w < *gʷ < *gʰ] [PRE-GRIMM 1]: Gothic wilbeis ‘wild’, Old Norse villr ‘bewildered, astray’, Old English wilde ‘wild’, wildor ‘wild beast’, Old Frisian wilde, Old Saxon wildi, Old High German wildi ‘wild’, wildir ‘wild beasts’; ● Proto-Celtic *g’elti-: Middle Irish geilt ‘panicked battle survivor, wildman’, Scottish Gaelic geilt ‘terror,
fear'; Middle Welsh gwyllt ‘wild, savage, mad’, cf. the wildman/prophet of Welsh tradition Myrðin Wylt ‘Wild Merlin’, Old Breton gueld-enes glossing ‘insula indomita’ ‘wild island’, Old Cornish asen guill glossing ‘onager’.

WOOD, TREES *widhus. ● Proto-Germanic *widuz: cf. Ancient Nordic widugastiz ‘wood’ + ‘guest’ (Sunde stone, Sogn og Fjordane, Norway ~AD 500, Antonsen §80), Old Norse viðr ‘wood’, Old English widu, wido, later wudu, Old High German witu, wito; ● Proto-Celtic *widus: Gaulish group name Vido-casses, personal name Viducillus, Old Irish fid ‘tree, wood, timber, letter of the alphabet’, Old Welsh and Old Breton guid ‘trees, branches, twigs, forest’, Old Cornish singulative guiden glossing ‘arbor’.

b. Italo-Celtic/Germanic (ICG)

ADDER, SNAKE, VIPER *natr- ~ *nētr- < *nH1tr- ~ *néH1tr-. ● Proto-Germanic *nadra- < *napra- and *nēdrōn- < Pre-Germanic *natro- and *nētrā- [PRE-GRIMM 1]: Gothic nadrs, Old Norse naðr, naðra ‘adder, snake’, Old English nādдр, nādāra, nātāra, Old High German nātara, nātā ‘viper’; ● Proto-Celtic *natrik-: Old Irish nathir, genitive nathrach ‘snake, serpent, venomous snake, viper’, Middle Welsh neidyr, plural nadroδ, nadroεδ ‘adder, snake’; ● Proto-Italic *natrik-: Latin natrix ‘water snake’.

BADGER *takso-. ● Proto-Germanic *pahzu- [PRE-GRIMM 1]: Norwegian taks, Middle Dutch das, Middle High German dafs; ● Proto-Celtic *tasko- ~ *tazgo-: Middle Irish Tadc as the name of legendary king whose totem was the badger (Mac an Bhaird 1980; Koch 1992a), cf. the Gaulish divine name/epithet DEO APOLLIN[I] MORITASGO and DEO MORITASGO ‘sea-badger’?, personal names TASGETIOS, TASGIVS, TASGILLVS, Tascouanos ‘badger-slayer’ ~ Ancient Brythonic personal name on coin legends TASCIOVANIS (genitive), TASCIOVANTIS AD 20–43, Old Welsh Teuhat, Teuhaunt refers to the same individual as known from the coin legends. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] ¶ Late Latin taxus, also taxo ‘badger’ is sometimes interpreted as a loanword, but it is difficult explain it as borrowed from either the attested Germanic or Celtic forms or their regular preforms. ¶ The dialectal Basque azkoin ‘badger’ could be an early loan from Celtic; the loss of initial t- would be regular (Trask 2008, 122).

BLACKBIRD *mesl- ~ *amsl-. ● Proto-Germanic *amslä: Old English ēsle, Old High German amusla, amsala; ● Proto-Celtic *mesal(k)ā: Old Cornish moelh glossing ‘merula’ ‘blackbird’, Cornish mola, Middle Welsh mwyalch, Middle Breton moualch, Old Irish smóIach ‘thrush’, Scottish Gaelic smeórach, Modern Irish smóIach, smaol, smól, smiol; ● Proto-Italic *mesalā ‘blackbird’:

Figure 47. ICG *natr- ~ *nētr- ‘ADDER, SNAKE, VIPER’, CGBS *slenk- ‘MOVE LIKE A SNAKE, SLINK’: Bronze Age rock carving depicting an adder slinking: Järrested, Skåne, Sweden. (photo: J. Aaron).
Latin *merula*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] These words were possibly borrowed repeatedly from a pre-Indo-European language: the attestations cannot be traced plausibly to an Indo-European root, and it seems hard to reconcile them as a single preform. The *-k-, which is usually reconstructed as a suffix in the Proto-Celtic, may be unnecessary: *mwyal* possibly became *mwybalch* due to the analogy of the common bird name appearing as Middle Welsh *gwalch* ‘hawk, falcon’. In view of the Gaulish personal name *Catu-volcus* = Middle Welsh *Cad-walach* ‘battle hawk’ and the isolation of Old English *wealc* ‘hawk’ within Germanic, that borrowing was probably from Brythonic to Anglo-Saxon. The connection with Old Irish *smólach*, &c., is not certain. *-ach* is extremely common in Gaelic adjectives and nouns, so does not strongly support Proto-Celtic *(s)mesalkā* ‘blackbird’ (which should have become Old Irish **smēalc**), especially so in light of monosyllabic *smaol*, *smól*, *smíol*, and the meaning ‘thrush’ (not monosyllabic, **smëalc**), especially so in light of *smaol* (Hamp 1973). ¶ *smealar* is extremely common in Gaelic adjectives and nouns, so does not strongly support Proto-Celtic *(s)mesalkā* ‘blackbird’ (which should have become Old Irish **smēalc**), especially so in light of monosyllabic *smaol*, *smól*, *smíol*, and the meaning ‘thrush’ (not ‘blackbird’). Therefore, a Proto-Italic-Celtic *mesalā* is possible. We might start with an ablauting preform like Proto-Italic-Celtic e-grade *mesalā* and zero-grade *ṃsal-* giving Proto-Celtic *amsal-* whence, as a prehistoric loanword, Old High German *amsala*. On the other hand, this variation was possibly a feature carried over from the non-Indo-European source (cf. Iversen & Kroonen 2017).

