

CELTO-GERMANIC

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

John T. Koch

Aberystwyth
Canolfan Uwchefrydiau Cymreig
a Cheltaidd Prifysgol Cymru
University of Wales Centre for
Advanced Welsh and Celtic Studies
2020



CELTO-GERMANIC

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

by

John T. Koch

©John T. Koch 2020

The moral rights of the author have been asserted.

First published 2020

All rights reserved. No part of this publication
may be reproduced in any form or by any means,
without permission from the Publisher.

Digital Edition: ISBN 978–1–907029–32–5

A CIP record for this book is available from the British Library.

*Canolfan Uwchefrydiau Cymreig
a Cheltaidd Prifysgol Cymru
University of Wales Centre for
Advanced Welsh and Celtic Studies
Aberystwyth SY23 3HH*

keywords: rock art, Bronze Age, Proto-Celtic, Proto-Germanic

EPIGRAM

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

[trans. Byock 2005, 108]

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

KRISTIAN KRISTIANSEN

Synopsis

This book is a study of the inherited vocabulary shared uniquely by Celtic, Germanic, and the other Indo-European languages of North and West Europe. The focus is on contact and common developments in the prehistoric period. Words showing the earmarks of loanwords datable to Roman times or the Middle Ages are excluded. Most of the remaining collection predates Grimm’s Law. This and further linguistic criteria are consistent with contexts before ~500 BC. The evidence and analysis here lead to the following explanatory hypothesis. Metal-poor Scandinavia’s sustained demand for resources led to a prolonged symbiosis with the Atlantic façade and Central Europe during the Bronze Age. Complementary advantages of the Pre-Germanic North included Baltic amber and societies favourably situated and organized to build seagoing vessels and recruit crews for long-distance maritime expeditions. An integral dimension of this long-term network was intense contact between the Indo-European dialects that became Celtic and those that became Germanic. The Celto-Germanic vocabulary—like the motifs shared by Iberian stelae and Scandinavian rock art—illuminates this interaction, opening a window onto the European Bronze Age. Much of the word stock can be analyzed as shared across still mutually intelligible dialects rather than borrowed between separate languages. In this respect, what is revealed resembles more the last gasp of Proto-Indo-European than a forerunner of the Celtic–Germanic confrontations of the post-Roman Migration Period and Viking Age.

This 2020 edition puts into the public domain some first fruits of a cross-disciplinary research project that will continue until 2023.

Acknowledgements

This book was researched and written as part of the project Rock Art, Atlantic Europe, Words & Warriors (RAW) / *Hällristningar, språk och maritim interaktion i Atlantiska Europa*, based at the University of Gothenburg and funded by the Swedish Research Council (Vetenskapsrådet). I wish to thank all members of the RAW team for their help and feedback on all aspects of this work: Marta Díaz-Guardamino, Christian Horn, Bettina Schulz Paulsson, and Project Leader Johan Ling. Further thanks to Johan and also to Kristian Kristiansen for encouraging my visits and fruitful collaborations in Gothenburg since 2015. The linguistic work in this book also draws on the research of the Atlantic Europe in the Metal Ages (AEMA) Project, funded by the UK's Arts and Humanities Research Council, which benefited greatly from the input of the other AEMA team members: Peter Bray, Kerri Cleary, Barry Cunliffe, Catriona Gibson, Neil Jakeman, and Raimund Karl. I am especially indebted to Fernando Fernández and Dagmar Wodtke for collecting Ancient Celtic linguistic evidence. Many thanks to Barry Cunliffe for discussions at early stages of this work and to Johan Ling and Jim Mallory who read full drafts of the text and offered many insightful comments and to Gwen Gruffudd for proofreading at typescript stage. I also wish to thank for their useful comments participants in the Indo-European Interfaces conference held in Uppsala in October 2020: Erik Elgh, Giulio Imberciadori, Anders Kaliff, Agnes Korn, Jenny Larsson, Peter Kahlke Olesen, and Paulus van Sluis. Remaining shortcomings and opinions expressed here are solely my responsibility.

CONTENTS

Synopsis	3
Acknowledgements	4
INTRODUCTION (§§1–37)	9
§1. Context, subject matter, and method	9
§2. A research project.	10
§3. On the RAW Project’s linguistic dimension	12
§4. Celto-Germanisms and rock art: a ‘Proto-Viking’ model	12
§5. A new cross-disciplinary approach to later prehistory	13
§6. Some Indo-European background	14
§7. Iron Age contact, Bronze Age contact, or both?	16
§8. Borrowing, mutually intelligible dialects, or lingua franca?	20
§9. Dialects, languages, and mutual intelligibility in Bronze Age Western Eurasia	22
§10. Tree models and linguistic continua.	23
§11. Revising the Steppe Hypothesis in the light of the ‘Archaeogenetic Revolution’	27
§12. Post-Anatolian Indo-European and the position of Tocharian	29
§13. Italo-Celto-Germanicisms (ICGs) and Balto-Slavic/ Celto-Germanicisms (BSCGs)	30
§14. Germanic linguistic chronology	34
§15. Pre-Germanic and Proto-Germanic: definitions and possible dates ...	36
§16. From Proto-Indo-European to Proto-Germanic: what happened in Pre-Germanic?	38
§17. Relative chronology 1: CG, ICG, CGBS, and ANW words showing direct evidence for the Grimm 1 sound change (*p, *t, *k, *k ^w > *f, *b, *h, *h ^w)	41

§18. Relative chronology 2: CG, ICG, CGBS, and ANW words showing direct evidence for the Grimm 2 sound change (*b,) *d, *g, *g ^w > (*p,) *t, *k, *k ^w)	43
§19. Celtic linguistic chronology.	45
§20. Relative chronology 3: synchronizing the Celtic and Germanic sequences of sound changes	46
§21. Dating Italo-Celtic	48
§22. The dialect position of Germanic and a possible explanation	48
§23. When did Indo-Iranian separate from the languages of Europe?	50
§24. <i>Alteuropäisch</i>	53
§25. North-west Indo-European (NW), Italo-Celtic/Germanic (ICG), Celto-Germanic (CG), and chronology	54
§26. Dating by linguistic criteria: some general and specific considerations	54
§§27–34. Patterns in the CG, ICG, CGBS, and ANW vocabulary ...	56
§27.	56
§28.	65
§29. Chronological implications of the subsets of words	66
§30. The hypothesis and some implications	67
§31.	68
§32. Words and warriors	68
§33. Celto-Germanic compounds	72
§34. The non-Indo-European element	72
§35. The attestation pattern of the CG words and its implications	75
§36. The evidence and the hypothetical time frame	76
§37. Conclusions	77
THE CORPUS (§§38–50)	82
§38. <i>Principal secondary works used in compiling the entries — Palaeohispanic comparanda</i>	82
§39. Water and motion over/through water	83
§40. Weapons and warfare	89

§41. Horse and wheeled vehicle	105
§42. Exchange and metallurgy	108
§43. Ideology and social organization	111
§44. Material culture and subsistence economy	126
§45. Language and oral tradition	136
§46. Beliefs and the supernatural	139
§47. Health and healing	144
§48. Anatomy	145
§49. Natural world	147
§50. Miscellaneous, no definite social domain	154
§51. Some rejected entries	159

BIBLIOGRAPHY 161

Bibliographical abbreviations	161
---	-----

INDEX 177

Abbreviations used in the Index	177
---	-----

LIST OF FIGURES: charts, maps, illustrations

Figure 1. Bronze Herzprung type shield from Fröslanda, Sweden, made with copper traced to Ossa Morena region of South-west Spain	11
Figure 2. Proto-Indo-European lexemes attested in each branch	16
Figure 3. Celtic and Germanic linguistic territories and contact zone in the Iron Age ~500 BC–1 BC/AD according to Schumacher 2007.	19
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.	24

Figure 5. Anatolian, Post-Anatolian Indo-European, and some cultures and migrations up to ~2500 BC.	29
Figure 6. The Indo-European family tree published by August Schleicher in 1861 anticipated groupings universally accepted (Balto-Slavic and Indo-Iranian) or widely accepted (Italo-Celtic) today. At the time, Anatolian and Tocharian were not yet discovered.	31
Figure 7. Bad trees? If we recognize no common ancestral languages between Proto-Indo-European and the 10 primary branches, that implies either the impossible situation of the proto-language undergoing a ten-way split or a series in which each branch split off as a unique new language from a residual core, in no agreed-upon order after Anatolian first and possibly Tocharian second.	32
Figure 8. Table summarizing approximate date ranges for reconstructed Indo-European languages in Western Europe.	50
Figure 9. Migrations, cultures, and proto-languages after ~2500 BC.	51
Figure 10. First-order subgroupings of Indo-European (Figure 4), showing the overlying positions of the Post-Proto-Indo-European commonalities	54
Figure 11. Totals of a. CG, b. ICG, c. CGBS, d. ANW, and e. CG+ words in the Corpus.	65
Figures 12–13. Comparison of total numbers of vocabulary, words with meanings relatable to Bronze Age rock art iconography, and those relatable to further aspects of to Bronze Age life.	71
Figure 14. Comparison of numbers of CG words occurring in fully attested pre-modern Germanic and Celtic languages.	75
Figure 15. Post-Tocharian Indo-European in the North and West: dialect chains and separating languages.	78
Figure 16. Summary: Prehistoric cultural complexes as probable vectors for the steppe genetic component and, by implication, early Indo-European languages.	81
Figure 17. CG *pluk- ‘BOATLOAD’, *ro- ‘TO ROW’, *bheyatli- ‘AXE’: Rock art panel from Skee parish, Bohuslän, Sweden: iconography includes sea-going vessel and crew with paddles and an upper scene confronting warriors with raised axes.	83
Figure 18. CG *pluk- ‘BOATLOAD’, *ro- ‘TO ROW OR PADDLE’: rubbing of rock art image of a sea-going vessel and crew with paddles, Tanum, Bohuslän, Sweden.	83

Figure 19. ICG ***mazdo-** ~ ***mazdlo-** ‘mast’, CG ***pluk-** ‘boatload (of people, domestic animals, or inanimate material of value)’, CG ***sighlo-** ‘sail’: Bronze Age rock carving depicting a sea-going vessel with a mast, rigging, and crew: Auga dos Cebros, Galicia, Spain.86

Figure 20. ICG ***mazdo-** ‘mast’, CG ***pluk-** ‘boatload (of people, domestic animals, or inanimate material of value)’, CG ***sighlo-** ‘sail’: Bronze Age rock carving depicting a sea-going vessel with a mast, rigging, and crew: Järrested, Skåne, Sweden.86

Figure 21. ICG ***peisk-**, ***pisko-** ‘fish’. Rock carving probably representing a large fish: lower left-hand corner of the chariot panel, massive Bronze Age tomb at Kivik, Skåne, Sweden.87

Figures 22–23. CG ***bhodwo-** ‘BATTLE, FIGHTING, VIOLENCE’, ***katu-** ‘BATTLE, FIGHTING, VIOLENCE’, ***weik-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nīt-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nant-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhēgh-**, ***bhōgh-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhrest-** ‘BATTLE, FIGHTING, VIOLENCE’: Late Bronze Age stela ‘Las Puercas’, Esparragosa de Lares, Badajoz, showing warrior with bihorn helmet, comb, mirror brooch, sword and shield. Enlarged detail shows possible carving of ship with prominent prow and crew 89

Figure 24. CG ***bhei(a)tlo-** ~ ***bhei(a)l-** ‘AXE’, ***treg-** ‘STRENGTH’, ***bhodwo-** ‘BATTLE, FIGHTING, VIOLENCE’, ***katu-** ‘BATTLE, FIGHTING, VIOLENCE’, ***weik-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nīt-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nant-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhēgh-**, ***bhōgh-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhrest-** ‘BATTLE, FIGHTING, VIOLENCE’: Detail of rock art panel from Fossum in Tanum, Bohuslän, Sweden, showing oversized pair of confronting warriors with raised axes and equipped with swords in scabbards aboard large sea-worthy vessel with a crew of 36 89

Figure 25. CG ***bhei(a)tlo-** ~ ***bhei(a)l-** ‘AXE’, ***treg-** ‘STRENGTH’, ***bhodwo-** ‘BATTLE, FIGHTING, VIOLENCE’, ***katu-** ‘BATTLE, FIGHTING, VIOLENCE’, ***weik-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nīt-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nant-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhēgh-**, ***bhōgh-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhrest-** ‘BATTLE, FIGHTING, VIOLENCE’: Detail of rock art panel from Asperget in Tanum, Bohuslän, Sweden, showing confronting warriors with raised axes90

Figure 26. CG ***ghaiso-** ‘SPEAR’, ***lust-** ‘SPEAR’, ***dhelgo-**, ***dholgo-** ‘DRESS PIN, BROOCH’, ***g^wistis** ‘DIGIT, FINGER’, ICG ***ark^wo-** ‘BOW AND ARROW’, NW ***skeltu-** ~ ***skeito-** ~ ***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). . . .92

Figure 27. CG ***ghaiso-** ‘SPEAR’, ***lust-** ‘SPEAR’, possibly ***dhelgo-**, ***dholgo-** ‘DRESS PIN, BROOCH’, ***aksilā** ‘AXLE’, ***marko-** ‘HORSE’, ***kankistos**, ***kanksikā** ‘HORSE’, ***weghnos** ‘WHEELED VEHICLE’, NW ***skeltu-** ~ ***skeito-** ~ ***skoito-** ‘SHIELD’: Late Bronze Age stela showing warrior with lyre, mirror, v-notched shield from Los Llanos, Zarza Capilla, Badajoz, Spain; Museo Arqueológico Provincial de Badajoz (photo: J. Koch). . . . 93

Figures 28 & 29. ICG ***ark^wo-** ‘BOW AND ARROW’. Late Bronze Age rock art depicting bows and arrows: left – Fossum, Bohuslän, Sweden; right – Montemolín, Sevilla, Spain. 100

Figure 30. ICG ***ark^wo-** ‘BOW AND ARROW’. The bow-shaped hill viewed from the ruined Roman town of Arcobriga (Monreal de Ariza, Zaragoza, Spain). 100

Figure 31. All bows and arrows as represented on Iberian Late Bronze Age ‘warrior stelae’. 100

Figure 32. Drawing of Late Bronze Age stela from Santa Ane de Trujillo, Cáceres, Spain, showing a crested bronze helmet, spear, v-notched herzsprung shield viewed from the back showing the hand grip, leaf-shaped sword, and brooch or mirror. 102

Figure 33. Proto-Celtic ***skeito-**, Proto-Italic ***skoito-**, Pre-Germanic ***skeltu-** ‘SHIELD’: Detail of Late Bronze Age rock art panel from Hede, Kville parish, Bohuslän, Sweden, showing a warrior holding at his left a round shield with a pattern of concentric circles and a sword on his right in a scabbard with a winged chape. 104

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. 104

Figure 35. CG ***aksilā** ‘AXLE’, ***marko-** ‘HORSE’, ***kankistos**, ***kanksikā** ‘HORSE’, ***weghnos** ‘WHEELED VEHICLE’, ***ghaiso-** ‘SPEAR’, ***lust-** ‘SPEAR’, ***dhelgo-**, ***dholgo-** ‘DRESS PIN, BROOCH’, ICG ***ark^wo-** ‘BOW AND ARROW’, NW ***skeltu-**, ***skeito-**, ***skoito-** ‘SHIELD’, ICG ***rotos**, ***rotā** ‘WHEEL’: Late Bronze Age stela from La Solanilla, Córdoba, Spain, showing spear, V-notched shield, mirror, chariot with two-horse team, and warrior with sword. 105

Figure 36. *aksilā ‘AXLE’, CG *marko- ‘HORSE’, *kankistos , *kanksikā ‘HORSE’, *weghnos ‘WHEELED VEHICLE’, NW *rotos , *rotā ‘WHEEL’. Fragmentary Late Bronze Age stela depicting chariot with two-horse team, from El Tejadillo, Capilla, Badajoz, Spain; Museo Arqueológico Provincial de Badajoz.	106
Figure 37. CG *aksilā ‘AXLE’, *marko- ‘HORSE’, *kankistos , *kanksikā ‘HORSE’, *weghnos ‘WHEELED VEHICLE’, NW *rotos , *rotā ‘WHEEL’: rubbing of rock art image of a chariot and two-horse team from Frännarp, Skåne, Sweden, showing recurrent conventional representation of the horse, chariot frame, wheels, axles, spokes, yoke, and yoke pole	106
Figure 38. CG *marko- ‘HORSE’, *kankistos , *kanksikā ‘HORSE’, *weghnos ‘WHEELED VEHICLE’, ICG *rotos , *rotā ‘WHEEL’. Chariot panel, massive Bronze Age tomb at Kivik, Skåne, Sweden, ~1400 BC.	106
Figure 39. CG *aksilā ‘AXLE’, *marko- ‘HORSE’, *kankistos , *kanksikā ‘HORSE’, *weghnos ‘WHEELED VEHICLE’, ICG *rotos , *rotā ‘WHEEL’: Late Bronze Age stela from Majada Honda, Badajoz, Spain, showing warriors, one with a horned helmet, chariot with two-horse team, warrior, and a subsequently added Early Iron Age South-western ‘Tartessian’ inscription.	107
Figure 40. The Isle of Thanet, Richbough, and Cliffs End Farm.	110
Figure 41. The Hispano-Celtic personal names <i>Ambatus</i> and <i>Ambata</i>	115

Figure 42. The Palaeohispanic personal names in <i>Tonc-</i> and <i>Tong-</i>	121
Figure 43. The zones of Palaeohispanic place-names with Celtic <i>-briga</i> and non-Indo-European <i>il(t)i</i> and groups called ‘Celts’.	128
Figure 44. CG *weghnos ‘WHEELED VEHICLE’, *ton(a)ros ~ *Ton(a)ros ~ *tṇros ‘THUNDER, THUNDER GOD’ 1. This rock carving, in which a large bihorned figure standing on chariot pulled by a small horned quadruped to the apparent wonder of man standing aboard a vessel below (from a panel in Tanum, Bohuslän, Sweden) is reminiscent of the associations of Thor in Norse mythological literature, riding through the sky in a chariot pulled by goats. The zigzag in front of him might represent the namesake thunder bolt.	143
Figure 45. CG *g^wistis ‘DIGIT, FINGER’, ICG *ark^wo- ‘BOW AND ARROW’. Late Bronze Age stela from Las Yuntas, Capilla, Badajoz, Spain, showing warrior with a bow and arrow, a large notched s (upper left) and clear representation of 10 splayed fingers.	147
Figure 46. CG *g^wistis ‘DIGIT, FINGER’. Bronze Age rock art on a panel from Backa-Brastad, Bohuslän, Sweden, showing a warrior figure with raised arms and 10 splayed fingers.	147
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.	150

Cover image: Bronze Age rock carving depicting an adder slinking: Järrested, Skåne, Sweden

INTRODUCTION

§§1–37

§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-

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-Celto/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.

¹ This middle ground is what Mallory calls ‘the Indo-European “Dark Ages”’ for the obscurity and lack of attention received relative to Proto-Indo-European before it and the attested languages afterwards (1996, 12–13). On the periodization of the Bronze Age, cf. Needham 1996; Harding & Fokkens 2013.

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).

3 On the copper sourcing, see Ling et al. 2013; 2014; 2019; Melheim et al. 2018; Radičević et al. 2018. On the amber, see Murillo-Barroso & Martín-Torres 2012; Odriozola et al. 2017. On the implications, see Ling & Uhnér 2015; Ling & Koch 2018.

4 Nørgaard et al. 2019; Williams et al. 2019; cf. Timberlake 2016.

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.

6 Cassidy et al. 2016; Koch & Fernández 2019; Brunel et al. 2020. A long evolution of Proto-Indo-European into Celtic *in situ* in Western Europe, going back to the first farmers, was a feature of Renfrew's formulation in the original statement of the Anatolian Hypothesis of the origin and dispersal of the Indo-European languages (1987; 2013).

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 Herzprung 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 Herzprung shield from Cloonbrin, Co. Longford, Ireland, of 61cm diameter is dated 1194–934 cal BC.⁸ 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 Uckelmann’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.⁹ In Scandinavia, similarly portrayed shield motifs often accompany armed warriors on Bronze Age rock art.



Figure 1. Bronze Herzprung type shield from Fröslanda, Sweden, made with copper traced to to Ossa Morena region of South-west Spain (source SHFA).

18 of 24 sheet-bronze shields found near Fröslanda 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 Fröslanda 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 **skeito*.¹⁰ 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/>). Data is being entered about motifs, typology of artefacts depicted, artistic conventions, carving techniques, successive carving events, dating, archaeological contexts, and the script and language of Iberian stelae with writing.¹¹

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).

9 Harrison 2004; Díaz-Guardamino 2010; Mederos 2012; Uckelmann 2014; cf. Díaz-Guardamino et al. 2019a; 2019b.

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-Germanicisms (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 **axsilā*). 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 **bhr̥ǵh-* meant 'height, hill', but came to mean a fortified settlement in both Celtic and Germanic. The development through Celtic *brigā* ~ **brixs* 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 **bhr̥ǵh-*, the common ancestor of Proto-Germanic **burg-* and Proto-Celtic **brig-* (cf. §4a below).

§4. Celto-Germanisms and rock art: a 'Proto-Viking' model

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

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

14 Mallory 1989; Mallory & Adams 2006; Anthony 2007; Anthony & Ringe 2015; Olander 2019; Kroonen 2020.

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.¹⁵ 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.¹⁶ 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.¹⁷

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:

¹⁵ Kossinna 1936; Heyd 2017; Klejn et al. 2018; Frieman & Hofmann 2019; Fuhrholt 2019; Hakenbeck 2019.

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).

¹⁷ See Gray & Atkinson 2003; Pagel & Meade 2006; Bouckaert et al. 2012; 2013; Heggarty 2014; Chang et al. 2015. For a detailed critique of Gray and Atkinson's data and methodology, see Pereltsvaig & Lewis 2015.

- 1 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,
- 2 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):

Indic	925 words	=	68%
Greek	772 words	=	57%
Germanic	761 words	=	56%
Italic	705 words	=	52%
Iranian	675 words	=	49%
Baltic	601 words	=	44%
Celtic	539 words	=	40%
Slavic	503 words	=	37%
Tocharian	465 words	=	34%
Anatolian	354 words	=	26%
Armenian	289 words	=	21%
Albanian	226 words	=	17%

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

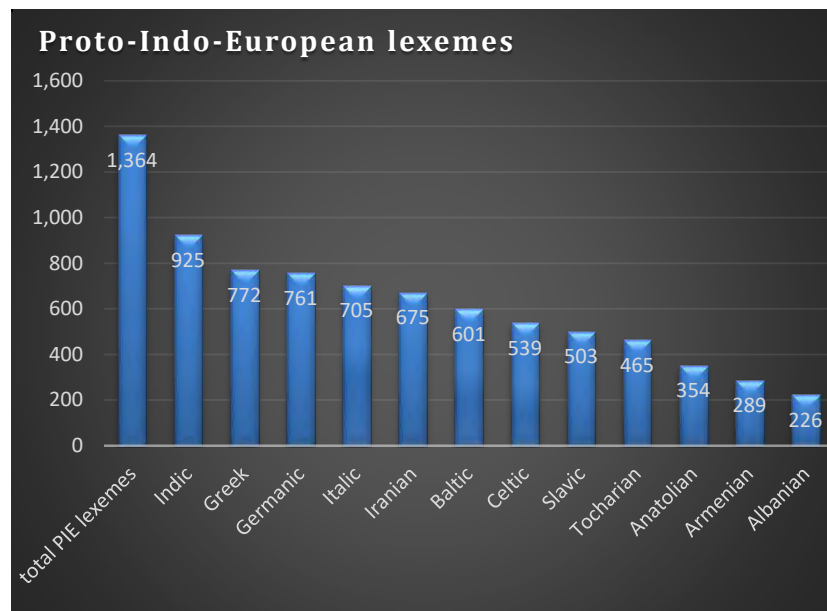


Figure 2. Proto-Indo-European lexemes attested in each branch (after Mallory 2019).