BLOW, BREATHE *spei-.*  ● Proto-Germanic *fisani-* < Pre-Germanic *(p)sēpis-/*sēpis- (vs. Proto-Germanic *fisani-* < Pre-Germanic *(p)sēpis-/*sēpis-) < Pre-Grimm 1: Old Norse *fisa* ‘to blow’, Icelandic *físa* ‘to blow (on a fire), to fart’, Faroese *físa* ‘blow, stir up, hiss, snort’, Middle High German *vīsen* ‘to fart’;  ● Proto-Celtic *spoīnā-* < *spoīnā-*: Middle Welsh *fun*, Modern *ffân* ‘breath, gasp, blast, spirit, life, soul’;  ● Proto-Italic *spei-*: Latin *spīrō, spīrāre* ‘breathe’.

BROWN, DARK *dheus-*.  ● Proto-Germanic *duska-* ‘dark’ < Pre-Germanic *dhusko-~dhus-kā-*: Old English *dox*, *dux* ‘dark-haired, sallow, dusky’, Modern *dusk*;  ● Proto-Celtic *dunno-~dunna-* < *dunna-* < Pre-Celtic *dhus-n-o-~dhus-n-ā-*: Gaulish personal names *Donna, Donnus, Dunnius*, Old Irish *donn* ‘dun, brown, light brown; god of the dead’, cf. the Early Irish mythological figure Donn who personifies death, Middle Welsh *dwnn* ‘dun, dark, brown, swarthy’;  ● Proto-Italic *fuswo/ā-~fusko/ā-~dhus-w-o/ā-~dhusko/ā-*: Latin *furvus* ‘dark-coloured, dusky’, *fuscus* ‘dark, swarthy, dusky’. ¶ It is not certain whether Old English *dun* ‘dingy brown, dark-coloured, dun’ is a loanword from Celtic or a cognate.


JUNIPER, RUSHES, REED *yoini-. • Proto-Germanic *(j)ainja- ‘juniper’: Old Norse einir ‘juniper’, German dialectal Einbeerbaum; • Proto-Celtic *yoini-: Old Irish oine, Middle Irish ain ‘rushes, reed’; • Proto-Italic *yoini-: Latin iuncus ‘juniper’, iüniperus ‘juniper berry’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] Alternatively, possibly related to Hittite iūniperus Einbeerbaum; • áin ‘rushes, reed’; • Irish, which would regularly go back to but not (in inherited vocabulary) to the final consonant of Old Irish oíne *yoini-. The Breton and Cornish forms indicate that this *louko- corresponds regularly to the Welsh, Cornish, and Breton medial consonant varied in Brythonic. The Middle Welsh lluchet indicates that this word amongst Brythonic speakers or—in light of the charged meaning—expressive or tabu deformation. What is perhaps the most economical explanation is adopted here as follows: 1. the Romano-Celtic dedications to LOVCETIVS, &c., have followed the spelling of the Italic divine epithet and therefore cannot be relied upon for phonological details; 2. the attested Brythonic forms reflect Archaic Irish *lōchet as borrowed during the post-Roman Migration Period. In this connection, it is worth noting that in Modern Welsh Iluced is a southern dialect word, for which the corresponding standard Welsh and northern word is mellt (see §46c HAMMER OF THE THUNDER GOD); 3. Old Irish lōchet < *loukant- is itself an old participle of a verb cognate with Gothic lauhatjan ‘to flash (of lightning)’.

LIGHTNING *louk-. • Proto-Germanic *lauhatjana- [PRE-GRIMM 1]: Gothic lāuhatjan ‘to flash (of lightning), lighten’, Old High German lōuzizen ‘to flash’, lōazzzen ‘to be fiery’ (cf. Old English līeget ‘lightning’); • Proto-Celtic *loukant-: Gaulish and Ancient Brythonic divine epithet of Mars LOVCETIVS, consort of the goddess NEMETONA at Bath (cf. GOD OF THUNDER 1–2, §46 above), Old Irish lōchet ‘flash of lightning, gleam or ray of light’, Old Breton lucet, luhet ‘light’, Middle Breton luhet, luffet, Old Cornish luwet glossing ‘fulgur’, Middle Welsh lluchet ‘flash(es) of lightning’; •Italic: Oscan Loucetius, epithet of Jupiter, therefore, probably also connected with thunder and lightning. ¶ The words surely derive from Proto-Indo-European √bhreH1ge- ‘to smell strongly’. Variant reflexes of the Italic divine epithet and therefore cannot be relied upon for phonological details; 2. the attested Brythonic forms reflect Archaic Irish *lōchet as borrowed during the post-Roman Migration Period. In this connection, it is worth noting that in Modern Welsh Iluced is a southern dialect word, for which the corresponding standard Welsh and northern word is mellt (see §46c HAMMER OF THE THUNDER GOD); 3. Old Irish lōchet < *loukant- is itself an old participle of a verb cognate with Gothic lauhatjan ‘to flash (of lightning)’.

NUT *knew- ~ *knu-. • Proto-Germanic *hnut-z [PRE-GRIMM 1]: Old Norse hnut, Old English hnutu, plural hnyte, Old High German hnuz, nuz; • Proto-Celtic *knew-: Old Irish cnú, Middle Welsh kenu ‘nuts’, Middle Breton singulative cnouenn; • Proto-Italic *knuk-s: Latin nux. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

OAK, TREE *perl“o-. • Proto-Germanic *ferh“a- < Pre-Germanic *perl“o- [PRE-GRIMM 1]: Old Norse fura, fyri- ‘tree’, poetic fjorr ‘tree’, Old English furh(wudu) ‘tree’, Old High German forha, fereh-eih ‘tree’; • Proto-Celtic *k“erχto- ‘tree’ < *k“erk“-to-: Old Irish learned word ceirt ‘apple tree’, Middle Welsh perth ‘hedge, bush, brake, thicket, copse’, cf. Gaulish Silva Hercynia < *(P)erkuniā ‘oak wood’; • Proto-Italic *k“erk“-u/o- ‘oak tree’ < *perl“-u/o-: Latin quercus. ¶ See also THUNDER GOD 2, §46c above.

SMELL STRONGLY *bhrag- ~ *bhrēg- < vbhrēH,g-. • Proto-Germanic *brēkjan- [PRE-GRIMM 2]: Middle High German brāhen ‘to smell’; • Proto-Celtic *bregno-/ā- < *bhrēg-no-/ā-: Middle Irish brēn ‘stinking, fetid, putrid, rotten, foul’, Middle Welsh braen ‘rotten, putrid, corrupt, mouldy, withered’, Middle Breton breïn ‘putrid, corrupt’, cf. Old Irish braigid ‘farts’; • Proto-Italic *fragro- < *bhragro-: Latin fragrō, fragrāre ‘to smell strongly’.
c. Celtic/Germanic/Balto-Slavic (CGBS)

MOVE LIKE A SNAKE, SLINK *slenk-. • Proto-Germanic
*slingan ~ *slinkan-: Old Swedish slinka ‘to sneak, crawl, slip’, Old English slingan, slincan ‘to slink, creep, crawl’, Old High German slingan ‘to swing, wind’; • Proto-Celtic *slenker-: Middle Welsh llyngher, Middle Breton singulative lencquernenn ‘intestinal worm’; • Baltic: Lithuanian sliňkti ‘to creep, sneak’.

OPEN LAND *lendh- ~ lîndh-. • Proto-Germanic *lunda < Pre-Germanic *landhom < vlendh- ‘unused land’: Gothic land, Old Norse land, Old English land, lond, Old Frisian land, lond, Old Saxon land, Old High German lant, cf. Ancient Nordic compound name ladawarijaz = landawarijaz ‘defender of the land’ (Tørvika stone, Hordaland, Norway AD 400–450, Antonsen §32); • Proto-Celtic *landā < Pre-Celtic *lîndh- ‘open land’: Old Irish lann ‘land, plot, church(yard)’, Old Welsh and Old Breton lan ‘churchyard, church’, Middle Welsh ilan(n) ‘church, churchyard, enclosure, yard’, cf. Ancient Brythonic place-name Vindolanda; • Slavic: Old Church Slavonic lđêina ‘heath, desert’ < vlendh-.

SLOETREE, BLACKTHORN (?)*dhergh-. • Germanic: Old High German dirn-baum ‘cornel cherry’ • Proto-Celtic *dreg-: Old Irish draigen < *draginom ‘blackthorn, sloetree, sloe’; • Slavic: Russian derên ‘cornel cherry’. ¶ The reconstruction is ‘questionable’ according to Mallory and Adams (2006, 160).

d. Italo-Celtic/Germanic/Balto-Slavic (ANW)

ALDER *al(i)sn-o-. • Proto-Germanic *aliz- ‘alder’: Old Norse qîr, Old English alaer, alor, alrr, Old Frisian erl, ieri, Old Saxon elixe, eleri, els, Old High German elira, erila; •Proto-Celtic ?*alis-o-, *alisano-: Gaulish place-name (probably based on ‘alder’) Alesia, Alisia (Falileyev et al. 2010, 6), locative IN ALIXIE, ALISANV ‘to the god of Alisia’ (Lambert 1994, 135 — Couchey, Côte d’Or, France), DEO ALISANO (Jufer & Luginbühl 2001, 20 — Visignot, France), Celtiberian alizos, alizokum, South-western Celtic ališne ‘in the alder wood’ (J.11.4 — ‘Vale de Ourique’, Almodôvar, Beja); • Proto-Italic *alsno- ‘alder’: Latin alnus; • Proto-Balto-Slavic *a/el(i)snio-: Lithuanian alksnis, ėksnis ‘alder’, Latvian āksnis, Russian ol’xá. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

ANGELICA (?) *k‘óndh/n-. • Proto-Germanic *hwannō- ‘(stalk of) angelica’ [PRE-GRIMM]: Old Norse hvǫnn; • Celtic: Scottish Gaelic contran, Irish cuinneog ‘wild angelica’; • Italic: Latin combrētum ‘some kind of aromatic plant with thin leaves’; • Baltic: Lithuanian plural šveņdrai ‘reed, reed-mace’. ¶ These comparisons are dismissed by de Vaan.

BEE *bheii- ~ *bhi- ~ *bhoi-. • Proto-Germanic *bîo-n- < Pre-Germanic *bheii- ‘bee’: Old Norse bý, Old English bêo, Old High German bia, cf. Old High German bini ‘bee’; • Proto-Celtic *bikos < Pre-Celtic *bhikos: Old Irish bech ‘honeybee’, Middle Welsh bygegýr ‘drone’; • Proto-Italic *foikos < Proto-Italic *foikos: Latin fûcus ‘drone, gadfly, hornet’; • Proto-Balto-Slavic *bīkla- ‘bee’: Old Prussian bitte, Lithuanian bitê; Proto-Slavic *bikela- ‘bee’: Old Church Slavonic bîčela. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] ¶ This word has implications for material culture: the gathering, processing, and consumption of honey, mead, wax, and bronze artefacts produced by lost-wax casting. The Latin and Celtic forms imply a formation with suffix *-k- common to those branches, and it is found also in Slavic and so was possibly originally widespread.
BLUISH, PLUM-COLOURED *(s)līwo- ~ *(s)loiw-. • Proto-Germanic *slaih(w)a- ‘sloe’: Old English slāh, slāg, Old High German slēha; • Proto-Celtic *līwo- ‘colour’: Old Irish li ‘beauty, lustre, glory’, Old Cornish liu glossing ‘color’, Old Breton liou glossing ‘neuwm’ ‘stain, slumps of [aint, colour]’, Middle Welsh liiw ‘colour, hue, tint’; • Proto-Italic *(s)līwo-: Latin lividus ‘dull blue-grey’, līvor ‘bluish discoloration’; • Balto-Slavic: Lithuanian slýwas, Old Church Slavonic slīva ‘plum’.