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.¹⁸ 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.

¹⁸ Mallory 1996; 2013; cf. Fulk 2018, 6–7; §§25, 27 below.

- 1 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.¹⁹
- 2 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.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.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.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.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 archaeological 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.

19 Ling et al. 2013; 2014; 2019; Ling & Koch 2018; Melheim et al. 2018; Radivojević et al. 2018; Nørgaard et al. 2019; Williams et al. 2019.

20 Cassidy et al. 2016; Martiniano et al. 2016; Olalde et al. 2018; 2019; Reich 2018; Valdiosera et al. 2018; Brunel et al. 2020.

21 Bosch Gimpera 1942; Hoz 1992; Lorrio & Ruiz Zapatero 2005; Alberro & Jordán 2008; Brandherm 2013a.

22 Dillon & Chadwick 1967; Harbison 1975; Renfrew 1987; Cunliffe 2001.

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 *aes* ~ Gothic *aiz*, Old Norse *eir*, Old High German *ēr*), whereas Germanic and Celtic uniquely shared **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 *áyas-* ‘copper, iron’, Avestan *ayah-* ‘metal’, it is evident that **H₂eyes-* or **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 and Italic 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 *Kelten* to the south and west and *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

24 O’Brien 2004; Fitzpatrick 2013; Gibson 2013; Cleary 2016; Cleary & Gibson 2019; cf. Cunliffe 2013, 211–13.

25 Krahe 1954; Schmidt 1984; 1986a; 1991; van Coetsem 1994, 192; Fulk 2018, 7.

26 Schmidt 1996; 2012; cf. Isaac 2010; Falileyev & Kocharov 2012.

27 ‘Die Voraussetzungen für keltisch-germanischen Sprachkontakt waren über lange Zeit ausgesprochen günstig: In der zweiten Hälfte des letzten Jahrtausends vor der Zeitenwende grenzte das keltische Sprachgebiet in Mittel- und Westeuropa über mehrere hundert Kilometer an das germanische Sprachgebiet: Die Übergangszone zwischen den beiden Sprachgebieten dürfte grob von der Rheinmündung flussaufwärts verlaufen sein, dann quer durch die Mitte des heutigen Deutschland und durch das heutige Tschechien bis zum Westen der heutigen Slowakei’ (Schumacher 2007, 169).



Figure 3. Celtic and Germanic linguistic territories and contact zone in the Iron Age ~500 BC–1 BC/AD according to Schumacher 2007.

the *Cimbri*.²⁸ Their northern origin in probably Germanic-speaking territory is favoured by their name, which can be identified with the territorial name *Himmerland* (Old Danish *Himbersysel*) in North-east Jutland and the group name *Κιμβριοι* also situated in Jutland in the Geography of Ptolemy (II, 11.7).

The Cimbri's migrations and a series of major conflicts between ~120 and 101 BC brought them within the purview of Roman and Greek historians. Some of these, such as Appian (Civil Wars), identified the Cimbri as Celts. Others, including Caesar (*De Bello Gallico* §1.33) and Tacitus (*Germania* §37), classed them as *Germani*. However, the primary implication of that identification was that the Cimbri hailed from east of the Rhine. It does not guarantee that they spoke a Germanic language.

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 *Morimarus*, 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 *Κιμβριοι* 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 *Maroboduus* 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 **Māro-bodwos*, a purely Celtic name, and there is no basis to see in it a Celticization of an unattested Germanic **Mærabadwaz*. Nonetheless, the Marcomanni themselves, at least most of them, were probably Germanic speakers (2007, 171).

28 Powell 1983, 189–90; Cunliffe 1992, 140–4; Busse & Koch 2006a.

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 *[k^himbroi], later *[k^himbri:], even if they learned it from Germanic speakers who said *[χimbriz]. Once again, this evidence is consistent with the Cimbric 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 did 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.³¹ 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.³² 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

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

32 Silva et al. 2017; Valdiosera et al. 2018; Malmström et al. 2019; Olalde et al. 2019; Linderholm et al. 2020; cf. Goldberg et al. 2017.

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).

33 Cf. Mallory 1989; Mallory & Adams 1997; Anthony 2007; Anthony & Ringe 2015.

34 Cf. Helms 1988; Kristiansen & Suchowska-Ducke 2015; Vandkilde 2016; Ling & Koch 2018.

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 **k^w *g^w *g^{wh}*, as **k g *gh*, and the palatal series **k̑ *g̑ *gh̑* 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 *k^w g^w g^{wh}* are preserved. *Satəm* and *centum*, used to name these contrasting outcomes, are respectively the Avestan and Latin words meaning ‘100’ < Proto-Indo-European **k̑mtóm*. Though the *satəm* 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*.

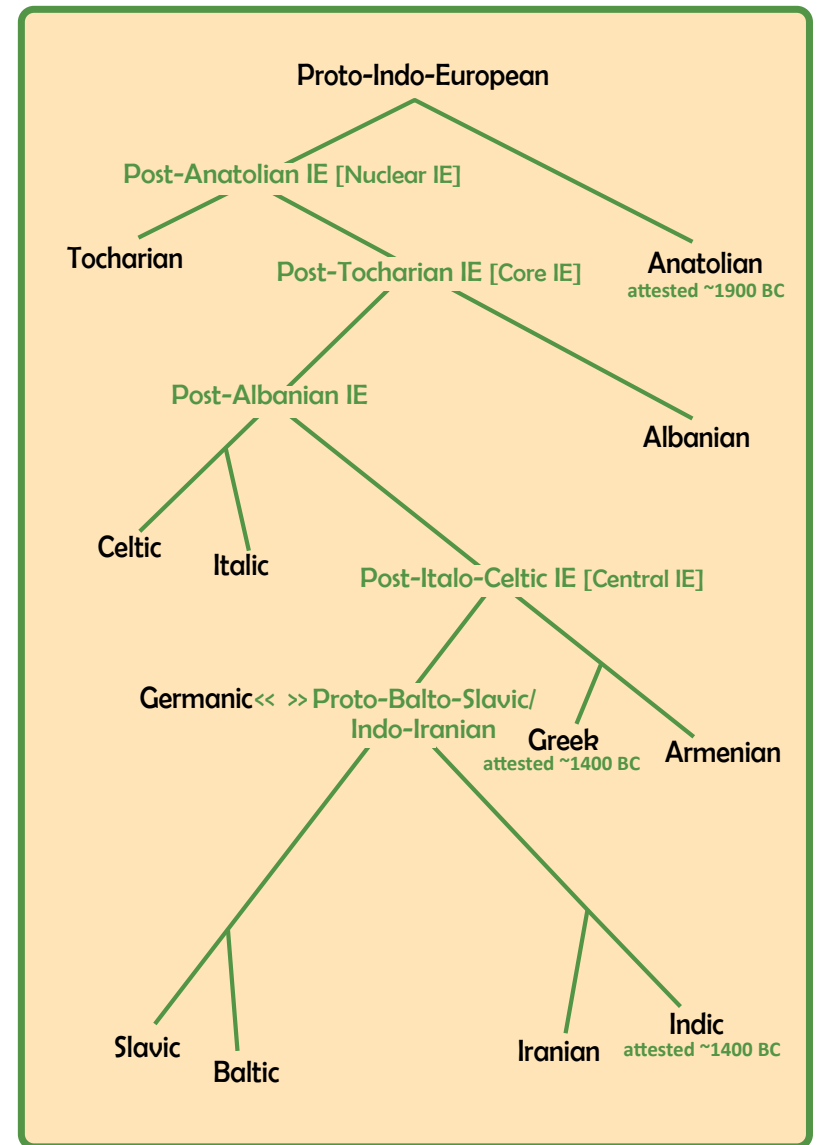


Figure 4. First-order subgroups of Indo-European: simplified adaptation of the Indo-European family tree of Ringe, Warnow, and Taylor (2002), indicating the close association of Italic and Celtic and the anomalous position of Germanic.

One of the most familiar ways of representing the history of a 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 (cf. Mallory & Adams 2006, 71–3).

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

37 Koch 1992b; McCone 1996; Matasović 2008.

38 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 *R̥gveda* 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 *R̥gveda*. 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 *R̥gveda*. 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.

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’.

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

39 Allentoft et al. 2015; Haak et al. 2015; cf. Anthony & Brown 2017a; Reich 2018.

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



Figure 5. Anatolian, Post-Anatolian Indo-European, and some cultures and migrations up to ~2500 BC.

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 *satəm* Indo-Iranian languages from the time the earliest of them was attested (as the closely similar Mitanni Indic and Vedic Sanskrit).⁴¹ 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.⁴² 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

41 See Mallory & Mair 2000; Anthony 2007; Mallory 2015; Kroonen et al. 2018. On the *centum* and *satəm* branches of Indo-European, see above FN 35.

42 Support for an Italo-Celtic proto-language in current published research includes Jasanoff 1997; Ringe et al. 2002; Holm 2007; Schrijver 2006; 2016; Kortlandt 2007; 2018; Schumacher 2007, 168; Weiss 2012; Hamp 2013; Kroonen 2013; Chang et al. 2015; Pereltsvaig & Lewis 2015, 71.

one side and Indo-European on the other (Hamp 1998; 2013). Hamp’s ‘Indo-European’ is therefore what is called ‘Post-Anatolian Indo-European’ here.

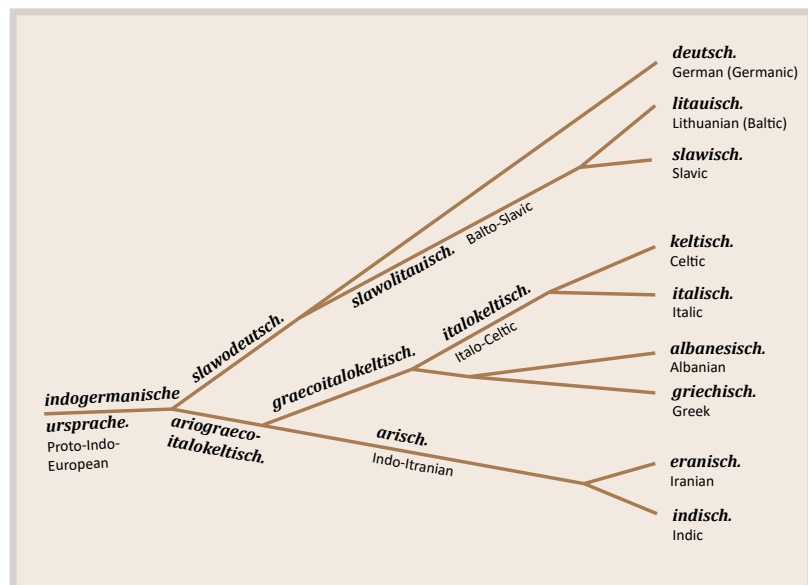


Figure 6. The Indo-European family tree published by August Schleicher in 1861 anticipated groupings universally accepted (Balto-Slavic and Indo-Iranian) or widely accepted (Italo-Celtic) today. At the time, Anatolian and Tocharian were not yet discovered.

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).⁴³

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

43 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 by Italic (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.

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.⁴⁴ 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.

44 Figure 4; §25; similarly Anthony 2007, 56–8; Reich 2018, Fig. 14b. The scheme of Kortlandt 2018 is in key respects similar to that of Ringe et al. as adopted by Anthony. Anatolian is the first split, Tocharian the second, then Italo-Celtic. The final split is between Indo-Iranian and Balto-Slavic. However, Kortlandt’s model involves an unattested Indo-European language in prehistoric North-east Europe, ‘Temematic’, which has contributed substratum effects to Baltic and Slavic (Holzer 1989; Matasović 2014; van der Heijden 2018). Holzer’s theory is not falsified by the evidence studied here, but has not been found useful in explaining it either.

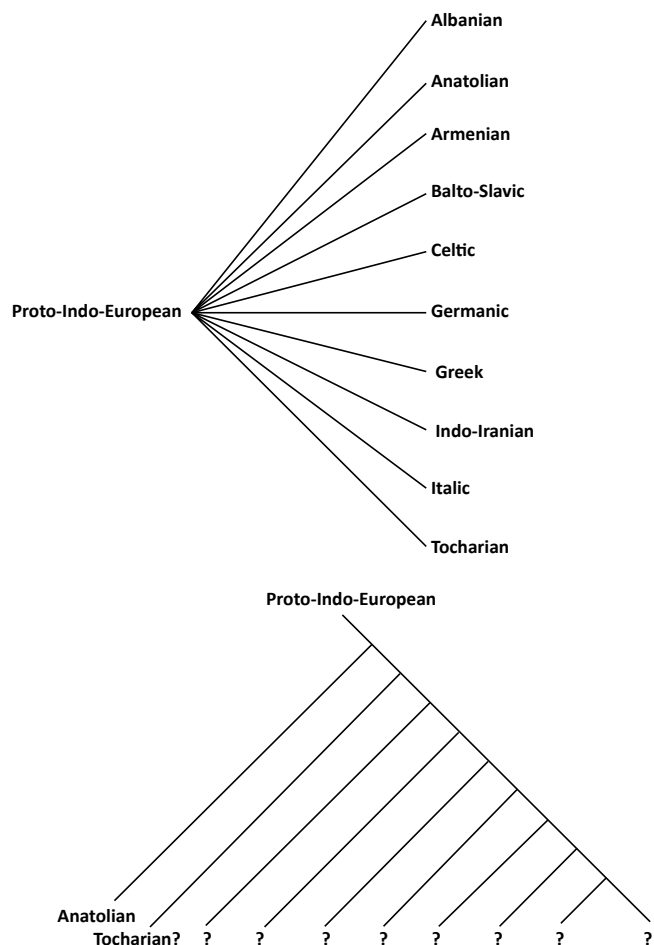


Figure 7. Bad trees? If we recognize no common ancestral languages between Proto-Indo-European and the 10 primary branches, that implies either the impossible situation of the proto-language undergoing a ten-way split or a series in which each branch split off as a unique new language from a residual core, in no agreed-upon order after Anatolian first and probably Tocharian second.

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 **pagai-* ~ **pagja-* < [PRE-VERNER] **paxē-* [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'.

BREAK *bhrg-n-. ● Proto-Germanic ***bruk(k)ōn-** ‘to break, crumble’: Gothic *brak* ‘broke’, Norwegian *broka* ‘to break, bite, tear’, Old English *bræk* ‘broke’, Old Saxon *brak* ‘broke’, Middle Dutch *brocken, broken* ‘to bend, break’, Old High German *brah* ‘broke’, Middle High German *er-brochen* ‘to crush, squash’, cf. Old High German *brocko* ‘chunk, crumb’; ● Proto-Italic ***frag-n-**: Latin *frangō, frangere* ‘break’. ¶ *vbhrg-neH₂-*.

BUD *bhrd-n-. ● Proto-Germanic ***brut(t)ōn-** ‘to bud’ [PRE-GRIMM 2]: Middle High German *brozzen*; ● Proto-Italic ***frodni-**: Latin *frōns, frondis* ‘foliage, leaves’.

FLESH, MEAT *kar-. ● Proto-Germanic ***harunda/ō-** [PRE-GRIMM 1]: Old Norse *hǫrund* ‘human flesh, skin, complexion’; ● Proto-Italic nominative ***kerō(n)**, accusative ***kar(V)n-**: Latin *carō, carnis*.

GOAT *ghaido-. ● Proto-Germanic ***gait-** ‘goat’ [PRE-GRIMM 2]: Gothic *gaits*, Old Norse *geit*, Old English *gāt*, Old Saxon *gēt*, Old High German *geiz*; ● Proto-Italic ***yaid-**: Latin *haedus* ‘young goat-buck, kid’.

HOLY *weik- ~ *wik-. ● Proto-Germanic ***wīha-** < Pre-Germanic ***weiko-** [PRE-GRIMM 1]: Gothic *weihs*, Old High German *wīh*; ● Proto-Italic ***wiktVmā-**: Latin *victima* ‘sacrificial animal’.

SCOOP, PORE *aus-. ● Proto-Germanic ***ausan-**: Old Norse *ausa* ‘to sprinkle, pour’, Old Dutch *osen* ‘to scoop out, make empty’, Middle High German *ōsen, æsen* ‘to scoop out, make empty’; ● Proto-Italic ***ausye/o-**: Latin *hauriō, haurīre* ‘to draw, scoop up’. ¶ Notional Proto-Indo-European *VH₂eus-*.

SPEAR *sperH- ~ *sprH-. ● Proto-Germanic ***speru-** ‘spear’ < **sperH-u-*: Old Norse *spjǫrr*, Old English *spere*, Old High German *sper*; also Old Norse *spar(r)i* ‘roof-beam, pole, spar’; ● Proto-Italic ***sparo-** < **sprH-o-*: Latin *sparus* ‘hunting spear, javelin’. ¶ Albanian *shparr* ‘oak’. ¶ Middle Welsh *ysbar* ‘spear’ is a loanword from Latin *sparus*.

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-)knéig^wh-é-*, 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 ***fafā-**: 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-** ‘beard’: Crimean Gothic *bars*, Old Norse *barð* ‘rim, edge, prow, beard’, Old English *beard*, Old Frisian *berd*, Old High German *bart*; ● Proto-Italic ***farfa-**: Latin *barba*; ● Balto-Slavic: Old Prussian *bordus* ‘beard’, Lithuanian *barzdà*, Russian *borodá*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

DREGS *dhraghi-. ● Proto-Germanic ***dragjō-**: Old Norse *dregg* ‘dregs, yeast’; ● Proto-Italic ***frak-**: Latin *fracēs* ‘fragments of olive pulp left after pressing’; ● Balto-Slavic: Lithuanian *drāgės* ‘dregs, sediment’, Old Prussian *dragios* ‘dregs’, Old Church Slavonic *droždije* ‘dregs’. ¶ [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 ***sloug(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.⁴⁵ 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\\il**. This text can be understood as comprising one compound Germanic name **hari-gasti(z)** ‘WARBAND’+‘GUEST’ and the divine name ‘the god Týr’ 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 *ō* and *ǣ*. **-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 $\check{a} < \check{o}$. 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.⁴⁶

Another relatively early example in which Grimm 1 and Germanic $*\check{o} > *\check{a}$ 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.⁴⁷ 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.⁴⁸ 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).

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 ***Baihaima** 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-**.

⁴⁸ See trans. Hutton & Peterson 1914; trans. Mattingly 1948.

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.

A further illustration of a loanword into Germanic that shows earmarks for a later historical context is ***papa-** ‘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 $*p, *r *l *m *n > *ri *li *am *an$, and $*ē > *ī$ would have interfered with mutual intelligibility with Pre-Germanic. On the Germanic side, $*r *l *m *n > *ur *ul *um *un$ 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 *Κελτοί* 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 élite. 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).

Usually counted as relatively early in the sequence of sound shifts between Proto-Indo-European and Proto-Germanic is the transformation of the syllabic resonants **r*, **j*, **m*, and **n* (preceding a consonant) to Pre-Germanic **ur*, **ul*, **um*, and **un*. Because the Celtic reflexes of the four syllabic resonants were completely different (§19), these opposed sound changes can provide a diagnostic for loanwords: for example, Proto-Germanic **ambahtaz* ~ **ambahta*- 'PERSON ACTING ON BEHALF OF A SUPERIOR' < Proto-Celtic **ambaxtos* ~ **ambaxtā* < notional Proto-Indo-European **H₂m̥bʰi+H₂eĝ-+-tó-* 'one sent around' (§20); contrast the Proto-Germanic form of the preposition **umbi-*.

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

50 See Gimbutas 1997; Harrison & Heyd 2007; Allentoft et al. 2015; Haak et al. 2015; Heyd 2017; Kristiansen et al. 2017; Iversen 2019; Malmström et al. 2019; Olander 2019. In Scandinavia CWC is represented by the Single Grave culture in Denmark and the Battle Axe culture in Norway and Sweden.

51 E.g. van Coetsem 1994, 136; Nielsen 2000, 29–31, 299–303; Faarlund 2008.

52 Kroonen 2013, xxvii; Ringe 2017, 113–22; Fulk 2018, 102–7, 110–12.

- Grimm 1 **p, *t, *k, *k^w > *f [ɸ], *b [θ], *h [χ], *h^w [χ^w];*
- followed by Grimm 2 (**b*)⁵³ **d, *g, *g^w > (*p,) *t, *k, *k^w;*
- followed by Grimm 3 **bh, *dh, *gh, *g^wh > *b [β], *d [ð], *g [ɣ], *g^w [ɣ^w].*⁵⁴

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 *qunnabu*, *qunnapu*, *qun(u)bu* in records of the Assyrian Empire, a few centuries before Herodotus. Balto-Slavic cognates, such as Lithuanian *kanāpės*, 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/κάνναβις. 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 [ɸ], *b [θ], *h [χ], *h^w [χ^w]* became **b [β], *d [ð], *g [ɣ], *g^w [ɣ^w]* 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 **ph₂tér* became Pre-Germanic ***fapér** by Grimm 1, then ***faðér** by Verner’s Law, then Proto-Germanic ***fáðer** with the accent shift, Old Norse *faðir*. 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.⁵⁵

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

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, *g^wh > *b, *d, *g, *g^w* — 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 **ǣ* as **ǣ*. This change might reveal a loanword, after it occurred, from Germanic to Celtic, as Celtic preserved short **ō*. **ō* > **ǣ* 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, xli). 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* > **ǣ* 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 **ō*. 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, xli)—**ā* > **ō* had yet to occur when Pre-Germanic and Pre-/Proto-Celtic were in contact in the Bronze Age.

Those six changes—

- 1 **r*, **l*, **m*, **n* > **ur*, **ul*, **um*, **un*
- 2 **ō* > **ǣ*

- 3 **ō* and **ā* > **ā* (> **ō*)⁵⁶
- 4 Grimm’s Law (1–3)
- 5 Verner’s Law
- 6 the Germanic accent shift

—go a long way towards transforming Proto-Indo-European into Germanic phonologically. Of these changes, **r* **l* **m* **n* > **ur* **ul* **um* **un*, **ō* > **ǣ*, 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 *[æ:].⁵⁷ In Proto-Northwest Germanic, Proto-Germanic **ē* [æ:] > **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, **r* **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, xli), 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 [ə] 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: **ā* **e* **i* **u* and **ā* **ē* **ī* **ū*. **ā* **e* and **ā* **ē* were realized phonetically as *[ɔ] *[æ] and *[ɔ:] *[æ:] (1994, 98–113, 194).