ELM *elmo- ~ *olmo- ~ *limo- ~ *leimo-. • Proto-Germanic *almaz ~ *elma-: Old Norse almbr, Old English elm, Old High German elm(boum), elmo; • Proto-Celtic *lēmo- ~ *limo-: Middle Irish lem < *limo-, Middle Welsh collective liywf < *lēmo- < *leimo-, place-name Lliwfein ‘elmwood’, Hispano-Celtic group name in Galicia Lemauï, Λεμαυων, feminine singular LEMAVA, masculine LEMAVS (Pliny, Naturalis Historia §28; Ptolemy II, 6.25; CIL XVI 73, 157, 161), Gaulish Lémouices ‘elm-fighters’; • Proto-Italic *olmos < *olmo-. [POSSIBLY NON-INDO-EUROPEAN SOURCE]

Hazel *kōs(V)los. • Proto-Germanic *hasla- < Pre-Germanic *koslo-: Old Norse hasl, hesli, Old English hæsel, Old High German hasal; • Proto-Celtic *koslo- < *kos-elo-: Old Irish col, Old Welsh coll; • Proto-Italic *koslō ~ *kosulō-: Latin corulus, corylus ‘hazel-tree, hazel-wood’; • Baltic: Old Lithuanian kasūlas ‘hunter’s spear, stick’. [POSSIBLY NON-INDO-EUROPEAN SOURCE] The Germanic and Celtic derive from the same syncopated form *koslo-, closer to each other than to theItalic and Baltic.

HENBANE *bhelōn, genitive *bhlnós. • Proto-Germanic *belunōn- ~ *bulmōn-: Old Swedish bulma, Old Danish bylne, Old English beolone, Old Saxon bilina; • Proto-Celtic *belisā: Welsh bele, bela, cf. Ancient Gaulish and Brythonic god’s name Belenos, Belinos (Schrijver 1999); • Proto-Italic *fel-e/ik-: Latin fēlis, fīlicis ‘fern’; • Slavic: Russian belenâ ‘henbane’. [NW vbhel- ‘henbane’.

SWAN (?) *el-. There is general agreement that the Italo-Celtic forms, on the one hand, are cognate and similarly the Germanic/Balto-Slavic, on the other. However, that these two sets are similar to one another is sometimes discounted as coincidence. Nonetheless the corresponding meanings, i.e. invariably ‘swan’, are specific. In contrast, Greek ἑλέα refers to a kind of owl; therefore, if that goes back to the same root, the word changed meaning in the North-west. • Proto-Germanic *albut-: Old Norse qlip, elptr, Old English ilfetu, Old High German albiz, elbiz; • Proto-Celtic *elV-: Old Irish elu glossing ‘cygnis’, Old Cornish elerhc glossing ‘olor vel cignus’ (the Old Cornish form seems to be the plural), Middle Welsh alarch < notional Proto-Indo-European *Helško-; • Proto-Italic *elôr ‘swan’: Latin olor; • Slavic: Russian lêbed < *elbed-. [POSSIBLY NON-INDO-EUROPEAN SOURCE]

§50. Miscellaneous, no definite social domain

a. Celto-Germanic (CG)

DARK *dhergo-*. Proto-Germanic *derka- [PRE-GRIMM 2]: Old English deorc ‘dark, dimly lit’, cf. Old High German terchinen ‘to obscure, soil, defile’; Proto-Celtic *dhergo- ‘blood-red, dark’: Old Irish derg ‘red, the colour of blood, ruddy, tawny, the colour of gold, ale, bloody, red-hot’, Scottish Gaelic dearg with a sense usually darker and more intense than Old Irish rúad, Gaelic ruadh, which also means ‘red’. Possibly related to Welsh dera ‘Satan, devil’ (GPC s.n. dera), which also would suggest a link to the powerful tale, probably of Old Irish date, Togail Bruidne Da Derga ‘The Destruction of Da Derga’s Hostel’, for which the name of the sinister hostel keeper is usually interpreted as ‘Red God’ (Mac Cana 1996, 127; Busse & Koch 2006b). The Proto-Indo-European meaning seems to have been ‘cloudy, bad weather’, developing from an implication of ‘poor light, obscurity’ into a colour word in Germanic and Celtic: Tocharian A tärkär, Tocharian B tarkär ‘to bad, rainy weather’, ‘cloud’, Lithuanian tarkar. The European meaning seems to have been ‘cloudy, bad weather’, (Mac Cana 1996, 127; Busse & Koch 2006b). Along with the initial *h- interpreted as a lenited */s/-.

GOOD, DESIRABLE *swent- ~ *sunt- ~ *swnt-. Proto-Germanic *swinþa- ~ *sunþa- ‘strong, healthy’ [PRE-GRIMM 1]: Gothic swinþs ‘strong, healthy’, Old High German gi-sund ‘healthy’; Proto-Celtic *swanto- ‘desirable’: Old Irish sét ‘object of value, unit of value, treasure, wealth, possessions, ornament, jewel’, Middle Welsh chwant ‘desire, lust, covetousness, appetite’, Cornish whans, Breton c’hoant; Old Irish sant ‘strong desire, eagerness, covetousness’ is a borrowing from Ancient Brythonic *swanto- or Early Medieval Brythonic *hwant with the initial *h- interpreted as a lenited */s-/. Although this formation is not attested in the other Indo-European branches, this CG word can be understood as formed of the common Indo-European elements *H.su- ‘good’ and the suffix *-(e)nt-.

GREY *keiro- ~ *koiro-. Proto-Germanic *hairaz ‘hoary, grey-haired’ < Pre-Germanic *koiros [PRE-GRIMM 1]: Old Norse hær, Old English hār ‘hoary, grey, old’, Old Saxon hēr ‘noble, distinguished, aged’, Old High German hēr ‘old, reverend, grand’; Proto-Celtic *kēro- < *keiro-: Old Irish ciar ‘dark, dark brown, murky, black’, Scottish Gaelic ciar ‘dusky’.

HEAP, MOUND, PILE, RICK *krouko-. Proto-Germanic *hraukaz ~ *hrūgō- < Pre-Germanic *krougo- ~ *krouko- [PRE-GRIMM 1]: Old Norse hrakr ‘pile’, hrūga ‘pile’, hró ‘hillock’, Old English hrēacc ‘stack, haycock, rick’; Proto-Celtic *krouko- ‘hillock, hill’: Old Irish crūach ‘stack of corn, rick, mountain, hill’ (Crúachu, the name of the political centre of Connacht in the sagas, referring to the earthwork complex of Rathcroghan-Carnfree, probably belongs here), Gaulish place-name Kroukiautovov (Ptolemy II, 8.2), Ancient Brythonic place-name Pennocrucium ‘Penkridge’, Middle Welsh crug ‘hillock, cairn, heap, mass, stack, swelling’, Old Cornish cruc glossing ‘collis’ ‘hill’, Old Breton cruc.

The word is of Indo-European origin: Tocharian A tpār, Tocharian B tapre ‘high’. Lithuanian dubūs hollow, deep, spacious’ < *dhubhu- is very close semantically, but lacks the nasal suffix reconstructed in both the Germanic and Celtic.
to Germanic *h- by Grimm’s Law. However, we would not expect a medial *-k- in both the Proto-Germanic and Proto-Celtic forms. If the Proto-Celtic had been *kroukko- with geminate *-kk-, that would give Old Irish **crúacc and Welsh **cruch. A prehistoric loanword is therefore more likely. If the borrowing was from Pre-Germanic to Proto-Celtic, it might be that the Pre-Germanic *-kk- was simplified to the more common simplex consonant *-k- in Celtic. The reverse is also possible: it is likely that Proto-Celtic *krouko- was phonetically *[krougo-], with a lenis /k/ [g], borrowed as Pre-Germanic *krauga- before Grimm 1 and Grimm 2, then regularly became *hrauka- afterwards. In the light of the rarity of geminates, the latter is more probable.

HIDE, CONCEAL 1 *mūg-. • Proto-Germanic *mūk- [PRE-GRIMM 2]: Middle English micher ‘thief’, Old High German mühen ‘lie in ambush for’; • Proto-Celtic *mūg- ‘conceal’: Old Irish for-mūchtha ‘smothered, concealed, inaudible’.

LONG *sit- ~ *seit-. • Proto-Germanic *sīda- [PRE-VERNER] *sība-[PRE-GRIMM 1]: Old Norse siðr ‘long (e.g. of hair)’, Old English sīd ‘wide, broad, ample’, Old High German sito ‘loose’; • Proto-Celtic *sīti- < *Sīhi-ti-: Old Irish sīth- (sith-be ‘pole’ is part of the stock descriptions of chariots in the Irish sagas), Old Welsh and Old Breton hit, Middle Welsh hýt, Middle Breton hēt ‘length, duration’, cf. Gaulish place-name Sitilla, Old Irish sīr ‘lasting, eternal’, Old Welsh hir ‘long’ < Proto-Celtic *sīro-, Latin sērus ‘belated, slow’.

POINT *bend- ~ *bnd-. • Proto-Germanic *pint- [PRE-GRIMM 2]: Old Danish, Old English pintel ‘penis’, Old Frisian pint, ponth, Middle Low German pin, pinne ‘pin, nail’; • Proto-Celtic *bend-nā- ~ *band-no- ‘peak, top, horn’: Gaulish place-name Canto-bennicus, Canto-bennunum, Ancient Brythonic Banno-vallum, Old Irish benn ‘mountain, crag, peak, point, crest, summit, pinnacle, spire; gable, corner &c. of building or structure, horn (of buffalo), drinking horn, prong’, Middle Welsh bann ‘top, tip, point, summit, crest, peal, beacon, height, pinnacle, turret, mountain, animal horn, drinking horn, corner, angle’, Old Breton Ban-hed ‘stag horn’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

SHAKE *skut-. • Proto-Germanic *skudjan- ‘to shiver, shake’ < *skup- < Pre-Germanic *skut-[PRE-GRIMM 1]: Old Saxon skuddian, Old High German scutten ‘to shake, pour, break’, scutizōn ‘to shudder, shake’; • Proto-Celtic *skutu-: Middle Welsh ysgydv ‘shake (violently), swing, wag, jolt, jerk’.

SPLIT, SPLINTER *splid- ~ *spleid-. • Proto-Germanic *splitan-[PRE-GRIMM 2]: Middle Dutch spliten, Middle High German splizen; • Proto-Celtic *s(p)litsti- < *splid-ti-: Middle Irish slis, also slisiu ‘shaving(s), splinter(s)’.