§17. Relative chronology 1: CG, ICG, CGBS, and ANW words showing direct evidence for the Grimm 1 sound change (*p, *t, *k, *kʷ > *f, *þ, *h, *hʷ)

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-patér > PRE-

VERNER *Ala-faper > *Ala-fader

AXE *bhei(a)tlo- > *bīpla-

AXLE *aks(i)l- > *ahsula-

BATTLE, FIGHTING, VIOLENCE 2 *katu- > *hapu-

BATTLE, FIGHTING, VIOLENCE 3 *weik- > *wīh-

BATTLE, FIGHTING, VIOLENCE 4 *treg- > *þrakja-

BATTLE, FIGHTING, VIOLENCE 5 *nīt- > *nīpa-

BATTLE, FIGHTING, VIOLENCE 6 *nant- > *nanþjana-

BATTLE-WOLF > HERO *katu-wl̥kʷo- > *hapuwulfaz

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 *χulpa- >]

*hulda-

DISCUSSION (?) *trapto- > *þrafta-

ENCLOSED FIELD *kaghyo- > *hagjō-

ENCLOSURE *katr- ~ *kētr- > PRE-VERNER *hēþr- > *hēðr-

EVIL *elko- ~ *elkā- ~ *elkyo- > *elhja-

EXTREMITIES OF A LIVING THING *pinn- > *fin(n)ōn-

FELLOW TRAVELLER, COMRADE *sentiyo- > *(ga-)sinþja-

FEVER *krīt- ~ *krit- > *hrīþan- ~ *hrittan-

FLOOR *plōro- > *flōruz

FOE *poiko- > *faiha- ~ *faiga-

FREE *priyo- ~ priyā- > *frija-

GOD-INSPIRED *wātis > PRE-VERNER *wāþaz > *wōðaz

GOOD, DESIRABLE *swent- ~ *sunt- > *swinþa- ~ *sunþa-

GREAT/FAMOUS IN BATTLE *Katu-mōros ~ -mēros > *Hapu-mēraz

GREY *keiro- ~ *koiro-

HAIR, STRAND OF HAIR *doklo- > PRE-VERNER *taχla- > *tagla-

HARBOUR, SHELTER FOR VESSELS *kapono- > PRE-VERNER

*χαφana- > *habanō-

HEAP, MOUND, PILE, RICK *krouko- > *hraukaz

HOLLY *kuleno- ~ *kolino- > *hulba- ~ *hulisa- ~ *hulena-

HORSE 1 *markos > *marhaz

HORSE 2 *kankistos > *hangistaz ~ *hanhistaz

HORSE+RIDE *ekwo-reidho- > *ehʷa-rīdaz

JOKER, FOOL *drūto- > *trūþa-

KING OF THE PEOPLE *teuto-rīg-s > *þiuda-rīk-s

LEATHER *letrom > *leþra-

LEFT, LEFT-HAND *kley- ~ *kli-

LEPROSY *truts- > *þruts-

LOAD, CARRY A LOAD *kleut- ~ *klat- > *hlaþan-

LONG *sit- ~ *seit- > PRE-VERNER *sīþa- > *sīda-

MILITARY COMMANDER *koryonos > *harjanaz

MOUND, EARTHWORK *wert- > *werþa-

NATURALLY OVERGROWN LAND *kaito- > *haiþja-

NURTURER, PERSON ACTING AS A PARENT (?) *altro- > PRE-VERNER

*alþra- > *aldra-

OATH, BIND BY OATH 1 *oitos > *aiþaz

OATS, BROMUS *korkró- > *hagran-

OMEN, FORESIGHT *kail- > *hail-

ONE-EYED, BLIND IN ONE EYE *káikos > *haiha-

OVERCOME IN BATTLE *uper-weik- ~ *uper-wik-

PATH, ROAD, WAY, PASSAGE *sento- > *sinþaz

PLEASANT, FAIR *teki- > *þakkja- ~ *þekka-

POETRY, STORYTELLING *sketlo- ~ *skōtlo- > *skāþla-

PROSPER, FORTUNE *tenk- ~ *tonk- > *þinhan-

RELATIVE, FRIEND 2 ***priyānt-** > ***frijand-**
 ROD, STAFF, LONG SLENDER PIECE OF WOOD ***(s)lat(t)-** > ***lapa-**
 ROOF ***togo-** > ***paka-**
 SACRED GROVE, SANCTUARY ***nemet-** > ***nemipa-**
 SETTLEMENT, FARMHOUSE **treb-** ~ ***tr̥b-** > ***purpa-**
 SHAKE ***skut-** > PRE-VERNER ***skup-** > ***skudjan-**
 SHIELD (?) 1 OF WICKER ***kleibho-** > ***hlīf-**
 SIEVE, STRAINER 1 ***sētlā-** > ***sēpla-**
 SKIN 1 ***kenno-** > ***hinnō-**
 SKIN, HIDE 2 ***sekyā-** > PRE-VERNER ***sexyā-** > ***segja-**
 SLING ***telm-** > ***pelmi-**
 STONE MONUMENT ***kar-** > ***hargu-**
 STREAM, LIQUID IN MOTION ***sret-** > ***strepan-**
 STRENGTH, FORCE, VALOUR ***nert-** > ***nerpu-**
 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)-** ~ ***kr̥b(h)-** > ***hrappa-**
 THICK, FAT ***tegu-** > ***peku-**
 THREAD, FATHOM ***pot(a)mo-** > ***fapma-**
 THUNDER, THUNDER GOD 1 ***ton(a)ros** > ***pun(a)raz**
 TROUGH, TUB, VESSEL ***druk-** > ***truxa-**
 WEREWOLF ***wiro-wulpo-** > ***wira-wulfa-**
 WILD DOG, WOLF ***widhu-kō(n)** > **widuhundaz**
 WILD, WILDMAN ***g^whelti-** > ***wilpiz**
 WITNESS ***weidwōts** G2 G1 MI
 WOLF, PREDATOR = WARRIOR OUTSIDE THE TRIBE
 WORTH, PRICE ***wertō-** > ***werpaz**
 WOUND, INJURE 2 ***knit-** > ***hnītana-**
 WOUND, INJURE 5 ***koldo-** > ***halta-**
 WOUND, INJURE 6 ***kre(n)g-** ~ ***krog-** > ***hrakjan-**

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

ADDER, SNAKE, VIPER ***natr-** ~ ***nētr-** > PRE-VERNER ***napra** ~ ***nēpr-** > ***nadra-** and ***nēdrōn-**
 BADGER ***takso-** > ***pahzu-**
 BLOW, BREATHE ***spei-** > ***fisan-**
 BOW AND ARROW ***ark^wo-** > ***arh^w-ō-**
 CURLY HAIR ***krisp-** > ***hrispon-**
 DEVICE THAT LEANS AGAINST SOMETHING UPRIGHT, LEANTO ***kleitro-** ~ ***kleitrā-** ~ ***klitro-** > ***hlīpra-**
 FISH ***pisko-** > ***fiskaz**
 FREEZE, FROST ***preus-** > ***freusan-**
 FRESH WATER 2 ***ak^wā-** > ***ah^wō-**
 FURROW ***porkā** ~ ***pr̥kā-** ~ ***prko-** > ***furh-**
 HARROW ***oketā-** > PRE-VERNER ***axipā-** > ***agipō-**
 HATRED ***kad-** > ***hatiz**
 HEAD ***káput** > PRE-VERNER ***hafupa-** > ***ha(u)beda-** ~ ***ha(u)buda-**
 HELMET OF TIN-BRONZE (?) ***katsti-** ~ ***kāt-** > ***hōda-** ~ ***hattu**
 HIDE, CONCEAL 2 ***kele/o-** > ***huljan** ~ ***helan**
 LIGHTNING ***louk-** > ***lauhatjana-**
 MADE CAPTIVE, BOUND, SLAVE ***kaptós** > ***hafta-**
 NECK ***kólsos** > ***halsa-**
 NUT ***knu-** > ***hnut-z**
 OAK, TREE ***perk^wo-** > ***ferhwa-**
 REAPING, MOWING, HARVEST ***met-e/o-** ~ ***mēto-** > ***mēpa-** ~ ***mapa-**
 SACRIFICE, OFFERING ***dapno-** ~ ***dapnā-** > ***tafna-**
 SHARP EDGE ***akyā-** > PRE-VERNER ***axjā-** > ***agjō-**
 SOFT ***lento-** ~ ***lnto-** > ***linpa-**
 SPEAK 3 ***yek-** ~ ***yok-** > ***jehan-**
 THINK (?) ***tong-** > ***pankjan-**

c. Celto-Germanic/Balto-Slavic — 16 examples (47%) of 34 words

ARABLE LAND, PLOUGHED FIELD ***polkā** > PRE-VERNER ***falχā-**
 > ***falgō-**
 ARMY, TRIBE ***kóryos** > ***harjaz**
 DOUGH ***tais-** > ***paismjan-**
 HERD (OF CATTLE), SERIES ***kerdhā** > ***herdō-**
 HOMESTEAD ***koimo-** > ***haima-**
 LEATHER BAG, BELLOWS ***mokon-** ~ ***mokīnā-** > PRE-VERNER
***maχan-** > ***magan-**
 LUCK ***kobom** > ***hap-**
 MAGIC, SORCERY ***soito-/ā-** > PRE-VERNER ***saiβa-** > ***saida-**
 MANY ***menek-**, ***monek-** > PRE-VERNER ***manaχa-** > ***managa-**
 MOVE QUICKLY, STIR ONESELF, JUMP ***skek-e-** ~ ***skok-eye-** >
***skehan-**
 REACH TO, ENTREAT (?) ***tekye-** > ***pegjan-**
 ROOFED OUTBUILDING ***krōpos** > ***hrōfa-**
 SHAKE ***kret-** > ***hratt/dōn-**
 THUNDER, THUNDER GOD 2 ***Perk^wunos** > ***fergunja-**
 WET ***welk-** ~ ***wolk-** > ***walχ-**
 WETLAND ***pen-** > ***fanja-**

d. Italo-Celtic/Germanic/Balto-Slavic (ANW) — 9 examples (36%) of 25 words

ANGELICA (?) ***k^wóndhr/n-**. Proto-Germanic ***hwannō-**
 HAZEL ***kós(V)los** > ***hasla-**
 LEFT, LEFT-HAND ***kley-** ~ ***kli-** > ***hleī-**
 LOVE, DESIRE 2 ***kāros** > ***hōraz**
 PEOPLE, TRIBE ***teutā** > PRE-VERNER ***peupa-** > ***peuda-** ~ ***piuda-**
 PORTABLE WOODEN FRAMEWORK ***korb-** > ***harpōn-**
 SHIELD 2 ***skeltu-** (***skeito-**) > PRE-VERNER ***skelpus** > ***skelduz**
 WARM ***klēwo-** > ***hlēwa-**
 WHEEL ***rotos** ~ ***rotā** > ***rapa-**

§18. Relative chronology 2: CG, ICG, CGBS, and ANW words showing direct evidence for the Grimm 2 sound change ((*b,**) ***d,** ***g,** ***g^w** > (***p,**) ***t,** ***k,** ***k^w**)**

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-** ~ ***glōwo-** > ***kula-** ~ ***kulan-**
 DARK, BLOOD-RED ***dhergo-** > ***derka-**
 DIGIT, FINGER, TOE, BRANCH ***g^wistis** > ***k^wistiz**
 DRESS PIN, BROOCH ***dhelgo-** ~ ***dholgo-** > ***dalka-**
 DROPLET, DRIP ***dhrubh-** ~ ***dhrūbh-** > ***drup(p)an-**
 DWARFLIKE CREATURE, WATER CREATURE ***aban-** > ***apan-**
 ENCLOSURE, ENCLOSED SETTLEMENT, HILLFORT 2 ***dūnos** > ***tūna**
 FOREIGNER ***alyo-morgi-** > ***alja-markiz**
 HAIR, STRAND OF HAIR ***doklo-** > ***tagla-** [also pre-Grimm 1]

HEALER, PHYSICIAN, LEECH ***lēgi-** > ***lēkijaz**
 HIDE, CONCEAL **1 *mūg-** > ***mūk-**
 JOKER, FOOL ***drūto-** > ***trūpa-** [also pre-Grimm 1]
 KING, LEADER ***rīg-** (< ***rēg-**) > ***rīk-**
 KINGDOM, REIGN, REALM ***rīgyom** ~ ***rīgyā** > ***rīkija**
 KING OF THE PEOPLE ***teuto-rīg-**
 MANE ***mongo-** ~ ***mongā-** > ***mankan-**
 PINE ***gisnó-** > ***kizna-**
 POINT ***bend-** ~ ***būd-** > ***pint-**
 ROOF ***togo-** > ***baka-** [also pre-Grimm 1]
 SETTLEMENT, FARMHOUSE **treb-** ~ ***trīb-** > ***purpa-** ~ ***porpo-** [also pre-Grimm 1]
 SPEAR-KING ***Ghaiso-rīg-** < ***-rēg-** BA RA G2
 SPLIT, SPLINTER ***splid-** ~ ***splīd-** > ***splītan-**
 STRIPE ***streibā** > ***strīpa-** ~ ***strīpōn-**
 STRIVE, SUCCEED ***pleid-** > ***flītana-** [also pre-Grimm 1]
 STRONG/VICTORIOUS FORTIFIED SETTLEMENT ***segho-dūno-** > ***sigatūna-**
 SWIFT ***krob(h)-** ~ ***krb(h)-** > ***hrappa-** [also pre-Grimm 1]
 THICK, FAT ***teigus**, feminine ***tegwī** > ***pekuz** ~ ***pikwī** [also pre-Grimm 1]
 TROUGH, TUB, WOODEN VESSEL ***druk-** > ***truga-** [also pre-Grimm 1]
 TRUSTWORTHY, RELIABLE ***droudo-** ~ ***drusd-** > ***trausta-**
 VESSEL, CONTAINER FOR LIQUID ***gan(dh)-no-** > ***kannō**
 WITNESS ***weidwōts** > ***weitwāps** [also pre-Grimm 1]
 WOUND, INJURE **5 *koldo-** > ***halta-** [also pre-Grimm 1]
 WOUND, INJURE **6 *kre(n)g-** ~ ***krog-** > ***hrakjan-** [also pre-Grimm 1]

b. Italo-Celtic Germanic (ICG) — 8 examples of 44, 5 not also clearly pre-Grimm 1 (11%)

CHOOSE, TRY ***gustu-** > ***kustu-**
 HATRED ***kad-** > ***hataz** ~ ***hatiz-** [also pre-Grimm 1]

KNOT, KNOTWORK, DEVICE OF KNOTWORK TO CATCH FISH, NET
***nōd-** ~ ***nad-** > ***natja-** ~ ***nōtā-**
 ORE, METAL OXIDE ***raud-** ~ ***arud** > ***arut-**
 SACRIFICE, OFFERING, RITUAL MEAL ***dapno-** ~ ***dapnā-** > ***tafna-**
 [also pre-Grimm 1]
 SMELL STRONGLY ***bhrag-** ~ ***bhrēg-** > ***brēkjan-**
 STRIKE, BEAT **3 *bheud-** > ***bautan**
 THINK (?) ***tong-** > ***pankjan-** [also pre-Grimm 1]

c. Celto-Germanic/Balto-Slavic — 4 examples of 34, 3 not also pre-Grimm 1 (9%)

BUTTER ***ang^wen-** > ***ank^wan-**
 LUCK ***kobom** > ***hap-** [also pre-Grimm 1]
 SMEAR, GLUE, STICK ***gleina-** ~ ***glina-** > ***klīnjan-** ~ ***klinan-**
 WOUND, HAFTED METAL-TIPPED WEAPON **8 *snad-** > ***snat-**

d. Italo-Celtic/Germanic/Balto-Slavic (ANW) — 3 examples of 25, 2 not also clearly Pre-Grimm 1 (8%)

BLEAT (?) ***bhled-** ~ ***bhlēd-** > ***blējan-** ~ ***blēatjan**
 CALL, SHOUT, SPEAK OUT ***gal-** > ***kalzōjan-**
 PORTABLE WOODEN FRAMEWORK ***korb-** > ***harpōn-** [also pre-Grimm 1]

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.⁵⁸ 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 **ɾ* and **l̥* > **ri* and **li* after any consonant and before a stop consonant;
- 2 **g^w* > **b*;
- 3 **bh* **dh* **gh* **g^wh* > **b* **d* **g* **g^w*;
- 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 **m̥* and **n̥* > **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 *ī*, 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). **aib^uuris** in the South-western inscriptions is probably an example of a Celtic **-rīxs* name in the Early Iron Age.⁵⁹ Note also the mythic Tartessian king *Gargaris*, 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**, **CATVRICAE**, 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).

58 Koch 2016; cf. Burgess & O’Connor 2008; González de Canales et al. 2008; Cunliffe 2017, 240–6.

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 **ṃ* and **ṇ* 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)b^aan** can be interpreted as **/u.ar_amām/*, the feminine singular accusative corresponding to Celtiberian **VERAMOS/VORAMOS** < Pre-Celtic **uperṃā/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 *Belisnius* might also be evidence for the continuation of **ṃ* as a single nasal consonant **m*, 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.

60 Cf. McCone 1996; Isaac 2007; Kroonen 2013, xli; Ringe 2017, 176.

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** > ***lepra-** [borrowed after the loss of **p* in Celtic] [PRE-GRIMM 1], showing that Pre-Celtic **p* > **φ* > **∅* in this position had occurred before **t* > **p* 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-** (< ***-rēk-**) > ***piuda-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 ***piuda-** ‘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 ***mbhaktos**) > ***ambahtaz** showing Pre-Celtic **m* > **am*.

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-**.⁶²

¶ 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].

¶ Implications of the examples above.

- 1 The sequence Pre-Celtic **p* > **φ* > **∅* 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 **g^w* > **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).⁶³ 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 2.⁶⁴

⁶² Kroonen (2013, 526): ‘A Pre-G[ermanic] loanword from Celtic **dūno-*...’

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.

⁶⁴ In Isaac’s list this is step 17, immediately after **φ* (< **p*) > **∅* (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 phase⁶⁵ 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)⁶⁶

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.

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).

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 et 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).

67 Horn 2014; Artursson 2015; Iversen 2014; 2015a; 2015b; 2019.

2000 BC							1000 BC					BC/AD		
							Pre-Germanic ~1900–500/400 BC					Proto-Germanic ~500/400–300 BC/AD 1		
Pre- > Proto-Italo-Celtic ~2500–1800 BC							Pre-Celtic ~1800/1500–1200 BC		Proto-Celtic ~1200–900 BC			written SW Celtic ~750–400 BC, Lepontic ~650–100 BC, Gaulish ~500 BC–AD 400, Ogamic Primitive Irish ~AD 375–600		
							Pre-Italic ~1800–1500 BC	Proto-Italic ~1500–1000 BC						written Latin ~550 BC –, South Picene ~550–450 BC, Oscan ~550 BC–AD 100, Venetic ~525–100 BC

Figure 8. Table summarizing approximate date ranges for reconstructed Indo-European languages in Western Europe: Pre-Germanic and Proto-Germanic, Pre- and Proto-Italo-Celtic, Pre- and Proto-Celtic, Pre- and Proto-Italic.

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



Figure 9. Migrations, cultures, and proto-languages after ~2500 BC.

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/Afnasievo, which lacks EMN.⁶⁸ 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 Afnasievo 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.⁶⁹ 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

⁶⁹ Lamberg-Karlovsky 2005; Parpola & Carpelan 2005; Anthony 2007; Kohl 2007; Koryakova & Epimakhov 2007, 57–66; Kuz'mina 2007; Cunliffe 2015, 130–8.

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 (Frieze 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

71 Silva et al. 2017; cf. Goldberg et al. 2017; for Iberia cf. Szecsenyi-Nagy et al. 2017; Reich 2018.

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

70 Anthony 2007; Kohl 2007; Koryakova & Epimakhov 2007; Kuz’mina 2007; Cunliffe 2015, 130–8; Parpola 2015, 59, 68.

§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 *ō* and preponderance of *ǣ*, 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 *Derwennydd*. 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 *Dravantī*: Proto-Indo-European *vdreu-* ‘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 *ǣ* is striking and specifically names beginning with *ǣ-*, 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?

us how and when the people with steppe ancestry arrived in Greece, when and where they separated from a larger pool with steppe ancestry, and whether this was indeed the vector that brought the Indo-European that evolved into Greek to Greece.

73 Krahe 1962; 1964; subsequently Schmid 1998; Nielsen 2000, 300–3; Nicolaisen 2008; Bichlmeier 2011; 2012; 2013.

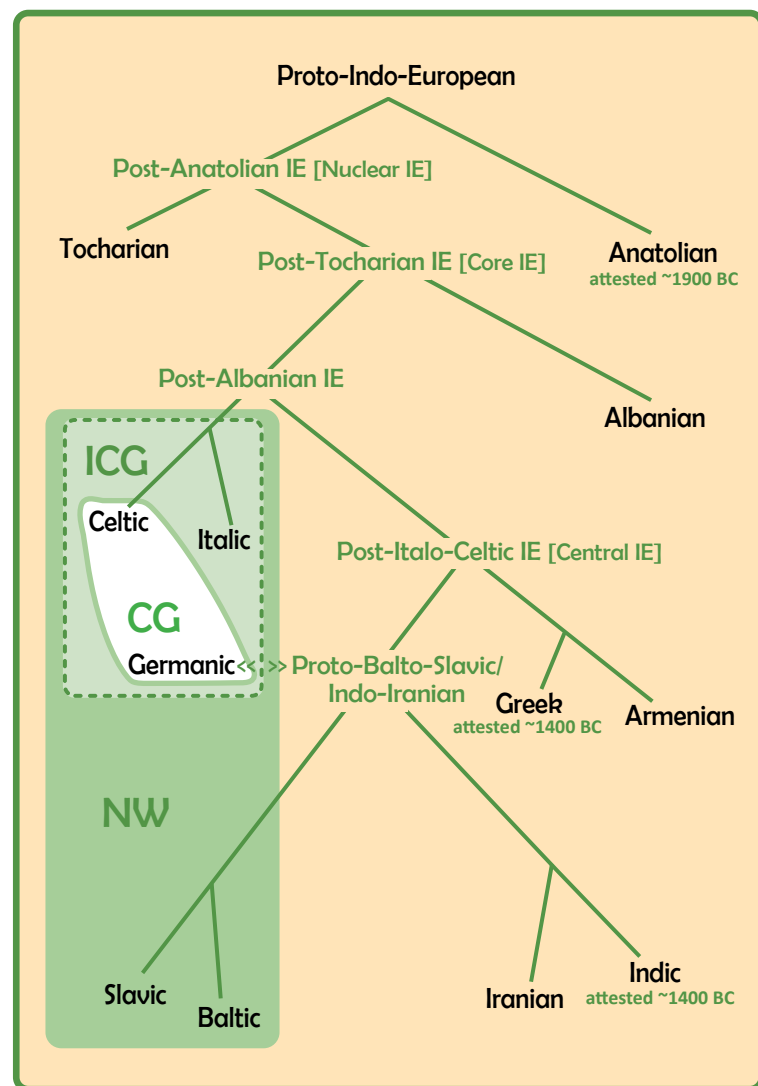


Figure 10. First-order subgroupings of Indo-European (Figure 4), showing the overlying positions of the Post-Proto-Indo-European commonalities: North-west Indo-European (NW), Italo-Celtic/Germanic (ICG), and Celto-Germanic (CG).

§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’ (***bhr̥ǵh-**) 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 *Ṛg-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.⁷⁴ 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 **H₂ekwos*, 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.

a. Celto-Germanic (CG)

i. by meaning

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

AXE ***bhei(a)tlo-** ~ ***bhei(a)l-**

AXLE ***aks(i)l-**

BATTLE, FIGHTING, VIOLENCE 1 ***bhodhwo-**

BATTLE, FIGHTING, VIOLENCE 2 ***katu-**

BATTLE, FIGHTING, VIOLENCE 3 ***weik-**

BATTLE, FIGHTING, VIOLENCE 4 ***treg-**

BATTLE, FIGHTING, VIOLENCE 5 ***nīt-**

BATTLE, FIGHTING, VIOLENCE 6 ***nant-**

BATTLE, FIGHTING, VIOLENCE 7 ***bhēgh-** ~ ***bhōgh-**

BATTLE, FIGHTING, VIOLENCE 8 ***bhrest-**

BATTLE-WOLF > HERO ***katu-włkʷo-** ~ ***katu-wolkʷo-**

BEARD ***gren-** ~ **gran-**

BLAME ***lok-**

BOAR ***basyo-**

BOATLOAD (OF PEOPLE, DOMESTIC ANIMALS, OR INANIMATE

MATERIAL OF VALUE) ***pluk-**

BOILED > PASSIONATE ***bhrut-**

BOOTY, PROFIT ***bhoudi-**

BREAST ***bhrusn-**

BUTTOCKS, THIGH, HIP ***teuk-** ~ ***tuk-**

CHARCOAL, COAL ***gulo-** ~ ***goulo-** ~ ***glōwo-**

CLOVER ***smeryon-** ~ ***semar-**

CLUB, CUDGEL, STAFF, STICK ***lurg-**

CORPSE, DEAD BODY ***kol-** ~ ***kļ-**

CORRECT, RIGHT, JUST ***rektus**

COUNTING, NUMBER ***rīma-**

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

DARK 1 ***dhem(H)-**

DARK, BLOOD-RED 2 ***dhergo-**

DEEP ***dheubhnó-** ~ ***dhubnó-** ~ ***dhubhni-**

74 Fontijn 2005; Vandkilde et al. 2006; Jantzen et al. 2011; 2014; Vandkilde 2015; Horn & Kristiansen 2018; Dolfini et al. 2018.