SWIFT *krob(h)- ~ *krb(h)-. • Proto-Germanic *hrappa- ‘fast’ < Pre-Germanic *krob(h)nó-[PRE-GRIMM 2] [PRE-GRIMM 1]: Middle Dutch rap ‘swift, fierce’; • Proto-Celtic *krībi-: Old Irish crib ‘quickly, swiftly’; this possibly goes with Old Cornish cif glossing *fortis ‘strong’, Middle Welsh kryf ‘strong’, Middle Breton creff ‘strong’. ¶ The word can be related to warriors and rock art as plausible descriptive epithets of horses, chariots, heroes, weapons, and ships.

b. Italo-Celtic/Germanic (ICG)

COLOUR NAME (NOT BLACK, WHITE, OR RED) *bhēH1lus, genitive *bhēH1lūós. • Proto-Germanic *blēwa- ‘blue’: Old Norse blār ‘blue, livid, black’, Old Frisian blōw, Old High German blāo; • Proto-Celtic *blawo-: Middle Irish blá ‘yellow, blond’; • Proto-Italic *flāwo-: Latin flāvus ‘yellow, blond’.
EMPTY *wästos < *w(e)Hstos. • Proto-Germanic *wōstaz
‘uninhabited, desert, waste’ < Pre-Germanic *wāstā- ~ *wāstā-
Old English wēste, Old Frisian wöst, Old Saxon wōsti, Old High German wuosti; • Proto-Celtic *wāstā- ~ *wāstā-
Old Irish fās ‘empty, void, vacant, deserted, vain, futile’, Early Welsh gwaws ‘gentle, pleasant, frightful, terrible’; • Proto-Italic *wāsto- ~ *wāstā-
Latin vāstus ‘empty, waste, desolate’.

FOAM, FROTH *bhermVn-. • Proto-Germanic *bermon-: Swedish barma, Old English beorma ‘barm, yeast’, Frisian berme, barm; • Proto-Celtic *borman-: Gaulish divine name Bormo, Boruo, Bormanus, Bormanicus, god of thermal springs often identified with Apollo, feminine Bormana, cf. Old Irish berbaid ‘boils, cooks’ < Proto-Celtic *berwāti, Middle Welsh berwi ‘boiling’ < *bherw-; • Proto-Italic *fer(ament)om: Latin fermentum ‘ferment, yeast’. ¶ From Proto-Indo-European vbhreu- ‘boil’, a root not found in Asian branches of Indo-European.

HIDE, CONCEAL 2 *kēle/o- ~ *klé- • Proto-Germanic *huljan ~ *helan [PRE-GRIMM 1]: Gothic huljan ‘to shroud’, Old English helan ‘to conceal, hide, cover’, hēl ‘(s)he concealed’, Old Frisian hela ‘to hide, conceal’, Old Saxon helan ‘to hide, conceal’, hal ‘(s)he concealed’, Old High German hela ‘to hide, conceal’, hāl ‘concealing’, hal ‘(s)he concealed’; • Proto-Celtic *kele-: Old Irish ceilid ‘hides, conceals’, Middle Welsh kvelu ‘to hide, conceal, keep secret’, Middle Breton keles ‘to hide’; • Proto-Italic *kele/o-: Latin celō ‘conceal’, occulō ‘hide, conceal’. ¶ Proto-Indo-European vklē- ‘cover’: Sanskrit śárman- ‘shelter, cover’; somewhat different sense and not a verb.


c. Celto-Germanic/Balto-Slavic (CGBS)

DIRTY, YELLOWISH BROWN *sal-. • Proto-Germanic *salwa- < *solwo- ‘yellowish brown, dirty’: Old Norse sölur ‘yellow, pale’, Old English salu ‘dusky, dark, dirty’, Old High German salo ‘dark-coloured’; • Proto-Celtic *salā ‘dirt’, *salāko- ~ *salākā- ‘dirty’: Old Irish sal ‘dirt, filth, impurity, stain, sin’, salach ‘dirty, foul, impure’, Old Welsh halau glossing ‘stercora’ ‘filth, excrement’ (possibly from *salowes agreeing with the Germanic formation, although the u-stem plural was an expanding category in Early Brythonic and therefore possibly not a shared development), Old Welsh halac ‘dirty, unclean, contaminated’, Old Breton haloc glossing ‘in veste lugubri’ ‘in mourning clothing’ (probably meaning clothing strewn with ash); • Slavic: Russian solóvij ‘light bay (colour)’. ¶ Possibly connected with Latin salīva ‘saliva’, but the meaning is not close.


MOVE QUICKLY, STIR ONESELF, JUMP *skek-e- ~ *skok-eye-. • Proto-Germanic *skehan- ‘move quickly, happen’ < Pre-Germanic *skek-e- [PRE-GRIMM 1]: Old English scēon ‘fall, go quickly, fly’, Old High German gi-schehan, schein ‘move quickly, happen’; • Proto-Celtic *skok-eye- (causative ‘cause to jump’): Old Irish scuichid ‘move, start, go, proceed, set in motion, become exhausted’, Middle Welsh ysgrigi ‘move, stir, shake, tremble’; • Proto-Balto-Slavic *skok-eye-: Old Church Slavonic skočiti ‘jump, leap’.
SHAKE *kret-  · Proto-Germanic *hratt/dōn- ‘to rush, tumble’ < *krot-nā- [PRE-GRIMM 1]: Old Norse hrata ‘to stagger, fall, tumble’, Old English hradian, hradian ‘to rush, hasten’  · Proto-Celtic *krota-: Old Irish crothaid ‘shakes, causes to tremble, brandishes, scatters, ravages (a territory)’  · Baltic: Lithuanian kretēti ‘to tremble with old age’, kratyti, Latvian kratīt ‘to shake out’, Lithuanian krėsti ‘shake, jolt, search, scatter’, Latvian krist ‘to fall, drop, die’.