DIGIT, BRANCH, FINGER *g^wistis
 DISCUSSION (?) *trapto-
 DRESS PIN, BROOCH *dhelgo- ~ *dholgo-
 DROPLET *dhrub- ~ *dhrüb-
 DWARFLIKE 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- ~ *ghabhlā-
 FORTIFIED SETTLEMENT, HILLFORT 1 *bhṛgh-
 FORTIFIED SETTLEMENT, HILLFORT 2 *dhūnos
 FREE *priyo- ~ *priyā-
 FRESH WATER 1 *lindom ~ *lindhom ~ *lindhu-
 FRIEND, RELATIVE 1 *weni-
 GOAD 1 *bhrozdo- ~ *bhrzdo-
 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' *Bhṛghntes
 HOLLY *kuleno- ~ *kolino-
 HORSE 1 *marko-
 HORSE 2 *kankistos ~ *kanksikā
 HORSE+RIDE *ek^wo-reidho-
 HOSTAGE *gheislo-
 INHERITANCE *orbhyom
 INNUMERABLE, COUNTLESS *ṇ-rīm-
 INTENTION, DESIRE *mein- ~ *moin-
 IRON *isarno- ~ *īsarno-
 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-** ~ ***bŋd-**
 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-**
 RUSH (the plant) ***sem-**
 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-** ~ ***trb-**
 SHAKE ***skut-**
 SHIELD (?) 1 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 ***rōdi-**
 SPEAK 2 ***yekti-**
 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 ***seghe-dūno-**
 SUPERNATURAL BEING, PHANTOM, GHOST 1 ***dhroughós**
 SUPERNATURAL BEING, PHANTOM, GHOST 2 ***skōk-slo-**
 SUPERNATURAL BEING, PHANTOM, GHOST 3 ***ghaisto-**
 SWIFT ***krob(h)-** ~ ***kṛb(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 ***droudo-** ~ ***drusd-**

VESSEL, CONTAINER FOR LIQUID ***gan(dh)-no-**
 WEREWOLF ***wiro-kwō ~ *wiro-wl̥kʷo-**
 WHEELED VEHICLE ***weghnos**
 WILD DOG, WOLF ***widhu-kō(n)**
 WILD, WILDMAN ***gʷhelti-**
 WITNESS ***weidwōts**
 WOLF, WARRIOR OUTSIDE THE TRIBE ***wolko- ~ *wolkā-**
 WOOD, TREES ***widhus**
 WORTH, PRICE ***wertō-**
 WOUND, INJURE 1 ***bhreus-**
 WOUND, INJURE 2 ***knit-**
 WOUND, INJURE 3 ***aghlo-**
 WOUND, INJURE 4 ***gʷhen- ~ *gʷhon-**
 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)l-** AXLE
***altro-** NURTURER, 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
***bhoudi-** BOOTY, PROFIT

***bhrest-** BATTLE, FIGHTING, VIOLENCE 8
***bhreus-** WOUND, INJURE 1
***bhr̥gh-** FORTIFIED SETTLEMENT, HILLFORT 1
***Bhr̥ghntes** HIGH ONES, GROUP NAME RELATED TO 'HILLFORT'
***bhrozdo- ~ *bhr̥zdo-** GOAD 1
***bhrusn-** BREAST
***bhruto- ~ *bhrutu-** BOILED > PASSIONATE
***dhelgo- ~ *dholgo-** DRESS PIN, BROOCH
***dhemH-** DARK 1
***dhergo-** DARK, BLOOD-RED 2
***dheubhnó- ~ *dhubhnó- ~ *dhubhni-** DEEP
***dhroughós** SUPERNATURAL BEING, PHANTOM, GHOST 1
***dhrub- ~ *dhrüb-** DROPLET
***dhru(n)gh-** 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
***ekʷo-reidho-** HORSE+RIDE
***elko- ~ *elkā- ~ *elkyo- ~ *olko-** EVIL
***émo- ~ *omyom < *omó-** RED METAL
***gan(dh)-no-** VESSEL, CONTAINER FOR LIQUID
***ghabhlo- ~ *ghablā-** FORK
***ghaiso-** SPEAR 1
***Ghaiso-rīg-** SPEAR-KING
***ghaisto-** SUPERNATURAL BEING, PHANTOM, GHOST 3
***gheislo-** HOSTAGE
***ghleiwo-** 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
 *g^whelti- WILD, WILDMAN
 *g^when- ~ *g^whon- WOUND, INJURE 4
 *g^wistis DIGIT, FINGER, TOE, BRANCH
 *isarno- ~ *isarno- IRON
 *kaghyo- ENCLOSED FIELD
 *káikos ONE-EYED, BLIND IN ONE EYE
 *kail- OMEN, FORESIGHT
 *kaito- NATURALLY OVERGROWN LAND
 *kankistos ~ *kanksikā HORSE 2
 *kapon- HARBOUR, SHELTER FOR VESSELS
 *kar- STONE LANDMARK, STONE RITUAL STRUCTURE
 *katr- ENCLOSURE
 *katu- BATTLE, FIGHTING, VIOLENCE 2
 *Katu-mōros ~ -mēros GREAT/FAMOUS IN BATTLE
 *katu-wl^ko- ~ *katu-wolk^wo- BATTLE-WOLF > HERO
 *keiro- ~ *koiro- GREY
 *kelto- ~ *keltyo- STRIKE (IN BATTLE) 1
 *kenno- SKIN 1
 *kleibho- SHIELD (?) OF WICKER 1
 *kleut- ~ *klat- LOAD, CARRY A LOAD
 *kley- ~ *kli- LEFT, LEFT-HAND
 *knit- WOUND, INJURE 2
 *kol- ~ *kl- CORPSE, DEAD BODY
 *koldo- WOUND, INJURE 5
 *korkró- OATS, BROMUS
 *koryonos MILITARY COMMANDER
 *kre(n)g- ~ *krog- WOUND, INJURE 6
 *krīt- ~ *krit- FEVER
 *krob(h)- ~ *krb(h)- SWIFT
 *krouko- HEAP, MOUND, PILE, RICK
 *kuleno- ~ *kolino- HOLLY

*laiwað ~ *alauð LARK
 *lēgi- HEALER, PHYSICIAN, LEECH
 *letrom LEATHER
 *leugho- OATH, TO BIND BY OATH 2
 *leuHo- ~ *luH-s LOUSE
 *lindom ~ *lindhom ~ *lindhu- FRESH WATER 1
 *lok- BLAME
 *lubi- HEALING PLANT
 *lurg- CLUB, CUDGEL, STAFF, STICK
 *lust- SPEAR 2
 *maghus SON, YOUTH
 *marko- HORSE 1
 *mein- ~ *moin- INTENTION, DESIRE
 *mēr- ~ *mōros ~ *mōrā FAMOUS, GREAT
 *mongo- ~ *mongā- MANE (OF A HORSE)
 *mūg- HIDE, CONCEAL 1
 *nant- BATTLE, FIGHTING, VIOLENCE 6
 *nemet- SACRED GROVE, SANCTUARY
 *nert- STRENGTH, FORCE, VALOUR
 *nīt- BATTLE, FIGHTING, VIOLENCE 5
 *oitos OATH, TO BIND BY OATH 1
 *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 3
 *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
***seghe-dūno-** STRONG/VICTORIOUS FORTIFIED SETTLEMENT
***sek-s-** SEDGE
***sekyā-** SKIN, HIDE 2
***sem-** RUSH (the plant)
***sentiyo-** 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-** ~ ***srt-** STREAM, LIQUID IN MOTION
***streibā** STRIPE
***sukto-** ~ ***sukti-** SICKNESS
***swem-** SWIM < MOVE (?)
***swent-** ~ ***sunt-** ~ ***swnt-** GOOD, DESIRABLE
***tegu-** 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-** ~ ***tr̥b-** SETTLEMENT, FARMHOUSE
***treg-** BATTLE, FIGHTING, VIOLENCE 4
***truks-** 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
***wert-** MOUND, EARTHWORK
***werto-** WORTH, PRICE
***widhu-kō(n)** WILD DOG, WOLF
***widhus** WOOD, TREES
***wiro-kwō** ~ ***wiro-wl̥k*o-** 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 *ark^{wo}-

BROWN, DARK *dheus-

CHOOSE, TRY *gustu-

COLOUR NAME (NOT BLACK, WHITE, OR RED) *bhéH₁lus, 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 *ak^{wā}-

FURROW *porkā ~ *prko- ~ *prkā-

GOAD, POKER 2 *ghazdho- ~ *ghazdhā-

GUEST *ghostis

HARROW *oketā-

HATRED *kad-

HEAD *káput

HELMET OF TIN-BRONZE (?) *katsti- ~ *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 *kaptós ~ *kaptā-

MAST *mazdo- ~ *mazdlo-

NECK *kólsos

NUT *know- ~ *knu-

OAK, TREE *perk^{wo}-

ORE, METAL OXIDE *raud- ~ *arud ~ *rutu-

REAPING, MOWING, HARVEST *met- ~ *mēto-

SACRIFICE, OFFERING *dapno- ~ dapnā-

SEAT, CHAIR *sedlo- ~ *setlo-

SELF, PROPERTY *selbho- ~ *selwo-

SHARP EDGE *akyā- ~ *aku- ~ *āk(s)-

SIEVE, STRAINER 2 *kreidhro- ~ kreitro-

SMELL STRONGLY *bhrag- ~ *bhrēg-

SOFT *lento- ~ *lnto-

SPEAK 3 *yek- ~ *yok-

STRIKE (IN BATTLE), BEAT 3 *bheud-

THINK (?) *tong-

ii. by reconstructed form

*ak^{wā}- FRESH WATER 2

*akyā- ~ *aku- ~ *āk(s)- SHARP EDGE

*ark^{wo}- BOW AND ARROW*bhéH₁lus, 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

*ghazdhos- ~ *ghazdhā- GOAD, POKER 2

*ghostis GUEST

*gustu- CHOOSE, TRY

*kad- HATRED

***kaptós ~ *kaptā-** MADE CAPTIVE, BOUND, SLAVE
***káput** HEAD
***kat^sti-** ~ ***kāt-** HELMET OF TIN-BRONZE (?)
***kele/o-** HIDE, CONCEAL 2
***kleitro-** ~ ***kleitrā-** ~ ***klitro-** LEANTO, DEVICE THAT LEANS AGAINST SOMETHING UPRIGHT
***know-** ~ ***knu-** NUT
***kólsos** NECK
***kreidhro-** ~ ***kreitro-** SIEVE, STRAINER 2
***krisp-** CURLY HAIR
***lau-** BENEFIT, PRIZE (?)
***lento-** ~ ***lnto-** SOFT
***louk-** LIGHTNING
***mazdo-** ~ ***mazdlo-** MAST
***mesl-** ~ ***amsl-** BLACKBIRD
***met-** ~ ***mēto-** REAPING, MOWING, HARVEST
***natr-** ~ ***nētr-** ADDER, SNAKE, VIPER
***nōd-** ~ ***nad-** KNOT, KNOTWORK, DEVICE OF KNOTWORK TO CATCH FISH
***n-rīm-** INNUMERABLE, COUNTLESS
***oketā-** HARROW
***peisk-** ~ ***pisko-** FISH
***perk^wo-** OAK, TREE
***plobdho-** LEAD (metal)
***porkā** ~ ***prko-** ~ ***prkā-** FURROW
***preus-** FREEZE, FROST
***raud-** ~ ***arud** ~ ***rutu-** 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^wen-**
 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 ***krópos**
 SHAKE ***kret-**
 SILVER ***silVbr-**
 SLOETREE, BLACKTHORN (?) ***dhergh-**
 SMEAR, GLUE, STICK ***gleina-** ~ ***glina-**
 STAFF, POST ***stabho-** ~ ***stabhā-**
 SUPERNATURAL BEING, PHANTOM, GHOST 3 ***dhwes-**
 THUNDER, THUNDER GOD 2 ***perk^wunos**
 VOMIT, DEFECATE (?) ***ski-**

WET ***welk-** ~ ***wolk-**
 WETLAND ***pen-** ~ ***pŋ-**
 WOUND 8 ***snad-**

ii. by reconstructed form

***angʷen-** 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-** ~ ***lŋdh-** OPEN LAND
***meldh-** HAMMER OF THE THUNDER GOD
***menek-** ~ ***monek-** MANY
***mokon-** ~ ***mokīnā-** LEATHER BAG, BELLOWS 2
***morā** MALEVOLENT FEMALE SPIRIT
***pen-** ~ ***pŋ-** 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
***tais-** DOUGH
***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 ***bhar-**
 GUEST ***ghostis**
 HAZEL ***kós(V)los**
 HENBANE ***bhélōn**, genitive ***bhlínós**
 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-**

WARM *klēwo- ~ *klewo- ~ *klēyo- ~ *kļtō- ~ *kļ-
WHEEL *rotos ~ *rotā

ii. by reconstructed form

*al(i)sno- ALDER
*bhar- GRAIN
*bhei- BEE
*bhélōn, genitive *bhlnós HENBANE
*bhlag- STRIKE 4 (?)
*bhled- ~ *bhlēd- BLEAT (?)
*dhgh(e)m- ~ *dhghom- HUMAN BEING < EARTHLING
*el- SWAN (?)
*elmo- ~ *olmo- ~ *limo- ~ *leimo- ELM
*gal- ~ *gol- CALL, SHOUT, SPEAK OUT
*ghelwo- PALE GREEN, YELLOW
*ghostis GUEST
*kāros LOVE, DESIRE 2
*klēwo- ~ *klewo- ~ *klēyo- ~ *kļtō- ~ *kļ- WARM
*kley- ~ *kli- LEFT, LEFT-HAND
*korb- PORTABLE FRAMEWORK
*kós(V)los HAZEL
*kʷóndhr/n- ANGELICA (?)
*leubh- ~ *lubh- LOVE, DESIRE 1
*mori- SEA, LAKE
*olo- ALL
*rotos ~ *rotā WHEEL
*se- ~ *seg- ~ *sē- SOW, PLANT SEED, SCATTER
*seug- ~ *seuk- SUCK
*skeltu- ~ *skeito- ~ *skoito- SHIELD 2
*(s)liHwo- BLUISH, PLUM-COLOURED
*teutā PEOPLE, TRIBE
*wēro- ~ *wērā- TRUE

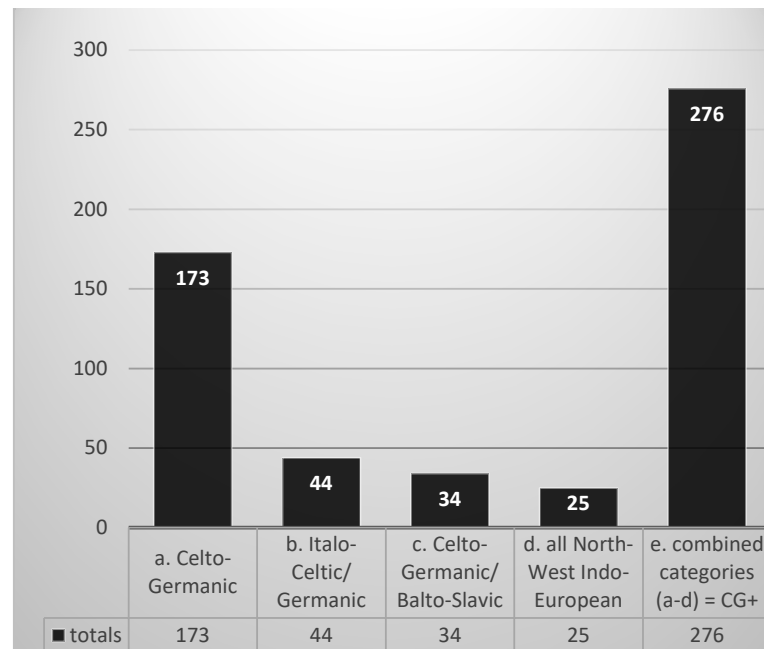


Figure 11. Totals of a. CG, b. ICG, c. CGBS, d. ANW, and e. CG+ words in the Corpus.

§28. 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 **mēri-* ‘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 [æ:], making its pronunciation of [mæ:ri] closer to that of the Proto-Celtic. In North-west Germanic, Proto-Germanic **ē* changed fully to **ā*. However, the spelling Σεγίμερος 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 with Italic 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 **priyá-* ‘dear’, evidently the original sense in Proto-Indo-European **priH₂ós*. 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*.

- 5 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.⁷⁵ 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 $\approx$ 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).

⁷⁵ Cf. van de Noort 2006; 2011; Vandkilde 2013; McGrail 2014; Bengtsson 2017; Wickler 2019.

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

¶ Of those, meanings that can be related to Bronze Age rock art iconography = 74 (43%)

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

- *bhodhwo-** BATTLE, FIGHTING, VIOLENCE 1
- *bhouidi-** BOOTY, PROFIT
- *bhrest-** BATTLE, FIGHTING, VIOLENCE 8
- *bhreus-** WOUND, INJURE 1
- *bhrozdo-** ~ ***bhrzdo-** GOAD 1
- *dhelgo-** ~ ***dholgo-** DRESS PIN, BROOCH
- *dhru(n)gh-** TROOP 1
- *ek^wo-reidho-** HORSE+RIDE
- *ghaiso-** SPEAR 1
- *gheislo-** HOSTAGE
- *g^when-** ~ ***g^whon-** WOUND, INJURE 4
- *káikos** ONE-EYED, BLIND IN ONE EYE
- *kankistos** ~ ***kanksikā** HORSE 2
- *kar-** STONE RITUAL SITE
- *katr-** ENCLOSURE
- *katu-** BATTLE, FIGHTING, VIOLENCE 2
- *katu-wl^ko-** ~ ***katu-wolk^wo-** BATTLE-WOLF > HERO
- *kelto-** ~ ***keltyo-** STRIKE (IN BATTLE) 1
- *kleibho-** SHIELD (?) OF WICKER 1
- *kleut-** ~ ***klat-** LOAD, CARRY A LOAD
- *knit-** WOUND, INJURE 2
- *kol-** ~ ***kl-** 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
- *mbhaktos** ~ ***mbhaktā** 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
***oitos** 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
***weghnos** WHEELED VEHICLE
***weik-** BATTLE, FIGHTING, VIOLENCE 3
***weni-** FRIEND, RELATIVE
***widhu-kō(n)** WILD DOG, WOLF

***wiro-kwō** ~ ***wiro-wl̥kʷo-** WEREWOLF
***wolko-** ~ ***wolkā-** PREDATOR, WOLF, WARRIOR OUTSIDE THE TRIBE
***worīn-** TROOP 2

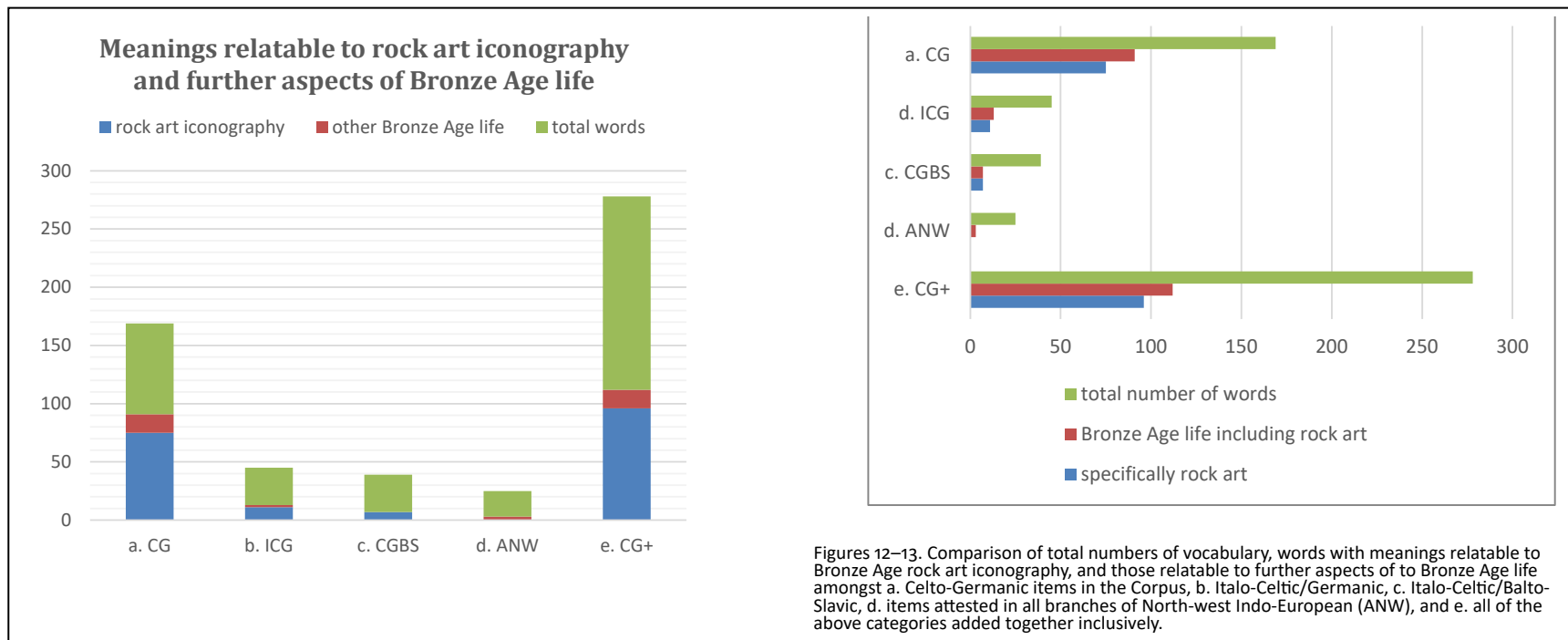
¶ An additional 16 meanings can be related to Bronze Age life, though not directly related to rock art iconography, for an inclusive total of 90 items (52% of 173 CG words):

***bholgh-** LEATHER BAG, BELLOWS 1
***bhṛgh-** FORTIFIED SETTLEMENT, HILLFORT 1
***Bhṛghntes** HIGH ONES, GROUP NAME RELATED TO 'HILLFORT'
***dhūnos** FORTIFIED SETTLEMENT, HILLFORT 2
***ēmo-** ~ ***omyom** < ***omó-** RED METAL
***ghabhlo-** ~ ***ghablā-** FORK
***kaghyo-** ENCLOSED FIELD
***kail-** OMEN, FORESIGHT
***kapono-** HARBOUR, SHELTER FOR VESSELS
***nemet-** SACRED GROVE, SANCTUARY
***rektus** LAW, JUSTICE
***rīgyā** < ***rēgyā** KINGDOM, REIGN, REALM
***seghe-dūno-** STRONG/VICTORIOUS FORTIFIED SETTLEMENT
***sētlā-** SIEVE, STRAINER 1
***wert-** MOUND, EARTHWORK
***wertō-** 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
***arkʷo-** BOW AND ARROW
***bheud-** STRIKE (IN BATTLE), BEAT 3
***dapno-** ~ ***dapnā-** SACRIFICE, OFFERING
***ghazdhos-** ~ ***ghazdhā-** GOAD, POKER 2



Figures 12–13. Comparison of total numbers of vocabulary, words with meanings relatable to Bronze Age rock art iconography, and those relatable to further aspects of to Bronze Age life amongst a. Celto-Germanic items in the Corpus, b. Italo-Celtic/Germanic, c. Italo-Celtic/Balto-Slavic, d. items attested in all branches of North-west Indo-European (ANW), and e. all of the above categories added together inclusively.