WET *welk- ~ *wolk-.  · Proto-Germanic *wolcx- [PRE-GRIMM 1]: Old Norse velr, Old High German welh ‘wet, moist, mild’  · Proto-Celtic *wolko- ‘rain, shower, wash’: Middle Irish folc ‘heavy rain’, Middle Welsh golch ‘washing with water’, Middle Breton guelchi ‘washing’  · Balto-Slavic: Lithuanian vilgau ‘moisten’, Latvian vlags ‘wet’, Old Church Slavonic vlaga ‘moisture, juice of plants’.

d. Italo-Celtic/Germanic/Balto-Slavic (ANW)

ALL *olo-, see ALL FATHER above.

PALE GREEN, YELLOW *ghelwo- ~ *ghlwo-.  · Proto-Germanic *gelwa- ~ *gulu- ‘yellow’: Old Norse gulr, Old English geolo, geolow-, Old Frisian gêi, Old Saxon gelo, gelu, Old High German gelo;  · Proto-Celtic *gelwo-: the present proposal is that Middle Welsh gwelw ‘bluish, greyish white, light grey, pale, ash, wan, faintly coloured’, Breton gwelv ‘beginning to turn sour (of milk)’—a word otherwise isolated in Brythonic—has developed as Common Brythonic *gwelw < *gelw, in which the initial consonant became labialized by assimilation to the following -w-  · Proto-Italic *xelivo-: Latin helvus ‘yellow, dun’  · Baltic: Lithuanian želvas ‘greenish’. ¶ The formation *gHELH3-wo-, underlying all the preceding forms, is limited to the NW languages, but the Proto-Indo-European root V齿轮H3- occurs more widely: Sanskrit hirī- ‘yellow’ (in compounds), Greek χλωρός ‘pale green, greenish yellow’.

SUCK *seug- ~ seuk-.  · Proto-Germanic *sūkan- ~ *sukkan- ~ *sukk/gōn-: Old Norse sūga, Old English sūgan, sūcan, socian, Old Saxon sūgan, Old High German sūgan;  · Proto-Celtic *soukno-: Middle Welsh sugnaw ‘to suck, drink, suckle, pull in’, Middle Breton sunaff;  · Proto-Italic *souge/o- < Notional Proto-Indo-European *souk-HeH2-: Latin sūgō, sūgere (cf. sūcus ‘juice’) ‘to suck’  · Balto-Slavic: Lithuanian sūkt, Old Church Slavonic sosat, Russian sosát. ¶ ‘Suck’ is partly onomatopoetic, approximating the sound of the intake and cutting off of breath, which might help to account for the variations of k and g in Germanic and Italic, the apparent violation of Grimm’s Law, and the retention of s- in Brythonic, rather than the more common *s- to h-.


§51. Some rejected entries

FRAMEWORK, FENCE, WICKER STRUCTURE *kor(V)t- ~ *kr(V)t-. ● Proto-Germanic *hurdiz ‘wickerwork door’ [PRE-VERNER] *xurpís < Pre-Germanic *kurti- < *kr̥h-ti- [PRE-GRIMM 1]: Gothic haurds ‘(lattice) door’, Old Norse hurð ‘door’, Old English hyrd, hyrdel, Old Saxon hurth ‘hurdle, wickerwork’, Old High German hurt, hurd ‘hurdle, grate, railing’, cf. Old English hyrdel ‘frame of intertwined twigs or bars’; ● Proto-Celtic *koret- ‘palisade, fence’: Middle Irish cora ‘stone fence, palisade, wall, row or serried rank, fishing weir’ < *koret-s, Old Breton coret, Old Welsh plural c<h>oretov, Middle Welsh coret ‘weir, dam, fishgarth’, cf. Old Welsh Ban-cor ‘palisaded hill’; Proto-Celtic *krāti-: Middle Irish creth ‘nature, quality, disposition, form’; ● Proto-Italic *krāti- < Pre-Italo-Celtic *krH2-ti-: Latin crātis ‘construction of wickerwork, hurdle’; ● Pre-Balto-Slavic *korH2-to-: Old Prussian corto ‘hedge, fence’. ¶ POSSIBLY NON-INDO-EUROPEAN SOURCE This word is excluded from NW because the probably cognate Greek κυρτία ‘wickerwork’, κύρτη, κύρτος ‘fishing-creel, cage’ is close in both form and meaning.

HEMP ROPE *werk-. ● Proto-Germanic *werka-: West Frisian wurk, Middle Dutch werck, Old High German werh, werih ‘string of hemp, rope’; ● Proto-Celtic *werk-: Old Breton coarcholion glossing ‘canabina’ ‘things made of hemp’, Middle Welsh kywarch < *komearkw- ‘hemp, tow, hemp string or rope, made of hemp’. ¶ Proto-Germanic *werka- can be derived from Pre-Germanic *werk-nó-. However, given the limited attestations in both Germanic and Brythonic a post-Grimm 1 loanword from Gallo-Brythonic *werk-to West Germanic is likely.

ILL-FAMED, WOEFUL *wayo-mēri- ~ *wayo-mōro-, see §33.

STREW *stroweye/o- ~ *stréwe/o-. ● Proto-Germanic *straujana: Gothic straujan (cf. strawidedun ‘they spread it out’), Old Norse strá, Old English strēowian, Old Saxon strōian, Old High German gistrouwen ‘bestrew’; ● Proto-Celtic *stroweye/o-: Old Breton strouis ‘stewed’; ● Italic: Latin strūd ‘arrange, construct, compose, build’. ¶ Due to the phonetic shape of this word, it is hard to exclude the possibility of a late loanword.