***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^wunos** 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 ***kātu-wl̥kʷo-** ~ ***kātu-wolkʷo-**
 FOREIGNER ***alyo-morgi-** ~ ***alyo-mrogi-**
 GREAT/FAMOUS IN VICTORY ***Seghi-mēros** ~ ***Segho-mōros**
 GREAT/FAMOUS IN BATTLE ***Kātu-mōros** ~ ***Kātu-mēros**
 HORSE+RIDE ***ekwo-reidho-**
 INNUMERABLE, COUNTLESS ***ṇ-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-wl̥kʷo-**
 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 ***katr-** ~ ***kētr-**
 FORK ***ghabhlo-** ~ ***ghabhlā-**
 HEAP, MOUND, PILE, RICK ***krouko-**
 HOLLY ***kuleno-** ~ ***kolino-**
 HORSE 1 ***markos**
 IRON ***isarno-** ~ ***īsarno-**
 LEPROSY ***truts-**
 ONE-EYED, BLIND IN ONE EYE ***káikos**
 POINT ***bend-** ~ ***bnd-**
 ROD, STAFF, LONG SLENDER PIECE OF WOOD ***(s)lat(t)-**
 SAIL (noun) ***sighlo-**
 SECRET, SECRET KNOWLEDGE ***rūn-**
 SETTLEMENT, FARMHOUSE **treb-** ~ ***trb-**
 STONE LANDMARK, STONE MONUMENT, STONE RITUAL SITE ***kar-**

b. Italo-Celtic/Germanic — 8 examples (18%) of 44 total

BLACKBIRD ***mesl-** ~ ***amsl-**
 BOW AND ARROW ***ark^wo-**
 GOAD, POKER 2 ***ghazdho-** ~ ***ghazdhā-**
 JUNIPER, RUSHES, REED ***yoini-**
 LEAD ***plobdho-**
 MAST ***mazd-** ~ ***mazdyo-** ~ ***mazdlos**
 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-** ~ ***bhlēd-**
 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’ **ark^wo-*: 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 **ark^wo-* 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.

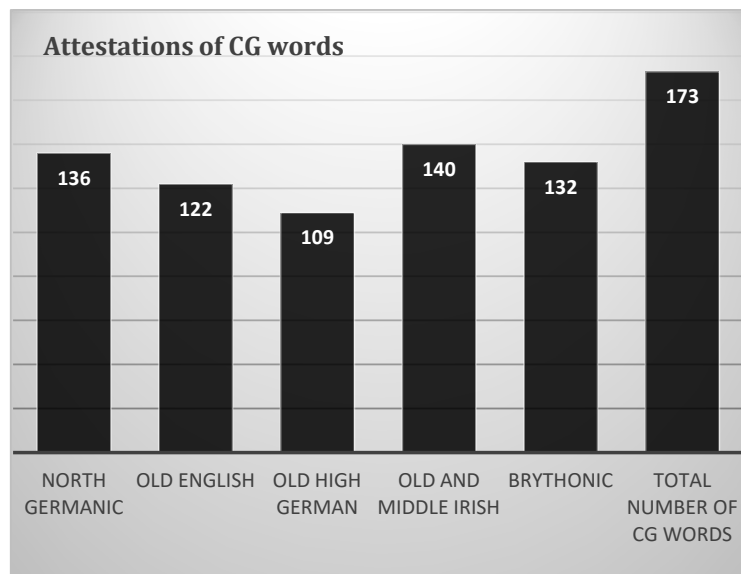


Figure 14. Comparison of numbers of CG words occurring in fully attested pre-modern Germanic and Celtic languages.

§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 Goidelic 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 **Olo-*

patēr, survives only in the mythological literature of Old Norse and Old and Middle Irish. The CGBS word HAMMER OF THE THUNDER GOD **meldh-* survives in Germanic only as Old Norse *Mjǫllnir* (Thor’s hammer) and in Celtic as Welsh *mellt*, an everyday word for ‘lightning’. Welsh *taran* and Scottish Gaelic *torrunn* mean simply ‘thunder’. It is ancient inscriptions that inform us that Meldios and Taranus, the cognate of *Thor* (Old Norse *Þórr*), had been Celtic gods.

§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?

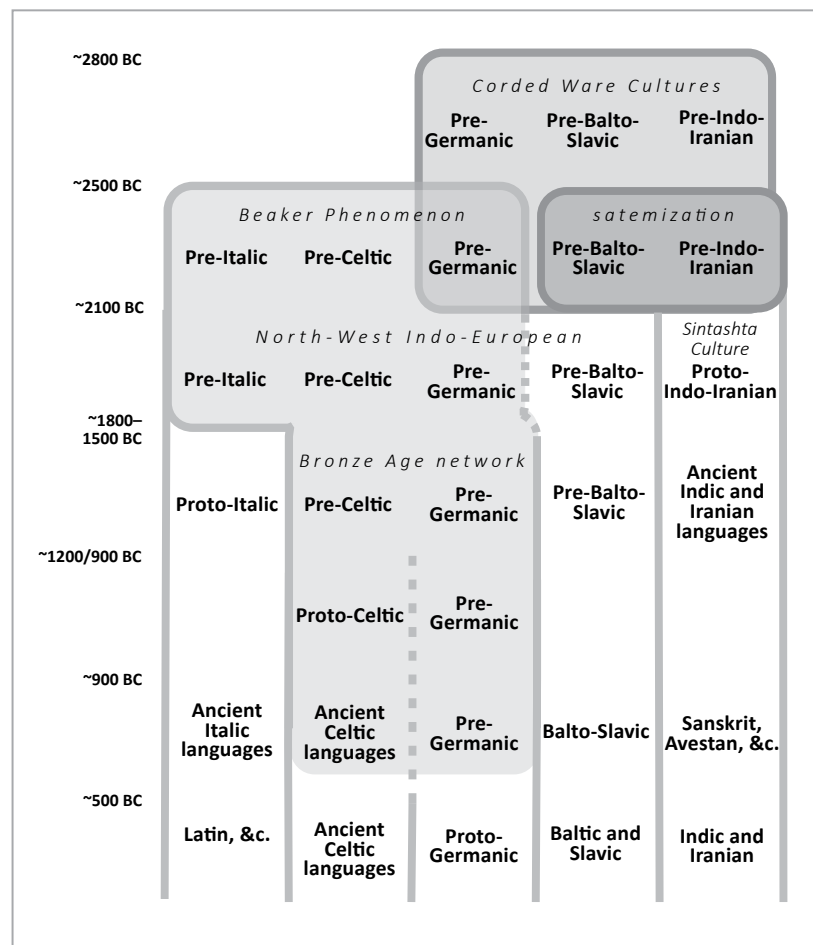


Figure 15. Post-Tocharian Indo-European in the North and West: dialect chains and separating languages.

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).

After ~1800–1500 BC the proposed time frame for the separation of Pre-Celtic from Proto-Italic (§21) predates the formation of most of the words comprising the 173-word CG subset. These words lack Italic cognates by definition, indicating that contact of Proto-Italic with Pre-Celtic and Pre-Germanic had fallen off.⁸⁰

The split of Proto-Italo-Celtic into Pre-Italic and Pre-Celtic is provisionally identified with the breakup of the Beaker culture into diverse post-Beaker Early Bronze Age cultures ~2000/1800 BC. The latter date of the above range (~1500 BC) allows time for the separate Pre-Celtic to develop new vocabulary, absent from Italic, during a period of rising social complexity and technological advance. On the social side, the rise of the professional warrior and warrior ideal are notable (Vandkilde 2014; Kristiansen 2018). Especially important technological advances spreading widely and catalysing social change at this time are what I have called the ‘three strands’ of the Bronze Age: standardized high-tin bronze, the horse and chariot package, and advanced seafaring (Koch 2013a).

Linguistic palaeontology (§5) can be seen as consistent with this baseline for the CG set. Of the 173 words, 90 (52%) have meanings relatable to Bronze Age life, of which 74 (43% of the CG total) can be related to the iconography of Bronze Age rock art and stelae. The percentages for these meaning fields are significantly lower in the ICG, CGBS, and ANW sets (§32).

~1800–1200/900 BC Pre-Celtic and Pre-Germanic remained in close contact, due at least in part to the long-distance trade of metals to Scandinavia. As a result, they maintained a high degree of mutual intelligibility. New words shared between these languages at this period are not detectable as loanwords. The smaller number that do show Celtic innovations probably post-date the transition from Pre-Celtic to Proto-Celtic ~1200 BC. For example, the CG group name giving Proto-Germanic ***Burgunþaz** and Proto-Celtic ***Brigantes** was ***Bhrghntes**, which then

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 **ŋ*. 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 **rīkija* ‘KINGDOM’ < Proto-Celtic **rīgȳā* < Pre-Celtic **rēgyā* shows Celtic **ī* < **ē*, implying that the loan probably post-dates ~1200 BC. On the other hand, as it reflects Grimm 2, **rīkija* < **rīgȳā* precedes the formation of Proto-Germanic and possibly predates ~500 BC. As an example, with different characteristics, Proto-Germanic **ambahtaz* ‘PERSON ACTING ON BEHALF OF A SUPERIOR’ < Proto-Celtic **ambax̥tos* < notional Pre-Celtic **mbhaktos* 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 **ambahtaz* 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.

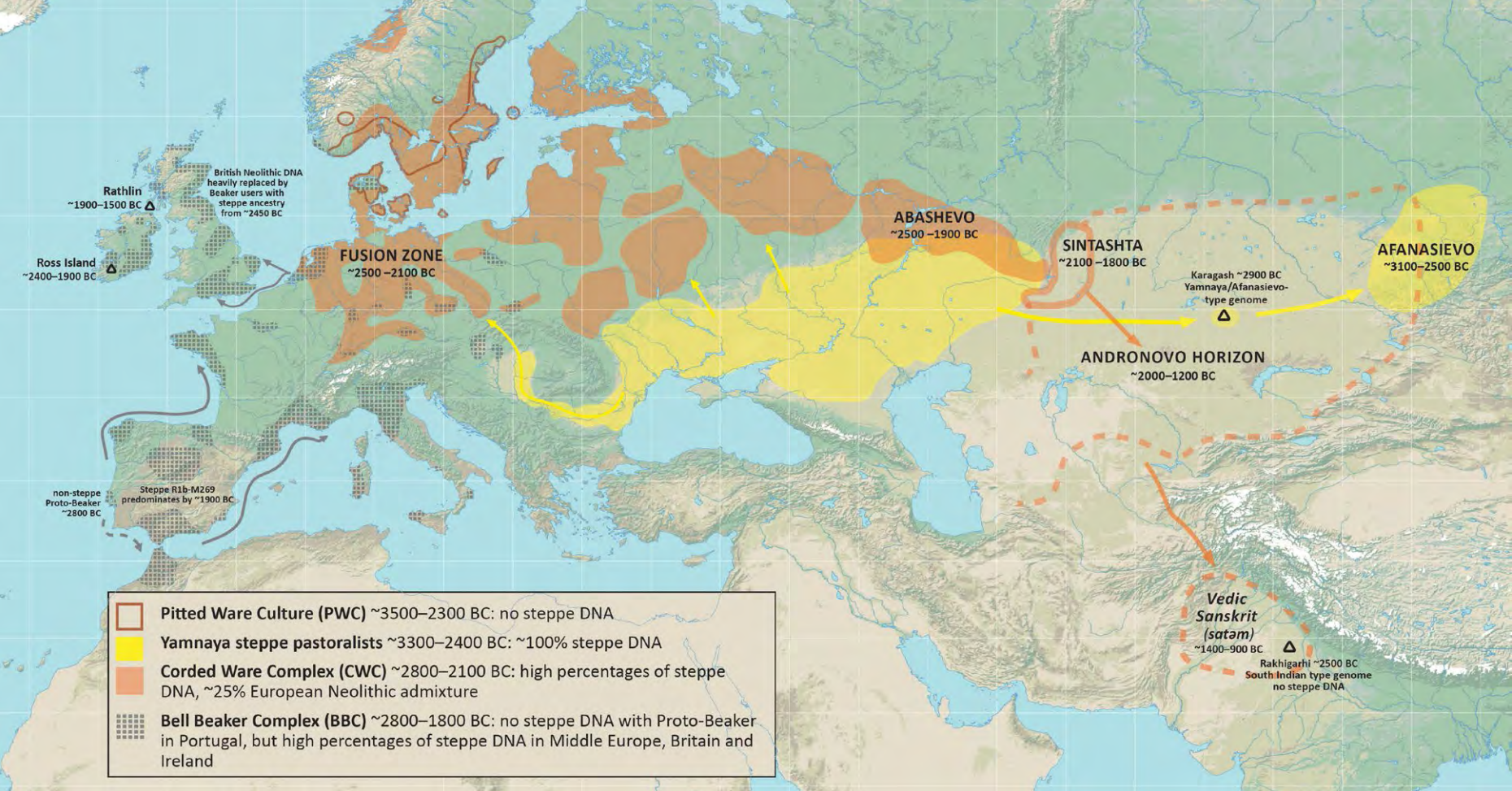


Figure 16. Summary: Prehistoric cultural complexes as probable vectors for the steppe genetic component and, by implication, early Indo European languages. Because human remains associated with the Pitted Ware Culture lack the steppe component (Malmström et al. 2009), PWC was potentially significant 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).

THE CORPUS

§§38–50

§38.

¶ *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:

- 1 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 inscriptional 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’.⁸¹ In short inscriptional 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 Celticity of the milieu.⁸²

⁸¹ Schmidt 1985; Gorrochategui 1987; Prósper 2008; Wodtko 2009; 2010.

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, León, Lugo, Ourense, Pontevedra, Salamanca, and Zamora. ‘Outside the *briga* zone’ refers to finds from the rest of the modern provinces of Spain.



Figure 17. CG ***pluk-** ‘BOATLOAD’, ***rō-** ‘TO ROW’, ***bheyatli-** ‘AXE’: Rock art panel from Skee parish, Bohuslän, Sweden: iconography includes sea-going vessel and crew with paddles and an upper scene confronting warriors with raised axes. (discovered in 1992 by Sven-Gunnar Broström and Kenneth Ithrestam; source: SHFA).

§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 *flokkr* ‘troop, host, flock’, Faroese *flokkur* ‘multitude, crowd, party, flock (of birds)’, Old English *flocc* ‘flock, company, troop’, cf. Middle Dutch *vluyccken* ‘to transport over water’, Old Norse *fley* ‘ship’ < Proto-Germanic ***flauja-** < Pre-Germanic ***plouyo-** [PRE-GRIMM 1]; ● Proto-Celtic ***(p)luxtu-** < 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 lúth 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 *llwyth* ‘tribe, lineage, kinship group, faction, clan, occupants, inhabitants, (full) load, ship’s cargo’. ¶ Proto-Indo-European enlarged root *√pleuk-* < *√pleu-* ‘float, swim, flow’: Greek *πλέω* ‘travel by sea, sail, navigate’, *πλοῖον* ‘ship, craft’, Sanskrit *plávate* ‘to swim, flow’, Old Church Slavonic *pluti* ‘to flow, sail’, Tocharian B *plewe* ‘ship’, Russian *plov* ‘ship, barge’. As recognized by Derksen (2015, 363), a root enlargement *√pleuk-* occurs in Baltic as well as Germanic: Lithuanian *plaũkti* ‘swim, float, sail’. ¶ The Germanic words listed above (from ***flukka(n)-** ‘flock, &c.’) are not usually linked to



Figure 18. CG ***pluk-** ‘BOATLOAD’, ***rō-** ‘TO ROW OR PADDLE’: rubbing of rock art image of a sea-going vessel and crew with paddles, Tanum, Bohuslän, Sweden (source: SHFA).

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)luxtu-** 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 *plŭkŭ* ‘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 **j* > **ul* but part of the root *√plew-*.

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

DROPLET, DRIP ***dhrub-** ~ ***dhrüb-**. • 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 drip, to trickle’, Old Saxon *dropo* ‘drop’, *driopan* ‘to drip, to trickle’, Old High German *tropfo* ‘drop’, *triofan* ‘to drip, to trickle’, *tropfezen* ‘to drip, to distil’; • Proto-Celtic ***drūxtu-** < Pre-Celtic ***drup-tu-** < ***dhrub-tu-**: Old Irish *drúcht* ‘dew, drop, moisture’, Scottish Gaelic *drùchd* ‘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 *réin* glossing ‘maris’. ¶ The CG forms derive from a **-no-* suffix added to Proto-Indo-European *√H₃reyH-* ‘flow’: cf. Sanskrit *rīyate*, *riṇāti* ‘flows’, Old Church Slavonic *rinŭti se* ‘flows’, Old English *rīð* ‘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 Πῥνός ‘Rhine’ are borrowed from Celtic.

FRESH WATER 1 ***lindom** ~ ***lindu-** ~ ***lindhom** ~ ***lindhu-**.

- 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 *linne* ‘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 *llyn* ‘lake, drink’. ¶ The Germanic forms may be post-Grimm 1 borrowings from Celtic (Falileyev et al. 2010, 22), but a preform ***lindhom** ~ ***lindhu-** would not require borrowing. ¶ Modern Welsh *llyn* 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] ***χαφάνā-** < Pre-Germanic ***kapóno-** [PRE-GRIMM 1]: Old Norse *hǫfn*, Old English *hæfen*, Old High German *havan*; • Proto-Celtic ***kawno-** < ***ka(p)ono-**: Middle Irish *cúan* ‘haven, harbour, port, bay, gulf’.

LOAD, CARRY A LOAD ***kleut-** (< ***kleu(H₂)-t-** < ***kleH₂u-**) ~ ***klat-** (< ***klH₂-t-**). • Proto-Germanic ***hlapan-** ~ ***hlōp-** < ***χlāp-** ‘to burden, load down’ [PRE-GRIMM 1]: Gothic (*af*)*hlapan* ‘overload’, Old Norse *hlaða* ‘to pile up, build, load’, Old English *hladan* ‘to heap, pile up, build, load’, *hlōd*, *hlōdon* ‘loaded’ (cf. Old English *hlæd* ‘burden’), Old Frisian *hleda*, *hlada*, 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 *klóti* ‘cover’ and Old Church Slavonic *klasti* ‘to put’ point to derivation from NW ***kleH₂-** ‘spread out flat’ (rather than Proto-Indo-European ***kley-** ‘lean’).

***kleH₂-** acquired **-t** in Pre-Germanic to become ***klāt-** > ***hlōp-**. Derksen (2015, s.n. *kliūti*) sees a probable link between Lithuanian *klóti* and *kliūti* ‘brush against, be caught in, obstruct’ < ***kleuH₂-** < Proto-Indo-European ***kleH₂u-** ‘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 *rōskip* ‘rowing boat’, Middle High German *rüezen* ‘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 *rāmae*, Scottish Gaelic *ràmh* ‘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 *iřkls*, Sanskrit *aritra-* < Proto-Indo-European ***H₁erH₁tlom** ‘oar, paddle’, cf. Greek ἐρετρών ‘oar’. What is uniquely Celto-Germanic is for ***H₁erH₁-** ‘row’ as the base of a well attested primary verb, CG ***rō-**.

SAIL (noun) ***sighlo-**. ● Proto-Germanic ***segla-** ‘sail, canvas’: Old Norse *segl*, Old English *seg(e)l*, Old Saxon *segal*, Old High German *segal*, *segil*; TO SAIL ***siglijana**: Old English *siglan*; ● Proto-Celtic ***siglo-** ~ ***siglā-**: Old Irish *séol* glossing Latin ‘uelum’ ‘sail’, Old Welsh *huil* glossing ‘uelum’ ‘sail’, Middle Welsh *hwyl* ‘sail, sheet, course’, cf. *hwyl yaw* ‘navigate’, *hwyl heul* ‘course of the sun’, *hwyl-brenn* ‘mast’ = Irish *seol-chrann*. ¶ No certain etymology. [POSSIBLY NON-INDO-EUROPEAN SOURCE] ¶ On Proto-Germanic ***segla-** < Pre-Germanic ***sighlo-**, see Schrijver (1995, 357). Thier (2011) explains ***segla-** as a borrowing from Celtic of uncertain date. ¶ On evidence for use of sails in Bronze Age Scandinavia, see Bengtsson 2017.

SAND AND/OR GRAVEL BY OR BENEATH A BODY OF WATER

***ghreuno-** ~ ***ghreuwā-**. ● Proto-Germanic ***greuna-** ~ ***gruwwa(n)-**: Old Norse *grjón* ‘groats’, cf. *grautr* ‘porridge’, Icelandic *grugg* ‘sediment, dregs’, Middle Low German *grēn* ‘sea sand’, Middle High German *grien* ‘gravel, sandy riverside’, Middle

Dutch *griend* ‘strip of sandy ground’; ● Proto-Celtic ***griyano-** ‘sea gravel, sand’, ***grāwā** ‘gravel, pebbles’: Middle Irish *grian* ‘gravel, sand, sea or river bottom’, Middle Welsh *graeon* ‘gravel, sand, shingle, grit’, *gro* ‘coarse mixture of pebbles and sand deposited in a river bed, gravelly shore, strand, also proverbially for infinite number’, Breton *grouan* ‘gravel’, *gro* ‘sandy beach’, Old Cornish *grou*, Middle Cornish *grow* ‘sand’. ¶ The same root (Proto-Indo-European *Vghrendh-* ‘grind’) without the specialized marine/aquatic development of its meaning occurs in Baltic: Lithuanian *grūsti* ‘grind (barley)’, *grúodas* ‘frost, frozen street dirt’.

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



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’, *swam* ~ *swom* ‘swam’, Old Frisian *swimma*, Old High German *swimman* ‘to swim’, *swam*; ● 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.

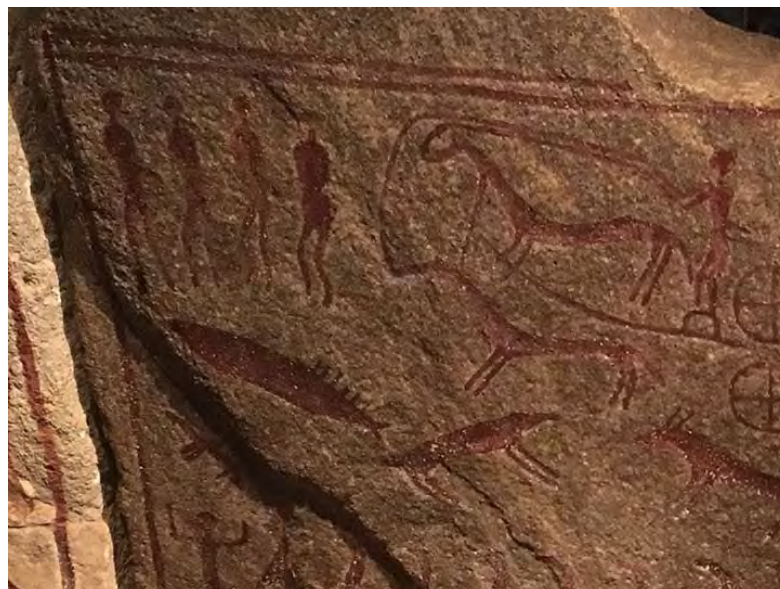
TROUGH, TUB, WOODEN VESSEL ***druk-**. ● Proto-Germanic ***truga-** < [PRE-VERNER] ***truḡa-** < Pre-Germanic ***druko-** [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *trog* ‘trough’, Old English *trog* ‘hollow vessel, trough, hollow tray, canoe’, Old Frisian, Old Saxon *trog*, Old High German *troc* ‘trough’; ● Proto-Celtic ***druḡto-** < ***druk-to-**: Old Irish *drochta* ‘tub, vessel’. ¶ < Proto-Indo-European *vdóru* ‘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 *fisks*, Old Norse *fiskr*, Old English, Old Frisian *fisk*, Old Saxon and Old High German *fisc*; ● Proto-Celtic ***(p)ēsko-** < Pre-Celtic ***peisko-**: Old Irish *íasc*, cf. Old Welsh river name *Uisc* (the Usk flows into the sea and has a tidal estuary, so the name does not necessarily refer only to its fresh-water fish); ● Proto-Italic ***piski-**: Latin *piscis*. ¶ Explained not implausibly as Proto-Indo-European ***p(e)îk-sko-** ‘trout’ < ‘spotted’ < *√peik-* ‘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.

FRESH WATER 2 ***akwā-**. ● Proto-Germanic ***ahwō-** ‘river’ < ***axwā-** [PRE-GRIMM 1]: Gothic *ahwa* ‘body of water, river’, Old Norse *á* ‘river’, Old English *ēa* ‘stream’, Old Saxon *aha* ‘water, river’, Old High German *aha* ‘river’; ● Proto-Celtic ***akwā-**: Celtiberian forms likely occur in Botorrita III (K.1.3): **tar-akuai**, which can be understood in context to mean ‘across water’ or ‘through water’, proclitic preposition plus dative object, as well as the personal names based on the derived adjective Proto-Celtic ***akwyo-**, ***akwyā-** ‘aquatic, riverine’: **akuia** (8 examples), **akuios** (2 examples); in the Western Iberian Peninsula what are probably cognates showing ***k^w > *p** occur: **APIOBICESIS** (Vasconcellos 1905, 234; J. M^a. Blázquez 1962, 81 — Tarouquela, Cinfães, Viseu); ● Proto-Italic ***akwā-**: Latin *aqua*.

Figure 21. ICG ***peisk-**, ***pisko-** ‘FISH’. Rock carving probably representing a large fish: lower left-hand side of the chariot panel, massive Bronze Age tomb at Kivik, Skåne, Sweden ~1400 BC (photo: Jane Aaron).



KNOT, KNOTWORK, DEVICE OF KNOTWORK TO CATCH FISH, NET
***nōd-** ~ ***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 *nezzī*; ● Proto-Celtic ***nasko-** < ***nad-sko-**: Old Irish *nassae* ‘bound’ < ***nHd-to/eH₂-**, *naiscid* ‘binds, makes fast, makes captive, exacts a pledge’, Middle Irish *nasc* ‘fastening, tie, ring’, Scottish Gaelic *nasg* ‘tie-band, cow’s collar made of plaited birch twigs’, Breton *naska* ‘to bind animals by their horns’ < ***nHd-ske-**; ● Proto-Italic ***nasso-** < ***nad-to-** ~ ***nōdo-** < ***noHdo-**: Latin *nasa* ‘fish trap made of wicker-work, snare, net’, Latin *nōdus* ‘knot, node, knob’. ¶ Proto-Indo-European *VneHd-* ‘knot, bind’: Avestan *naska-* ‘bundle’. The attestations imply that the sense ‘knotwork device for catching fish’ had been common to Italo-Celtic and Germanic, but subsequently lost in Celtic.

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 would 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 llestyr*, *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 ***mazdlos** > 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 ***pluk-**, ***pulk-** (?), see §39.a. above.

WETLAND ***pen-** ~ ***pŋ-** ~ ***ponyo-** ● Proto-Germanic ***fanja-** [PRE-GRIMM 1]: Gothic *fani* ‘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)ŋā-** ‘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-saiws* ‘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’; ● Proto-Celtic ***mori-** ‘sea’: Hispano-Celtic personal names **MORINIS** (Diego Santos 1986, no. 220 — Cacabelos, León); **MORILAE TOVTONI F.** (HAE, 923; CIRPZ, 278; ERZamora, 42 — Villalcampo, Zamora), divine name **MORICILO** (AE 1977, 108 — Casas de Millán, Cáceres), **RETVGENVS MORICIQVM** (Prósper 2016, 171 — Toledo), possibly **MVRE PECE PARAMECO CADABREI** (HEp, 1, 77; ERAsturias, 11 a — El Collado, Riosa, Asturias), South-western inscription () **jomuřik’a[]anb’at’ia** (J.16.2 ‘Fonte Santa 2’ — San Salvador, Ourique, Beja) < ***u(p)o-morikā-**, Gaulish *more* glossing ‘mare’, *morici* glossing ‘marini’, personal names *Moria*, genitive **MORICONIS**, *Moricus*, place-name *Aremorica* / *Armorica*,



Figures 22–23. CG ***bhodwo-** ‘BATTLE, FIGHTING, VIOLENCE’, ***katu-** ‘BATTLE, FIGHTING, VIOLENCE’, ***weik-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nīt-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nant-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhēgh-**, ***bhōgh-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhrest-** ‘BATTLE, FIGHTING, VIOLENCE’: Late Bronze Age stela ‘Las Puercas’, Esparragosa de Lares, Badajoz, showing warrior with bihorn helmet, comb, mirror brooch, sword and shield. Enlarged detail shows possible carving of ship with prominent prow and crew (scans: M. Díaz-Guardamino).

Figure 24. (bottom) CG ***bhei(a)tlō- ~ *bhei(a)l-** ‘AXE’, ***treg-** ‘STRENGTH’, ***bhodwo-** ‘BATTLE, FIGHTING, VIOLENCE’, ***katu-** ‘BATTLE, FIGHTING, VIOLENCE’, ***weik-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nīt-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nant-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhēgh-**, ***bhōgh-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhrest-** ‘BATTLE, FIGHTING, VIOLENCE’: Detail of rock art panel from Fossum in Tanum, Bohuslän, Sweden, showing an oversized pair of confronting warriors with raised axes aboard a large sea-worthy vessel with a crew of 36 (photo: J. Koch).



group name *Morini*, divine name **DEO APOLLIN[I] MORITASGO** and **DEO MORITASGO** (cf. Prósper 2002, 203), Gaulish / Ancient Brythonic **BRITANNICIANVS MORITEX** ‘British seafarer’ (CIL XIII, 8164a — Köln), ‘Cimbric’ *Morimarusa* (see §7 above), Ancient Brythonic personal names *Mori-camulus* (Verulamium), accusative *Mori-uassum* (Bath), place-names Μορικαμβη ‘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)tlō- ~ *bhei(a)l-**. ● Proto-Germanic ***bīpla-** ‘axe’ [PRE-GRIMM 1]: Old Norse *bíldr* ‘axe’, Old High German *bīhal*; ● Proto-Celtic ***beyatlo- ~ beyali-**: Old Irish *biáil* (occurring in the Ulster Cycle tale *Fled Bricrenn*), Old Welsh *bahell* glossing ‘securis’ ‘axe, hachet’, Middle Welsh *buyall*, *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 **-tlō-*, hence ‘striking instrument’.

BATTLE, FIGHTING, VIOLENCE 1 *bhodhwo-. ● Proto-Germanic ***badwā** ‘battle’: Old Norse *bǫð*, Old English *beadu*, Old Saxon *badu*, Old High German *batu-*; ● Proto-Celtic ***bodwo-**: Gaulish personal names *Boduus*, *Boduo-gnatus*, *Ateboduu*, *Atebodua*, *Boduognatus*, *Boduacus*, *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* *map Bodgu*, *Elbodgu*, *Boduan*, *Gurbodu*, *Lann Arthbod*; Old Breton *bodou* glossing ‘ardea’ ‘heron’, Old Breton Personal names *Euboduu*, *Tribodu*, *Catuuodu*.

2 *katu-. ● Proto-Germanic ***hapu-** ‘battle’ [PRE-GRIMM 1]: Ancient Nordic **hapu** (Strøm whetstone, Sør-Trønelag, Norway ~AD 450, Antonsen §45), Old Norse *hǫð* and god’s name *Hǫðr*, Old English *heaðo-*, Old Saxon *hathu-*, Old High German *hadu-*, personal name *Hadumâr*; ● Proto-Celtic ***katu-** ‘battle’: Galatian **KATOMAPOΣ**, Gaulish names *Catu-māros* (~ Old High German *Hadumâr*), *Catu-rîx*, *Catu-slougî*, &c., divine epithet **MARTI CATVRIGI** (8 examples, Jufer & Luginbühl 2001, 33), Old Irish *cath*, Ogamic Primitive Irish **ROCATTOS**, **CATOTIGIRNI**, **CATTUBUTTAS**, **AMBICATOS**; Ancient Brythonic group name *Catuvellauni* > Old Welsh personal name *Catguolaun*, Old Breton *Catuuallon*, Old Welsh *cat* ‘battle’.

3 *weik- ~ *wik- < NW Indo-European *vweik-* with unique specific CG meaning. ● Proto-Germanic ***weih-**, ***wigana-** ‘to fight’ < [PRE-VERNER] ***wiḡana-** [PRE-GRIMM 1]: Gothic *weiha* (cf. Gothic dative singular *du wigana* ‘in order to fight’), Ancient Nordic **uigaz** ‘warrior’ (Eskatorp/Väsby 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 ***wīga-**: Old Norse *vig*, Old English *wīg*, Old Frisian *wīch*, Old Saxon, Old High German

wīg; ● Proto-Celtic ***wik-** ‘fight’: Gaulish *Eburo-uices* ‘Yew-fighters’, *Lemo-uices* ‘Elm-fighters’, Ancient Brythonic *Ordo-uices* ‘hammer fighters’, Old Irish *fichid* ‘fights’ < ***wiketi**, *fecht* ‘military expedition’, Old Welsh *guith* ‘battlefront’, *gueith* ‘battle’ < ***wiḡtā**, *amgucant* ‘they fought about’ < ***ambi-woikant**, Middle Welsh *gweithen* ‘combat’. ¶ Contrast nasal infixed Latin *vincō* ‘conquer’, Lithuanian *vēikti* ‘make, work’.

Figure 25. CG ***bhei(a)tlo-** ~ ***bhei(a)l-** ‘AXE’, **vtreg-** ‘STRENGTH’, ***bhodwo-** ‘BATTLE, FIGHTING, VIOLENCE’, ***katu-** ‘BATTLE, FIGHTING, VIOLENCE’, ***weik-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nīt-** ‘BATTLE, FIGHTING, VIOLENCE’, ***nant-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhēgh-**, ***bhōgh-** ‘BATTLE, FIGHTING, VIOLENCE’, ***bhrest-** ‘BATTLE, FIGHTING, VIOLENCE’: Detail of rock art panel from Aspeberget in Tanum, Bohuslän, Sweden, showing confronting warriors with raised axes (source: SHFA).



4 ***treg-** ‘strength’. ● Proto-Germanic ***prakja-** < Pre-Germanic ***trogyo-** [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *þrekr* ‘strength, bravery’, Old English *þraka* ‘courage’, *þreca* ‘force, oppression’, Old Saxon *wāpan-threki* ‘ability with arms’; ● Proto-Celtic ***treḡso-** < ***treg-s-o-** ~ ***treḡsno-** < ***treg-s-no-**: Gaulish personal names *Trexius*, *Trexa*, *Trenus*, Ogamic Primitive Irish TREN-A-GUSU, TRENACCAT(L)O (= **TRENACATVS** in Roman script), Old Irish *tress* ‘contention, battle’, *trén* ‘strong’, Middle Welsh *trech* ‘stronger, mightier, more powerful, victorious’, *treis* ‘violence, force’, Middle Breton *trech* ‘victorious’, Cornish *trygh* ‘victorious’. ¶ Possibly related to Latvian *trekns* ‘solid’.

5 ***nīt-**. ● Proto-Germanic ***nīpa-** [PRE-GRIMM 1]: Gothic *neip* ‘envy, jealousy, enmity’, *andaneipa* ‘enemy’, Old Norse *níð* ‘libel’, Old English *nīþ*, Old High German *nīd* ‘battle-rage, hate, envy’; ● Proto-Celtic ***nītu-** ~ ***nītyo-**: Old Irish *níth* ‘fighting, combat, battle, pugnacity, anger, resentment’, cf. Gaulish group name *Nitio-broges*, personal names **NITONIA**, **NITIOGENNA**, **NITIOCENV**.

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 *nēþan* ‘to venture, to risk’, Old Frisian *binētha* ‘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 *néit* ‘battle, combat, fighting’, *Néit* ‘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-*).

7 ***bhēgh-** ~ ***bhōgh-**. ● Proto-Germanic ***bēg-**: Old Norse *bægjast* ‘quarrel, strive’, Old High German *bāgēn* ‘quarrel, fight’; ● Proto-Celtic ***bāg-**: Old Irish *bág* ‘fight, contest, striving, act of contending’, *bágaid* ‘fights, boasts’, Middle Welsh *bei* ‘fault, failing, transgression, offence’, *kymwy* ‘affliction, disaster’ < ***kom-bāg-**, *kymwyat* ‘fighter’ < ***kombāgyatis**, Gaulish *Bagaudae* ‘Armorican peasant rebels’. ¶ Cf. Sanskrit *bhájati* ‘separates’, nasal present *bhanákti* ‘breaks’ < Proto-Indo-European *vbheg-* ‘break’.

8 ***bhrest-**. ● Proto-Germanic ***brestan-** ‘to break, burst’: Old Norse *bresta*, Old English *berstan* ‘to burst, damage, injure, harm’ (cf. Old English *byrst* ‘loss, calamity, injury, damage’), Old Frisian *bersta* ‘to break, to disappear’, Old Saxon *brestan* ‘to burst, break’, Old High German *brestan* ‘to burst, tear, to lack’; ● Proto-Celtic noun ***brestā**, verb ***brestiti**: Old Irish *bres* ‘fight, blow, effort’, *brissid* ‘breaks, smashes, destroys, defeats in battle, routs, overthrows’, French *briser* presumably from Gaulish, Old Welsh personal names *Con-bresel*, *Cen-bresel*, *Cit-bresel*, *Ein-bresel*, Middle Breton *bresel* ‘war’, Cornish *bresel* ‘war’.

BATTLE-WOLF > HERO ***katu-wl̥kʷo-** ~ ***katu-wolkʷo-**. ● Proto-Germanic ***hapuwulfaz** [PRE-GRIMM 1]: Ancient Nordic personal name **hapuwulafz** (Istaby 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 ***lurg-**. ● 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 *iarn*.

CORPSE, DEAD BODY *kol- ~ *kl-. ● Proto-Germanic ***hulda-** [PRE-GRIMM 1]: Old Norse *hold* ‘flesh’, Old English *hold* ‘carcass, dead body, corpse’, cf. Old English *holdian* ‘cut up’, *hyldan* ‘to butcher, carve up’; ● Proto-Celtic ***kolani-** ‘dead body’: Old Irish *colainn* ‘body, corpse, carcass, trunk’, Middle Welsh *kelein* ‘corpse, carcass, dead body’. ¶ Probably from Proto-Indo-European *√(s)kel-* ‘cut, split apart’.

CUTTING WEAPON AND/OR TOOL (?) *skey- ~ *ski-. Proto-Indo-European *√skey-* ‘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 *sciān* ‘knife’ = Middle Welsh *ysgïen* ‘knife, sword’ and Old Norse *skeggja* ‘axe’ reflect independent developments from this root in Celtic and Germanic rather than the shared formation of word ‘cutting weapon’ at a common stage.

FEAR *agh- ~ *āgh-. ● Proto-Germanic ***agan ~ *agaz ~ *agiz- ~ *ōgana-** (< ***āgana-**): Gothic *agan* ‘be frightened’, *agis* ‘fear’, *og* ‘to fear’, Old English *ege* ‘fear’, *egesa* ‘terror’, Old Saxon and Old High German *egiso* ‘terror’; ● Proto-Celtic ***āg-V-**: Old Irish *-āgadar*, *ní-āgathar* ‘fears, dreads, stands in awe of’, possibly related to Middle Irish *ág* ‘combat, struggle, martial ardour’. ¶ The CG words show a specialized development of the meaning of Proto-Indo-European *√H₂egh-* ‘upset, distress’: contrast the meaning of Greek *ἄχος* ‘pain, grief’, *ἄχυνμαι* ‘grieve’.

FELLOW TRAVELLER, COMRADE, PARTNER *sentiyo-. ● Proto-Germanic ***ga-sinþja-** ‘retinue’ [PRE-GRIMM 1]: Old English

gesīþscipe ‘following, fellowship’, Old Saxon *gesīðskepi* ‘following, fellowship’, Old High German *gisindi* ‘war retinue’; ● Proto-Celtic ***sentiyo-** ‘fellow traveller’: Middle Welsh *hennyδ* ‘opponent joined in combat, comrade, fellow’, Breton *hentez* ‘neighbour’, Old Irish *séitig* ‘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 *séitig* < **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’, ***g^wistis** ‘DIGIT, FINGER’, ICG ***ark^wo-** ‘BOW AND ARROW’, NW ***skeltu-** ~ ***skeito-** ~ ***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).



FOE ***poiko-**. ● Proto-Germanic ***faiha-**, ***faiga-** < [PRE-VERNER] ***φaiḡa-** [PRE-GRIMM 1]: Gothic *fáih* ‘deceit’, *bifaih* ‘exaction’, *bifaihōn* ‘to defraud’, Old English *fáh* ~ *fág* ‘guilty, outlawed, hostile’, Old Frisian *fāch* ‘outlawed, prosecuted, punishable’, Old Saxon *afēhian* ‘to condemn’, Old High German *fēhen* ‘to condemn’, *fēhida* ‘hate, enmity’, *gi-fēh* ‘hostile’; ● Proto-Celtic ***(p)oiko-**: Old Irish *oech* ‘enemy’ (glossary word), possibly also *aech* (LEIA s.n. *oech*). ¶ Contrast meanings and formations Sanskrit *piśuna-* ‘evil, treacherous’, Lithuanian *piktas* ‘angry’ < Proto-Indo-European *vpik-*.

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 BATTLE ***Katu-mōros** ~ ***Katu-mēros**. ● Proto-Germanic ***Hapu-mēraz** [PRE-GRIMM 1]: Old High German *Hadumâr*; ● Proto-Celtic ***Katu-māros**: Galatian **KATOMAPOΣ** (Freeman 2001, 36), Gaulish *Catumaros*, Archaic Welsh *Catmor*.

GREAT/FAMOUS IN VICTORY ***Seghi-mēros** ~ ***Segho-mōros**. ● Proto-Germanic ***Segimēraz**: Ancient Germanic Σειγιμερος = *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 **SEGVMARVS** (HEp, 3, 201 — Aroche, Huelva), Gaulish (Gallo-Greek) **CEΓOMAPOC** (RIG 1, G–153 — Vaison), genitive **SEGOMARI**.

Figure 27. CG ***ghaiso-** ‘SPEAR’, ***lust-** ‘SPEAR’, possibly ***dhelgo-**, ***dholgo-** ‘DRESS PIN, BROOCH’, ***aksilā** ‘AXLE’, ***marko-** ‘HORSE’, ***kankistos**, ***kanksikā** ‘HORSE’, ***weghnos** ‘WHEELED VEHICLE’, NW ***skeltu-** ~ ***skeito-** ~ ***skoito-** ‘SHIELD’: Late Bronze Age stela showing warrior with lyre, mirror, v-notched shield from Los Llanos, Zarza Capilla, Badajoz, Spain; Museo Arqueológico Provincial de Badajoz (photo: J. Koch)



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 *koíranos* ‘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-wīh-** < [PRE-VERNER] ***uþer-wīx-** [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 *vwreġ-* ‘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 ***hlīb-** [PRE-GRIMM 1]: Gothic *hleibjan* ‘take the part of’, Old Norse *hlif* ‘shield, protection’, Old High German *līpen*, *lippen* ‘protect’; • Proto-Celtic ***klēbo-**: Old Irish *clíab* ‘basket, hamper, beehive, cradle, coracle, rib cage’. ¶ See Hyllested 2010, 117.

SLING, SNARE ***telm-** • Proto-Germanic ***pelmi-** [PRE-GRIMM 1]: Old Norse *þjálmr* ‘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* ‘snare, 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 *tevył* ‘throws’, Middle Breton *taulet* ‘is thrown’, cf. the Early Welsh compound (*Gododdin*) *tavloyw* ‘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 Γαῖσατοριξ

(Freeman 2001, 56), group name Γαῖσαται *Gaesati*, Old Irish *gae*, Old Cornish *hoch-wuyu* glossing ‘venabulum’ ‘hunting spear’, literally ‘swine-spear’, Middle Welsh *gwayw*. ¶ Proto-Indo-European *vġheys-* ‘wound’: Sanskrit *hinásti* ‘wounds’. ¶ The Brythonic forms may (in part or entirely) reflect the compound ***u(p)o-gaiso-** = Old Irish *fogae*.

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 ***Ghaiso-rīg-** < ***-rēg-** • Proto-Germanic ***Gaiza-rīk-** [PRE-GRIMM 2]: East Germanic ***Gaizarīks**, Latinized *Gaisericus* was the name of the long-lived king of the Vandals (~AD 389–477); • Proto-Celtic ***Gaiso-rīg-**: *Gaesorix* (*Caesorix* 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 ***nerþu-** [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 *Njǫrðr*, father of Freyr; • Proto-Celtic ***nerto-**: 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 *hynernth* ‘strong’ < ***su-nerti-**, cf. Celtiberian place-name *Nertobriga/nertobis* ‘strong hillfort’ (Cabezo Chinchón, Calatorao/La Almunia 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**, **ESVNERTVS**.

¶ Formally and semantically similar CG developments from Proto-Indo-European *vH₂ner-* ‘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) Κελτοί, *Celtae*, *Celtici*, Κελτιβηρες, &c. (cf. McCone 2008). On balance, a derivation from Proto-Indo-European **kelH₂-* ‘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 *hiltia*, 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 Κελτοί, &c., personal names Gaulish *Celtus*, *Celtillus*, *Celtillus*, *Celtilla*, Old Irish *Celtchar*.

¶ *Celtius* < ***keltyos** recurs as a Palaeohispanic personal name: **CELTIVS MAELONIVS** (CIL II, 5257 — Lamego, Viseu), **CELTIO ANDERCI F.** (HEp, 13, 231 — Casas del Monte, Cáceres), **[TAN]CINO CELTI F. ENTERANIES.** (Melena 1985, 499–501; CPILC, 736 — Zarza la Mayor, Cáceres), **DOITENA AMBATI CELTI F.** (EE, VIII 167; Castillo et al. 1981, 53 — Marañón, Navarra), **DOCQVIRVS CELTI** (HEp, 2, 900 — Carvalhal Redondo, Nelas, Viseu); **DOQVIRVS CELTI** (HEp, 2, 897 — Canas de Senhorim, Nelas, Viseu), genitive plural family name ‘of the descendants of Celtius’ **AIAE CARAVANCAE BODDI F. CELTIGVN** (CIL II, 6298 — Olleros de Pisuerga, Palencia), suffixed form **CELTIVS VENIATI F.** (CPILC, 30 — Alcollarín, Cáceres), compound forms **ABRVNVS ARCELTIVS F.** (Beltrán 1975–76, 51; AE, 1977, 406; CPILC, 218 — Coria, Cáceres), **BOVDELVS CONCELTIVS F.** (AE, 1984, 471 — Belver, Gavião, Portalegre).