? UPPER GARMENT, COAT, MANTLE *ruk- ~ *ruk- ~ *rouk-. ● Proto-Germanic *rukka-: Old Norse rokk, Old English rocc ‘over-garment’, Old Frisian hrok, Old Saxon hrok ‘upper garment, robe’, Old High German rock; ● Proto-Celtic *ruk- ~ *rouk-: Middle Irish rucht ‘tunic, garment’ < *ruxt-, Middle Welsh ruch ‘rough garment, cloak, mantle’ < *roukkā; ● Slavic: Old Church Slavonic ruxo ‘garment’. ¶ Even as an inter-Celtic comparison (Middle Irish ruch and Middle Welsh ruch), the derivation is problematical. The Old Frisian and Old Saxon forms support Kroonen’s Proto-Germanic reconstruction *hrukka-, which would rule out the Celtic and Slavic comparanda.

The 173 CG words in the Corpus (§§38–50) all either show clear earmarks for having been within the Germanic branch prior to Grimm 1 and Grimm 2’s operation or they lack the consonants needed to tell one way or the other. Those words that clearly either entered Germanic after the operation of Grimm 1 and 2 or entered Celtic from Germanic after the operation of Grimm 1 and 2 are excluded from the collection, being too late for the period of contact of interest presently; for example, the following:

CAT *kat- ~ *katt- ‘cat’. ● notional Proto-Germanic feminine *kattōn- ~ masculine *kattuz. *katazan- ‘tomcat’ [POST-GRIMM 1]: Old Norse masculine kottr, Old English cat, catte, Old Frisian katte, Old High German chazzâ, kazza, masculine kater. ● Proto-Celtic *kattos: Gaulish personal names CATTA (Virunum, Noricum) and CISIAMBOS CATTOS VERCAMBRETO (coin legend of Lexovii),
Old Irish *catt* glossing ‘cattus’, Middle Welsh *cath*, Old Cornish *kat* glossing ‘cattus vel murilegus’, Middle Breton *caz*; • Italic: Latin *catta*, *cattus*; *catta* occurs in Martial ~AD 100; • Slavic: Old Slavonic *kótka*. ¶ A non-Indo-European loanword, possibly originating in North Africa, cf. Nubian *kadīs* ‘cat’. The domestic cat is known in Egypt from ~2000 BC. As the word is unattested in Gothic, it possibly entered Germanic after the break-up of Proto-Germanic.

**DANUBE, UPPER DANUBE** *Dānowyos*. • Proto-Germanic *Dōnawjaz* < *Dānawjaz* [POST-GRIMM 2]: Old High German *Tuonouwa*; • Proto-Celtic *Dānowyos* (Stifter 2009). ¶ Proto-Indo-European *deHānu* ‘river’, cf. Sanskrit river-goddess name *Dānu*. *Dānuvius* is first attested in Latin in Caesar where it’s a loan from Celtic. Second only to the Volga, the river today called ‘Danube’ is the longest in Europe. However, in ancient times that name is only found applied to the Danube’s upper course. The lower river is called ‘Ἰστέρ in Greek (first found in Herodotus) and *Hister* in Latin. Nonetheless, the Upper Danube was important enough as a barrier and an artery that Germanic speakers probably learned its name before they settled near it, by the time the Cimbri crossed the Upper Danube to defeat the Romans at Noreia in 113 BC (see §7 above). There is therefore nothing in the evidence of this river name to upset the established chronology dating Grimm 1 ~500 BC with Grimm 2 not long thereafter.

**PLEASANT TASTE.** • Proto-Germanic *swekk*- [POST-GRIMM 1]: Old English *swēcc*, *swæcc* ‘taste, (pleasant) smell’, Old High German *swehhan* ‘to smell (bad)’; • Proto-Celtic *swek*-. Middle Welsh *chwec* ‘sweet, luscious, pleasant, comely’, Breton *c’houek*.

**ROUND, CURVED.** • Proto-Germanic *krumba*- ~ *krumpa*-. ‘crooked, bent’ [POST-GRIMM 1]: Old English *crump*, Old Saxon *krumb*, Old High German *krumpf* *krumb*; • Proto-Celtic *krumbo* ‘round, curved’: Middle Irish *cromm*, Old Breton *cram* ‘hunchback’, Middle Welsh *crwm* ‘convex, crooked, bent, bowed, curved, stooping, crook-backed’.

**LEGGING, TROUSER** *bräk*. • Proto-Germanic plural *brökiz* [POST-GRIMM 1]: Old Norse *bræk*r, Old English *brēc*, Old Frisian *brēk*, Old High German *bruoh*; • Celtic *bräk*-. Gaulish *bräcae* ‘trousers’, cf. Ancient Brythonic personal name *Mandubracius* ‘wearing trousers for riding a small horse’. 
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INDEX

Subjects, Headwords, Meanings, and Roots

Abbreviations used in the Index

AB = Ancient Brythonic
ANW = All North-west Indo-European
(Celtic, Germanic, Italic, and Balto-Slavic)
CG = Celto-Germanic
CGBS = Celto-Germanic/Balto-Slavic
Gk = Greek
HC = Hispano-Celtic
I = Modern Irish
ICG = Italo-Celtic/Germanic
MI = Middle Irish
NW = North-west Indo-European (see §1)
OI = Old Irish
ON = Old Norse
PB = Proto-Balto
PBS = Proto-Balto-Slavic
PC = Proto-Celtic
PG = Proto-Germanic
PH = Palaeohispanic (all PH forms cited in the Index are probably Indo-European)
PI = Proto-Italic
PIE = Proto-Indo-European
PreBS = Pre-Balto-Slavic
PreC = Pre-Italic/Celtic
PS = Proto-Slavic
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