¶ Proto-Indo-European **kelH₂-* in the sense ‘strike’ is best attested, possibly exclusively, in NW: ● Celtic: Middle Irish *cellach* ‘contention, strife’ < ***kellāko-**, the Gaulish god’s name *Sucellus* often interpreted as ‘good striker’; ● Proto-Italic ***kelne/o-**: Latin *cellō* ‘strike’; ● Proto-Balto-Slavic ***kolʔ-** ‘beat’: Lithuanian *kàlti* ‘beat, forge’, Latvian *kaļt* ‘beat, forge’, Lithuanian *kùlti* ‘thresh, beat’, Old Church Slavonic *klati* ‘kill’, Russian *kolót* ‘to prick, stab, chop’; ***kolʔtó** ‘striking instrument’: Lithuanian *kàltas* ‘chisel’, Latvian *kaļts* ‘chisel, small hammer’, Russian dialect *kólot* ‘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’, ***slahana-** ‘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’, *slân*, *slâ* ‘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 *slachd* ‘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 ***flīтана-** ‘strive’ [PRE-GRIMM 2] [PRE-GRIMM 1]: Old English *flītan*, Old Saxon *anflītan* ‘to exert oneself’, Old High German *flīzan* ‘attempt, try hard’, *sih flīzan* ‘to apply oneself to’; ● Proto-Celtic ***(p)lēdo-**: 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 *dreht* ‘wedding party’, Old Saxon *druht-folk* ‘multitude, throng’,

Old High German *truht* ‘troop’; ● Proto-Celtic ***drungos**: Gaulish *drungos* ‘groups of enemies’; Middle Irish *drong* ‘troop’, Old Breton *drogn* glossing ‘cetus’, *drog* glossing ‘factionem’ ‘assembly, troop’, possibly also Middle Welsh *dronn* ‘multitude’. ¶ Unique CG meaning for this root: cf. Old Church Slavonic *drugŭ* ‘friend, other’, Lithuanian *draugas* ‘friend’ < NW ***dthroughós** ‘comrade, companion’.

- 2 ***worīn-**. ● Germanic: Old English *worn*, *weorn*, *wearn* ‘troop, crowd, company, multitude, flock, many, progeny’; ● Proto-Celtic ***worīnā-**: Old Irish *foirenn* 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

- 1 ***wiro-kwō** ~ ***wiro-wlkwō-**. ● Proto-Germanic ***wira-wulfaz** < Pre-Germanic ***wiro-wulpos** [PRE-GRIMM 1]: Old English *werewolf*, 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 *Viroconium* ‘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

- 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 *gwydgon* (Koch 1980), possibly the Gaulish divine epithet **MERCVRIO VIDVCO**.

WOLF, PREDATOR = WARRIOR OUTSIDE THE TRIBE 3 ***wolkos**.

- Proto-Germanic ***walhaz** ‘foreign warrior’ > ‘Italo-Celt’? > ‘Romano-Celt’ [PRE-GRIMM 1][predates Pre-Germanic ***ō** > ***ǣ** (Fulk 2018, 47)]: Ancient Nordic *walha-kurne* ‘“Welsh” corn’ or ‘corn of the Volcae’ a kenning for ‘gold’ (Tjurkö bracteate rune ~AD 440–560), Old Norse *Valir* (plural) ‘inhabitants of northern France’, Old English *Wealh* ‘foreigner, Welsh person, slave’, Old High German *Walh*, *Walah* ‘speaker of a Romance language’.
- Proto-Celtic ***wolkos** ~ ***wolkā-** ‘wolf, predator’ > ‘(landless) warrior’, from which widespread group name: Gaulish *Volcae* referring to extensive groups situated in South-west Gaul (near Toulouse), also north of the Middle Danube where, according to Caesar (*De Bello Gallico* §6.24), the *Volcae Tectosages* (‘journey-seeking Volcae’) were an expansionist people and had seized lands around the Hercynian Forest. Cf. Gaulish personal names *Uolkanus* (DAG 213, 223), *Uolcinus* (DAG 224), *Catuolcus* (DAG 221), *Uolcacius* (DAG Note xlv). The word, though rare in Goidelic, is probably attested in a line from a 9th-century poem describing events preceding the end of the world: *coin, foilc, fianna, ialla glasa—cid ba messa?* ‘dogs, wolves, warbands, grey companies—what could be worse?’ (Koch 1990; Carey 2014, 614, 621). Compare Old Welsh personal names *Riuualch*, *Gualchen*, Middle Welsh

gwalch ‘hawk, falcon; noble warrior, brave fighter, hero’, Old Breton personal name *Uualcmael*. 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 gueilging gwrymde* (B2.33) = *bu gwyar 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 **w_lk^wos* ‘wolf’ (Jenkins 1990). The first step in the phonological derivation is **wolk^wos* 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^wū/ > */kū/* occurred. From there **k < *k^w* spread through the paradigm. Alternatively, as proposed by Jenkins, **k < *k^w* could have arisen by dissimilation triggered by the initial **w-* in **wolk^wo-*. Lepontic **ulkos** probably reflects a different Celtic syllabification of Proto-Indo-European **w_lk^wos* ‘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 **w_lk^wos* ‘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 > *ǣ* 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—though 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^wowyōs**, ‘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 *túath*. 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 (*túath*), 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.

WOUND, INJURE 1 *bhreus- ● Proto-Germanic ***brūs-**: Old English *brȳsan* ‘bruise’ noun; ● Proto-Celtic ***brusyo-** ‘injures, breaks’: Old Irish *bruīd* ‘breaks in pieces, smashes, crushes’, *bronnaid* ‘injures, damages’, Middle Welsh *brīw* noun ‘wound, hurt, injury, bruise, sore’ (cf. Middle Welsh *brīwcic* ‘mangled flesh (on the battlefield), meat hash’), Old Cornish *breuyonen* gl. ‘mica’ ‘crumb’, Cornish *brew* ‘wound’, cf. Middle Welsh *breu* ‘fragile’. ¶ Contrast Latin *frustum* ‘fragment’ < *Vbhreus-* ‘break, smash to pieces’, possibly also Albanian *breshër* ‘hail’.

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

3 *aghlo- ● Proto-Germanic ***agla-** ~ ***aglijana-**: Gothic *aglīpa*, *aglo* ‘affliction’, *agls* ‘shameful’, *agljan* ‘treat badly, harm’, Old English *egle* ‘disagreeable, loathsome’, *eglan* ‘to harass, afflict’; ● Proto-Celtic ***aglo-** ‘wound, affliction’: Middle Irish *álad* ‘wound’, Middle Welsh *aelet* ‘pain, suffering, affliction, grief’, *aelawt* ‘grief, affliction’, *aele* ‘sad, wretched’. ¶ Unique CG morphology, especially the dental suffix in Gothic *aglīpa* and the Celtic forms. Proto-Indo-European *√H₂eghlo-* ‘distress’, *Vagh-* or *√H₂egh-*: Avestan *aya-* ‘bad, evil’, Sanskrit *aghá-* ‘bad’, *aghrā-* ‘evil, distress’, *aghalá-* ‘terrible’.

4 *gʷhen- ~ *gʷhon- ● Proto-Germanic ***banjō-** ‘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 ***gʷeni-** ‘wound’: Old Irish *guin* ‘wound, injury’, cf. Welsh *gwaniad* ‘stab, thrust, prick, wound’. ¶ From Proto-Indo-European *√gʷhen-* ‘kill’, also the source of Old Irish *gonaid*, Early Welsh *gwenyt* ‘wounds, slays, advances upon’ < Proto-Celtic ***gʷaneti-**. ¶ For a different etymology in Germanic, see Kroonen 2013, s.n. **banjō*. ¶ Proto-Germanic ***wunda-** ‘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 *healt* ‘lame, crippled, limping’, Old Frisian *halt*, Old Saxon *halt*, 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 *√kold-* ‘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 *crécht* ‘wound, ulcer’, Old Breton *creithi* gl. ‘ulcera’, Middle Breton singulative *creizenn* ‘scar’, Middle Welsh *creith* ‘scar, wound’.

7 *sai- ● Proto-Germanic ***sairaz-**: Gothic *sair*, Old Norse *sár* ‘wound, pain’, Old English *sār* ‘pain, wound, suffering; painful, grievous’, *sārig* ‘sorry’, Old Frisian *sēr* ‘pain’, Old Saxon *sēr* ‘pain’, Old High German *serō* ‘painfully, in a difficult way’, whence Finnish *sairas* ‘sick, ill’; ● Proto-Celtic ***sai-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 ***ark^wo-**. ● Proto-Germanic ***arh^w-ō-** ‘arrow’ [PRE-GRIMM 1]: Gothic *arh-azna*, Old Norse *qr*, Old English *arwe*, *earh*; ● Proto-Celtic ***ark^wo-** ‘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’ < **ark^wetā*; ● Proto-Italic ***arkuo-** ~ ***ark^wo-** ‘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 ἄρκυθος, Latvian *ērcis*, Russian *rakīta* ‘juniper’, a wood suitably flexible for making bows. The transference to the weapon made from juniper was confined to ‘Italo-Celtic/Germanic’. ἄρκυθος ‘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.

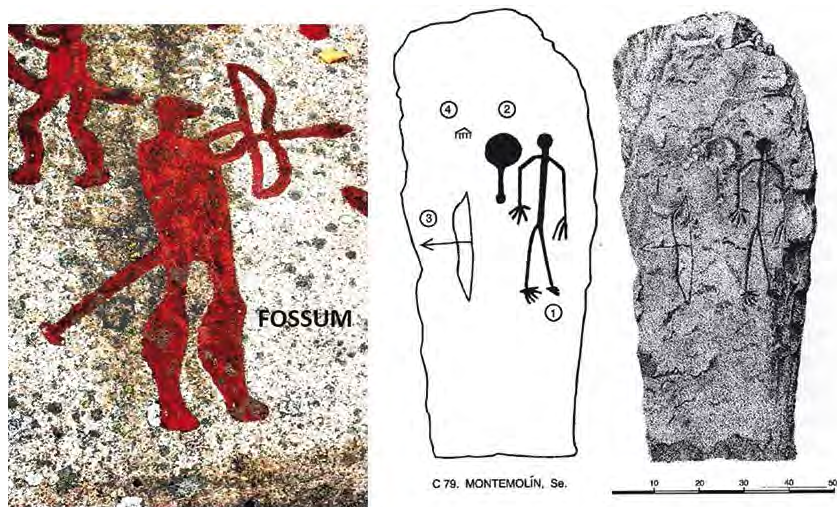
¶ The numerous Palaeohispanic attestations, most of which are in the West, have been explained as derived from PIE **H₂rtkós* ‘bear’ (see above). In the light of phonological difficulties for this explanation, an alternative possibility may be considered, such as, assigning the **Arco-** names to ICG **árk^wos* ‘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 **/k^wū/* > **/kū/*, as for example in *silva Hercynia* < **Φerkun-* < Pre-Celtic **perk^wun-* ‘oak wood, wood of the oak god’ > ‘THUNDER, THUNDER GOD’ (before the operation of the rule of **p... *k^w* assimilating to **k^w... *k^w*). In a nasal-stem inflection this phonemic convergence of **k^wū* and **kū* would have occurred in nominative singular **ark^wū* > **/arkū/*, after which **/k/* could naturally have spread through the paradigm. Similarly, with the *-o*-stems, there would have been neutralization with dative singular **ark^wūi* > **arkūi*, and accusative plural **ark^wūs* > **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 **[k^w]* losing its labialization in the environment preceding **[u(:)]*, but rather that the phoneme **/k/* was labialized before **/ū/* to such an extent that it ceased to contrast with **/k^w/* in this environment, and the phoneme **/k^w/* 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 **[k^oo]* undermining the contrast with **/k^wo-/*. 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**



Figures 28 & 29. ICG *arkw-o- 'BOW AND ARROW'. Late Bronze Age rock art depicting bows and arrows: left – Fossum, Bohuslän, Sweden (source: SHFA); right – Montemolín, Sevilla, Spain (after Harrison 2004, C79).

Figure 30. ICG *arkw-o- 'BOW AND ARROW'. The bow-shaped hill viewed from the ruined Roman town of Arcobriga (Monreal de Ariza, Zaragoza, Spain; source: <http://aeternitas-numismatics.blogspot.co.uk/2012/03/la-ciudad-celtibera-de-arcobriga.html>) with the bow and arrow of the Montemolín stela (Figure 29) superimposed.

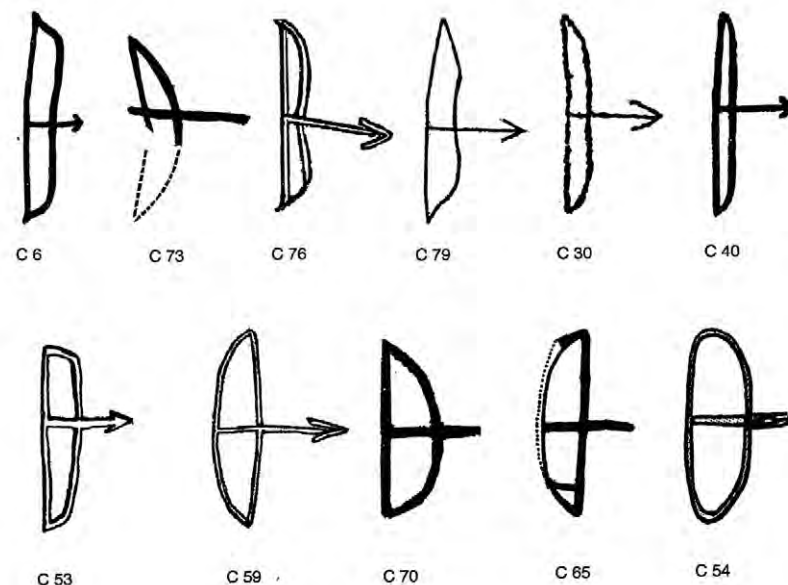


Figure 31. All bows and arrows as represented on Iberian Late Bronze Age 'warrior stelae' (after Harrison 2004, Figure 7:15).

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; ERRBragança, 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 — Alcántara, 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 TVRCAL(NSIS)** (CIL II, 5307; CPILC, 469 — Sierra de Fuentes, Cáceres); **ARCONII 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 Zézere, 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** (Torreão, Alcácer do Sal, Setúbal); divine name **NAVIAE ARCONVNIECAE** (IRLugo, 72 — San Mamede de Lousada, Guntin, Lugo).

GOAD, POKER 2 ***ghazdho- ~ *ghazdhā-**. • Proto-Germanic ***gazdaz** ‘goad’ (***gazdi** ‘rod’): Gothic *gazds* ‘sting, goad’, Old Norse *gaddr* ‘goad, spike’, Old English *gierd*, *gyrd* ‘rod’, Old Frisian *jerde* ‘yard (unit of measure)’, Old Saxon *gerdia* ‘rod’, Old High German *gertia* ‘rod’, *gart* ‘prickle’; • Proto-Celtic ***gazdo- ~ *gazdā-, *gasto- ~ *gastā-**: Old Irish *gat* ‘withe, osier’, *gas* ‘sprig, shoot, twig’;

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

HATRED *kad-. ● Proto-Germanic ***hataz ~ *hatiz-** [PRE-GRIMM 2] [PRE-GRIMM 1]: Gothic *hatis* ‘hatred’, ON *hatr* ‘hatred, persecution’, Old English *hete* ‘hatred’, *hatian* ‘to hate’, Old Frisian *hāt* ‘hate’, *hatia* ‘to hate’, Old Saxon *hatan* ‘to hate’, Old High German *haz* ‘hatred’; ● Proto-Celtic ***katsi-** < ***kad-t/si-**: 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 [C]ASSI[B]ODVAE**, Ancient Brythonic *Cassi-vellaunos* ‘excelling in hostilities’, Galatian *Κασσιγνατος* ‘accustomed to hostilities’ (though other senses are possible, such as ‘tin bronze’; see below next item); ● Proto-Italic ***kādo/i-**: Oscan genitive singular *cadeis* ‘hostility’. ¶ Proto-Indo-European **kēH₂d-* ‘strong negative emotion’, also the source of Middle Welsh *kawδ* ‘anger, wrath, vexation affliction’, Breton *keuz* ‘remorse, affliction’ < Proto-Celtic ***kādo-**, cf. Avestan *sādra-* ‘woe’, Greek *kḗdos* ‘care, anxiety, pain’.

HELMET OF TIN-BRONZE (?) *kat-ti- ~ *kāt-. ● Proto-Germanic ***hōdoz** (< ***xāp-**) ~ ***hattu-** < Pre-Germanic ***kāt-** ~ ***kat-tu-** [PRE-GRIMM 1]: Old Norse *hōttr*, *hatr* ‘hat, hood, cowl, turban’, *hetta* ‘cap’, Old English *hætt* ‘head covering, hat’, *hōd* ‘guard, watch’, *hōd* ‘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 ***katsti-** < ***kat-ti-**: 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 *Cassi-vellaunos* (2010 s.n.

κασσίτερος)); Gaulish *cassidanos* and South-western Celtic **k^aásē^aana** most probably mean ‘overseeing officer of tin’ and/or ‘bronze’ (cf. Gaulish **ARGANTODANNOS** ‘overseeing officer of silver’ or ‘money’), probably also Cisalpine Gaulish woman’s name *Cassimara*; ● Proto-Italic ***kat^ttid-**: 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 ***agiō-** < [PRE-VERNER] ***axjā-** < Pre-Germanic ***akyā-** [PRE-GRIMM 1]: Old Norse *egg* ‘edge’, Old Frisian *edze* ‘edge, blade’, Old English *ecg* ‘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

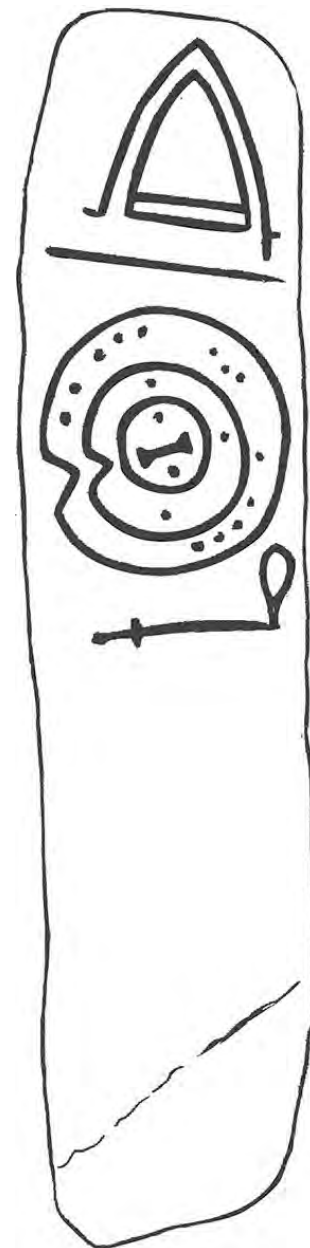


Figure 32. Drawing of Late Bronze Age stela from Santa Ane de Trujillo, Cáceres, Spain, showing a crested bronze helmet, spear, v-notched herzsprung shield viewed from the back showing the hand grip, leaf-shaped sword, and brooch or mirror (after Harrison 2004, no. C17).

awch and *awg* ‘sharpness, keenness, ardency, eagerness, desire’;
 ● Proto-Italic ***akyā-** ~ ***aku-**: Latin *aciēs* ‘keenness, edge’, *acūtus* ‘pointed, sharp’, *acūmen* ‘sharp point’, *acuere* ‘to sharpen’. ¶ Proto-Indo-European *vH₂ek-* ‘sharp, pointed’, cf. Greek ‘ἀκίς ‘point’. 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 ***ākk-** or ***āxs-**. The variant *awg* permits the more easily analyzed ***āk-**. 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 *cemecid* 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 ***bibhudwōtes** ‘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’;
 ● Proto-Italic ***fūt-** < ***bheu-t-**: Latin *-fūtō-*, *-fūtāre* ‘to strike’, cf. *fūstis* ‘rod, stick, cudgel’, *fūstitudinus* ‘stick beating, cudgel bang’.

c. Celto-Germanic/Balto-Slavic

ARMY, TRIBE ***kóryos**. ● 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 *Corio-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 *Corieltauui* ‘(tribe) having a broad warband’ < ***koryo-(p)ltawī-**, *Tricurius*, Old Welsh *cas-goord* ‘retinue’, Middle Welsh *corδ* ‘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’.

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 *naδu* ‘to cut with a sharp implement, hew, chip, whittle, engrave’, Old Welsh *nedim* ‘axe, hatchet’ by dissimilation < **naδiδ* < Proto-Celtic ***snadiyos** ‘cutter, chopper, wounder’, cf. Middle Welsh *kleδyf* ‘sword’ < **kleδiδ* < ***kladiyos** ‘striking/cutting implement’, from which Latin *gladius*; Old Irish *claideb* ‘sword’ is a loanword from dissimilated Late Ancient Brythonic **klaδiβah* < **klaδiδah*; ● Slavic: Old Russian *snastъ* ‘instrument, weapon’.

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 *skjǫldr*, Old English *scield*, *scyld*, *sceld*, Old Frisian *skeld*, *scild*, Old Saxon *skild*, Old High German *scilt*, *skilt*; ● Proto-Celtic *skēto- < *skeito-: Old Irish *sciath*, Old Welsh *scoit*, 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’ < **skēto-* in the line *ny nodi nac ysgeth nac ysgwyt* ‘neither [Irish/Scottish-type] shield nor shield gave protection’. ● Proto-Italic **scoitom*: Latin *scūtum*; ● Proto-Balto-Slavic **skóitum*: Old Prussian *staytan*, *scaytan* ‘shield’, Russian *ščit* ‘shield’. ¶ Proto-Germanic **skeipa-* ‘sheath’ < Pre-Germanic **skeito-* is the cognate of Celtic ‘shield’: Old Norse *skiði*, 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 **skēdo-*: Old Irish *sciath* ‘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 *bleuen* ‘to strike’, *bloh* ‘block’; ● Proto-Celtic **blagā*: Middle Irish *blog*, *blag* ‘(broken) fragment, piece, bit’; ● Proto-Italic **flagro-* < **bhHlg-ro-*: Latin *flagrum* ‘whip’; ● Baltic: Lithuanian *blaškaũ* ‘throw, fling’.



Figure 33. Proto-Celtic **skeito-*, Proto-Italic **scoito-*, Pre-Germanic **skeltu-* ‘SHIELD’: Detail of Late Bronze Age rock art panel from Hede, Kville 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-** ~ ***aksil-**. ● Proto-Germanic ***ahsula-** [PRE-GRIMM 1]: Old Norse *ǫxull* ‘axle’, Faroese *aksil*; ● Proto-Celtic ***axsilā-**: Middle Welsh *echel*, also *achel* ‘axle-tree, axle, axis, pivot’, Middle Breton *ahel* ‘axle’. ¶ The root *√H₂ek̑s-i-* ‘axle’ is Proto-Indo-European: Sanskrit *ákṣa-* ‘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.



Figure 35. CG ***aksilā** ‘AXLE’, ***markos** ‘HORSE’, ***kankistos**, ***kanksikā** ‘HORSE’, ***weghnos** ‘WHEELED VEHICLE’, ***ghaiso-** ‘SPEAR’, ***lust-** ‘SPEAR’, ***dhelgo-**, ***dholgo-** ‘DRESS PIN, BROOCH’, ICG ***ark^wo-** ‘BOW AND ARROW’, NW ***skeltu-**, ***skeito-**, ***skoito-** ‘SHIELD’, ICG ***rotos**, ***rotā** ‘WHEEL’: Late Bronze Age stela from La Solanilla, Córdoba, Spain, showing spear, V-notched shield, mirror, chariot with two-horse team, and warrior with sword (photo: J. Koch).

HORSE 1 ***markos**. ● Proto-Germanic ***marhaz** ‘horse, steed’ [PRE-GRIMM 1]: Old Norse *marr*, Old English *mearh*, Old Frisian *mar*, Old High German *marah*, cf. East Germanic personal names *Marafredus*, *Marabadus*; ● Proto-Celtic ***markos** ‘horse, steed’: Gaulish accusative *μαρκαν* and *τριμαρκισα* ‘a cavalry unit of three riders’ (Pausanias X.19.11), *marcosior* ‘may I ride’, *calliomarcus* glossing ‘equi ungula’, Gaulish place-names *Marcedunum*—Marquain (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 stallions’ (Stentoften 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) (Möjbro stone, Uppland, Sweden ~AD 300, Antonsen §11); ● Proto-Celtic ***kan̑sikā-** < ***kank-s-ikā-**: Gaulish personal names *Cassicius*, *Cassicia*, Middle Welsh *cassec*, Breton *kazeg* ‘mare’. ¶ The widely attested Indo-European word for ‘horse’ **H₂ek̑wós* also survived in both Germanic and Celtic.

HORSE+RIDE ***ekwo-reidho-**. ● Proto-Germanic ***eh^wa-rīdaz** [PRE-GRIMM 1]: Old Norse personal name *Jó-reiðr*, Old English *ēored* ‘troop, band (of retainers)’, Old Saxon *eo-rid-folc* ‘cavalry’; ● Proto-Celtic ***ek^wo-rēdo-**: Gaulish personal name *Epo-rēdo-rīx* ‘horse-ride+king’ (Caesar, *Bello Gallico* §7.38) = Galatian *Ἐπορηδοριξ* (Freeman 2001, 55), Cisalpine Gaulish place-name



Figure 36. Figure 29. ***aksilā** 'AXLE', CG ***marko-** 'HORSE', ***kankistos** ~ ***kanksikā** 'HORSE', ***weghnos** 'WHEELED VEHICLE', NW ***rotos** ~ ***rotā** 'WHEEL'. Fragmentary Late Bronze Age stela depicting chariot with two-horse team, from El Tejadillo, Capilla, Badajoz, Spain; Museo Arqueológico Provincial de Badajoz (photo: J. Koch).



Figure 37. CG ***aksilā** 'AXLE', ***marko-** 'HORSE', ***kankistos** ~ ***kanksikā** 'HORSE', ***weghnos** 'WHEELED VEHICLE', NW ***rotos** ~ ***rotā** 'WHEEL': rubbing of rock art image of a chariot and two-horse team from Frännarp, Skåne, Sweden, showing recurrent conventional representation of the horse, chariot frame, wheels, axles, spokes, yoke, and yoke pole (source: SHFA).

Eporedia 'Ivrea', Middle Welsh *ebrawyð* '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 *møn*, 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. *comas* '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 ***rīdan-** '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

Figure 38. CG ***marko-** 'HORSE', ***kankistos**, ***kanksikā** 'HORSE', ***weghnos** 'WHEELED VEHICLE', ICG ***rotos**, ***rotā** 'WHEEL'. Chariot panel, massive Bronze Age tomb at Kivik, Skåne, Sweden, ~1400 BC (photo: Jane Aaron).



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* (= *rhwydda*) ‘facilitate, expedite’, *gorwyδ* ‘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.

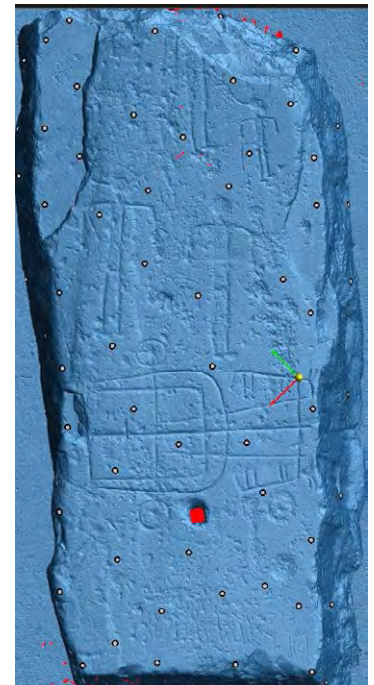
WHEELED VEHICLE **weghnos*. • Proto-Germanic **wagna-*: Old Norse *vagn*, Old English *wægn*, *wegn*, Old Frisian *wein*, Old High German *wagan*; • Proto-Celtic **wegno-*: Old Irish *fén* (also *fēnae* < **wegnyā-*). Cf. Gaulish divine epithet **MARTI VEGNIO** (Grevenmacher, Luxembourg). An Ancient 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 *√weġh-* ‘move’. The same suffixed formation **weġhnos* can be reconstructed for Tocharian B *yakne*, but that word means ‘way, manner’; an earlier meaning ‘wheeled vehicle’, as opposed to say ‘the way one rides’, is uncertain. Different formations from the same root include **weġhitlom* giving Sanskrit *vahītram* and Latin *vehiculum* (Mallory & Adams 2006, 247), also Greek ὄχος ‘chariot’ < φόχος < **woghos*, Sanskrit *vāhana* ‘chariot’.

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

WHEEL **rotos* ~ **rotā*. • Proto-Germanic **rapa-* [PRE-GRIMM 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 *rātas* ‘wheel, circle, ring, (plural) cart’, Latvian *rats* ‘wheel, (plural) cart’. ¶ It is likely that Proto-Indo-European **(H)rótH₂-o/eH₂-* originally meant ‘wheel’ rather than ‘wheeled vehicle’, cf. Sanskrit *rātha-* ‘war chariot’, Avestan *raθa-* ‘wagon, chariot’. In any case, the meaning ‘wheel’

either survived or developed only in NW. It is interesting that the meaning of the Baltic plural ‘wheels’ > ‘wheeled vehicle’ might reflect the original semantic bridge in a language geographically intermediate between Italo-Celtic and Germanic, on the one hand, and Indo-Iranian, on the other. Olander (2019) suggests that Latin *rota* was an early loanword from Celtic, which, as well as resolving a phonological issue, would also be plausible in the light of Latin *petorritum* ‘four-wheeled Gaulish carriage’, a loanword from Gaulish **petru-rotom*. In that case, Latin *radius* ‘wheel spoke’ would preserve the Italic formation corresponding exactly to Vedic *rāthya-* ‘belonging to a chariot’ < **(H)rotH₂-yo-*. That correspondence raises the interesting possibility that this word for ‘wheel’ and ‘wheeled vehicle’, with its more limited distribution than the nearly synonymous **k^wek^wlō-*, arose to differentiate an innovative vehicle with spoked wheels, such as the early chariots associated with the Sintashta culture.

Figure 39. CG **aksilā* ‘AXLE’, **marko-* ‘HORSE’, **kankistos* ~ **kanksikā* ‘HORSE’, **weghnos* ‘WHEELED VEHICLE’, ICG **rotos* ~ **rotā* ‘WHEEL’: Late Bronze Age stela from Majada Honda, Badajoz, Spain, showing warriors, one with a horned helmet, chariot with two-horse team, warrior, and a subsequently added Early Iron Age South-western ‘Tartessian’ inscription (scanned image: B. Schulz Paulsson)



§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 *būte*, *buite* ‘exchange, booty’, German *Beute* ‘booty’; • Proto-Celtic ***boudi-**: Gaulish *Boudi-latis*, Galatian Βουδο-πις, Hispano-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); **BOVDICAE TONGI F. MATRI** (AE, 1967, 170; Albertos 1983, 872 — Telhado, Fundão, Castelo Branco) = Ancient Brythonic *Boudica*, Old Irish *búaid* glossing ‘triumphus’ ‘victory, gain, profit’, *buadach* glossing ‘triumphale’ ‘victorious, triumphant’ < Proto-Celtic ***boudāko-** ~ ***boudākā-**, Middle Welsh *buδ* ‘profit, advantage’, Old Breton *bud* glossing ‘bradium’ ‘prize, reward’, cf. Old Welsh *budicaul* glossing ‘victo’ ‘victorious’, *budicolma* glossing ‘lapis per uictorie, uel crepido’ ‘place of victory’.

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

COUNTING, NUMBER ***rīma-**. • Proto-Germanic ***rīma-**: Old Norse *rīm* ‘computation’, Old English *rīm* ‘number’, Old High German *rīm* ‘account, series, number’; • Proto-Celtic ***rīma-**: Old Irish *rīm* ‘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 *√H₁rei(H_x)-* ‘count out’.

INNUMERABLE, COUNTLESS ***ñ-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 ***ñ-** 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 ***ñ-pl-** and ***m-pr-**.

IRON ***isarno-** ~ ***īsarno-**. • Proto-Germanic ***īsarna-** ~ ***īzarna-**: Gothic *eisarn*, Old Norse *ísarn*, Old English, Old Saxon, Old High German *īsarn*; • Proto-Celtic ***isarno-**: Gaulish place-name *Isarno-dori* ‘ferrei ostii’, Old Irish *īarn*; common in personal names Old Welsh *hearn*, Old Breton *hoiarn*, also *larn-* as an initial element in compound names, Old Cornish *-hoern*, also *larn-*, 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 *√H₁esH₂r-* ‘blood’, then transfer of Proto-Celtic ***īsarnom** ‘iron’ to Germanic, is proposed by Schumacher (2007, 173).

POLISH, SHARPEN, WHET ***sleimo-** ~ ***slimo-**. • Proto-Germanic ***(s)līmo-**: Old High German *slīmen* ‘polish, rub smooth’; • Proto-Celtic ***(s)līmo-**, ***(s)līmo-**: Middle Irish *límaid* ‘sharpens, 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 *līma* 'carpenter's file', *līmāre* '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 *līmōsus* 'slimy, muddy'. ¶ Old Irish *slim* '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 *lemhaam* glossing 'acuo' 'I sharpen', Middle Welsh *llymhau* 'sharpen, whet, hone, make a sharp edge or point, file'. It is possible that Middle Irish *límaid* is borrowed from Latin *līmāre*.

RED METAL, METAL THE COLOUR OF RAW MEAT **ēmo-* ~ **omyom*

< **omó-*. • Proto-Germanic **ēma-*: Old English *ōm* 'rust', *ōmian* 'become rusty', *ōmig* '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 **H₁éH₁-mon-* ~ **H₁oH₁-mó-* 'red, raw' is attested beyond the NW languages: Greek *ὠμός* 'raw, uncooked, cruel, savage', Sanskrit *āmá-* 'raw', Armenian *hum* 'raw, cruel, savage', as well as Old Norse *áma*, Old English *ōman* '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 1]: Gothic *wairþs*, Old Norse *verðr*, Old English *weorþ*, Old Frisian, Old Saxon *werth*, Old High German *werd* 'worth'; • Proto-Celtic **werto-*: Old Breton *uvert* 'worth', Middle Breton *guerz* 'sale', Middle Welsh *gwerth* 'worth, price, value, sale, exchange', cf. the legal term Old Breton *enep-uvert* = 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 *Vwert-* 'turn': Sanskrit *vártati* '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 *vĩrsti*, Old Church Slavonic *vǫrtěti* 'turns around'. ¶ Although English *worth* has now influenced the usage of Modern Welsh *gwerth*, as in *cnegwerth* 'penny's worth', Old Breton *enep-uvert* 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 *lān*, Old Saxon *lōn*, Old High German *lōn*; • Proto-Celtic **louk-* ~ **lukā-*: Old Irish *lóg*, *lúag*, *lúach* 'value, equivalent, worth, reward, payment, price, wage, fee', Modern 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 *λαῖᾱ* 'booty' < **λαῖρίᾱ*. ¶ 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 **lauda-* [borrowed after the loss of **p* in Celtic]: possibly Old Norse *lauð*, Old English *lēad*, Old Frisian *lād*, Middle High German *lôt*; • Proto-Celtic **(p)loudyo-*: Middle Irish *lúaide*; • Proto-Italic **plumbo-* < **plumdho-*: 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 *blī*, Old High German *blīo*) 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 *ōra* ‘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, **ṇ-bhrutó-* ‘not boiled’ would also explain the form and meaning of *amrwt*.

Figure 40. The Isle of Thanet, Richbough, and Cliffs End Farm.



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

METALLURGY ***(s)mei-** ~ ***(s)mi-**. ● Proto-Germanic ***smīpu-** ‘smith’ < Pre-Germanic ***smi-tu-** [PRE-GRIMM 1]: Gothic *aiza-smīpa* ‘copper smith’, Old Norse *smiðr*, Old English *smiþ*, Old Frisian *smeth*, Old Saxon *-smið*, 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 *méin*, *míán* ‘ore, metal, mineral’, cf. Old Irish *móin*, *maín* ‘treasure, something very valuable’, Middle Welsh *mwyn* ‘ore, mineral, mine’, Welsh *mwyn-glawdd* ‘mine, pit, mineshaft’ = Breton *men-gleuz*, cf. Middle Irish *claide mianna* ‘delving mines’; ● Balto-Slavic: Old Church Slavonic *mědi* ‘mineral’, Russian *mědi* ‘copper’, cf. possibly Lithuanian *maĩnas*, Old Church Slavonic *měna* ‘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 ***-tu-** (>***-þu-**), which is found only in the Germanic examples.

SILVER ***silVbr-**. ● Proto-Germanic ***silubra-**: Gothic *silubr*, Old Norse *silfr*, Old English *siolfor*, *siolufr*, Old Frisian *selover*, *selver*, Old Saxon *siluþar*, *siluþar*, Old High German *silabar*; ● Celtic: Celtiberian **silabur**; ● Balto-Slavic: Lithuanian *sidābras*, Old Prussian *siraplis*, Old Church Slavonic *сѣrebro*. ¶ [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 ***lok-e/o-** [PRE-GRIMM 1]: Old Norse *lá*, Old English *lēan*, Old High German *lahan*; ● Proto-Celtic ***loxtus** < ***lok-tu-**: Old Irish *locht* ‘fault, shortcoming, error, vice, offence, physical blemish’.

CORRECT, RIGHT, JUST ***rektus** < Proto-Indo-European ***H₃reǵ-tu-**. ● Proto-Germanic ***rehtuz**: Gothic *raihts* attested only in the meaning ‘straight’, Old Norse *réttr* ‘right, legal order, straight, correct’, Old English *riht* ‘right’, Old Saxon *reht*, Old High German *reht* ‘straight, good, right’; ● Proto-Celtic ***rextus**: Ancient Celtic Personal names: Gaulish **REXTVGENOS SVLLIAS AVVOT** (inscribed figurine, RIG II L-22; Lambert 1994, 121–2 — Caudebec-en-Caux, Upper Normandy), Celtiberian **retukenos telkaskum** (B3, IV-24 — Botorrita, Zaragoza), **retukenos kustikum** (B3, IV-33 — Botorrita, Zaragoza); **RETVGENOS DOMITIANI S.** (CIL II, 2324; Hernando 2007; HEP, 17, 57 — Almodóvar del Pinar, Cuenca), **RETVGEN(I) ELOCI** (HEP, 10, 172 — Saelices, Cuenca); **ATTA ABBOIOCVM RECTVGENI F. L. VX.** (CIL II, 6294; AE, 1987, 623; Abascal 1983, 3 — Almadrones, Guadalajara), **T. MAGILIVS RECTVGENI F. VXAMA ARGAEIA** (CIL II, 2907; Espinosa 1986, 44 — Herramélluri, La Rioja), Old Irish *recht* ‘law, rule, authority, ordinance, scripture’, Middle Welsh *reyth* ‘law, sermon, jury, verdict’, *kyf-reith* ‘law’, cf. the Old Welsh name *Cobreidan*, *Cibreithan*, Middle Breton *reiz* ‘law, rule, arrangement’. ¶ The basic sense found in Proto-Germanic ***rehtaz** = Latin *rectus* ‘straight’ (verbal adjective of *regō* ‘guide, direct’), Avestan *rašta-* ‘straight’, Greek *ὀρεκτός* ‘straight’ < Proto-Indo-European ***H₃reǵ-to-** acquired secondary meanings dealing with law and justice in developments shared by Germanic and Celtic.

FOREIGNER ***alyo-morgi-** ~ ***alyo-mrogi-**. ● Proto-Germanic ***alja-markiz** [PRE GRIMM 2]: Ancient Nordic **aljamarkiz** (Kårstad 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*, *Brogitaros*, *Nitiobroges*, Old Irish *mruig*, 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 *vmorǵ-* ‘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 *fri*, Old High German *frī*; also Gothic *frei-hals*, Old Norse *frjals*, Old English *freols* ‘free’, cf. also the Germanic goddess name *Frig*; ● Proto-Celtic ***(p)riyo-** ‘free’: Old Breton *rid* ‘free’, Middle Welsh *ryδ* ‘free, not in slavery, having civil and legal rights, not oppressed, not imprisoned, unrestricted, loose, gratis, lawful, generous’, Middle Welsh abstract noun *ryδyt*, *ryδit* ‘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 ***priH₂ós** ‘beloved, of one’s own’.

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

HEIR ***orbho-**. ● Proto-Germanic ***arbjan-** ‘heir’ < ***H₃orbh-yon-**: Gothic *arbja*, *arbinumja* ‘inherit’, Ancient Nordic **arbijano** genitive plural ‘of heirs’ (Tune stone, Østfold, Norway ~AD 400, Antonsen §27; Fulk 2018, 169), cf. Old Norse *erfi* ‘funerary feast’, Old English *ierfe* ‘cattle’, Old Frisian *erve*, Old High German *arbeo*, *erbeo*; ● Proto-Celtic ***orbho-** ~ ***orbyos** ~ ***orbyā** ‘heir, successor, inheritor’: Old Irish *orb*, possibly also the Old Irish verb *erbaid* ‘entrusts, commits’, cf. Gaulish personal names **ORBIA**, **ORBIVS**, **ORBISSA**. ¶ Proto-Indo-European ***H₃orbh-o-** ‘bereaved, orphan’: Sanskrit *ár̥bha* ‘weak, young’, Latin *orbus* ‘bereaved, childless, orphaned’ < Proto-Italic ***orfo-** < ***orbho-**, Greek ὀρφανός *orphanós* ‘orphaned’, Armenian *orb* ‘orphan’ (McCone 1999).

HOSTAGE ***gheislo-** common in Germanic and Celtic in forming compound names. ● Proto-Germanic ***gīsla-**: Ancient Nordic **asugisalas** = **ansu-gīs̥las** genitive singular (Kragehul spearshaft, Fyn, Denmark ~AD 300, Antonsen §15), Old Norse *gísl*, Old English *gīsel*, Old Saxon *gīsal*, Old High German *gīsal*; ● Proto-Celtic ***gēslo-** ‘hostage’: Old Irish *gíall* ‘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-guistl*, Old Cornish *Cat-gustel* ‘war hostage’, Old Cornish *Tancwoystel* ‘peace hostage’ (= Old Welsh *Tancoyslt*), *Wurgustel* ‘(adult) male hostage’, *Medguistyl* ‘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 *erþi*, Old High German *arbi*, *erbi* ‘inheritance’; • Proto-Celtic ***orbiyo-** ‘inheritance’: Old Irish *orbe*, Early Welsh (*Gododdin*) *wrvyð* ‘inheritance, legacy’ (*perheit y wrhyt en wrvyð* ‘his [the deceased hero’s] valour endures as a legacy’). ¶ Notional Proto-Indo-European ***H₃orbh-yo-**.

INTENTION, DESIRE *mein- ~ *moin-. • Proto-Germanic ***main(j)o-**: Old Frisian *mēne* ‘opinion’, Old High German *meina* ‘meaning, intention, opinion’; • Proto-Celtic ***mēnom** < ***mein-** ~ ***moin-**: Old Irish *mían* ‘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 ***trūpa-** [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *trúðr* glossing ‘histrio’ ‘juggler, fool’, Old English *trūð* ‘trumpeter, actor, buffoon’; • Proto-Celtic ***drūto-**: Middle Irish *drúth* ‘professional jester, fool; legally incompetent, idiot’, cf. *drúthacht* ‘buffoonery’, Middle Welsh *drut* ‘reckless (in battle), furious, foolish, foolhardy, expensive’. ¶ The Welsh vowel implies a preform ***drouto-**. A loanword from Primitive Irish ***drūto-** datable to the Roman Period (i.e. after Ancient Brythonic ***ū** had become ***ū** and ***ō** < ***ou** had become ***ū**) is one possible explanation for the Brythonic form.

KING, LEADER *rīg- (< *rēg-). • Proto-Germanic ***rīk-** ‘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 ***rīxs** ‘king’: Hispano-Celtic **ERMAEEI 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[VANOS] | RICON-** (coin legend), divine names/epithets **DEO MARTI RIGISAMO** (RIB 1–187 — West Coker), **DEO MARTI RIGONEMETI** (RIB 1–254b — Nettleham, England), **RIGOHENE** (CIIC no. 419 — Llanymawddwy) < ***Rīgo-senā**, royal name or title with superlative suffix *Riothamus* < ***Rīgo-tamos**, Ogam Irish genitive personal name VOTECORIGAS, Old Irish *rí*, Old Welsh singular *ri*, dual in *Dou Rig Habren* ‘the Two Kings of the Severn’ (HB §68). ¶ Proto-Italic ***rēks** = ***rēg-s**: Latin *rēx*, genitive *rēgis* < Proto-Indo-European ***H₃rēǵ-s** ‘ruler, leader of ritual’. Although found also in Italic and Indic (Sanskrit *rāj-* ‘king’), the long ***ī** in the Germanic forms imply a prehistoric borrowing from Pre-/Proto-Celtic ***rīg-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 *þjóðríkr*, Old English *ðeodric*, 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*, *Tutri*. ¶ 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 *Tudur*. In the post-Roman Migration Period Germanic *ðeodric*, &c., and Brythonic *Tutir* were

not recognized as equivalent names, and the Germanic name was borrowed as Old Welsh *Teudubric*, which became Middle Welsh *Tewdric*, reminiscent of the borrowing/adaptation of Greek *Theodōros* as Old Welsh *Teudebur* > Middle Welsh *Tewdwr*.

KINGDOM, REIGN, REALM ***rīgyom** ~ ***rīgyā** < ***rēgyā**. ● Proto-Germanic ***rīkija** [borrowed after Celtic ***ī** < ***ē**] [PRE-GRIMM 2]: Gothic *reiki* ‘authority’, Old Norse *ríki*, Old English *rīce*, Old Frisian *rīke*, Old Saxon *rīki*, Old High German *rīhhi*; ● Proto-Celtic ***rīgyom** ~ ***rīgyā**: Old Irish *ríge* ‘ruling, kingship, sovereignty’, Middle Welsh *rieð* ‘glory (of God), majesty, kingship, sovereignty’ < ***rīgiyā**.

¶ note also the numerous Old and Middle Irish names of groups and districts inhabited by them in *-rige* or *-raige*, also *-airge*, with dative *-r(a)igiu* < Proto-Celtic ***rīgyom**, dative ***rīgyū** ‘kingdom’ used as a collective (examples: *Arttraige*, *Bentraige*, *Bibraige*, *Cáenraige*, *Callraige*, *Caraige*, *Céchtraige*, *Cíarraige*, *Coarraige*, *Corbbraige*, *Corccraige*, *Coscraige*, *Crecrige*, *Cuachraige*, *Cupraige*, *Cuthraige*, *Glasraige*, *Granraige*, *Gubraige*, *Lamraige*, *Lusraige*, *Mendraige*, *Múscraige*, *Nósraige*, *Osraige*, *Pápraige*, *Rosraige*, *Srobraige*, *Techtraige*, *Tradraige* (O’Brien 1962)).

NURTURER, PERSON ACTING AS A PARENT (?) ***altro-**. ● Germanic. This etymology is complicated in some cases by the phonological convergence of two related suffixed forms: the comparative adjective ‘older’, e.g. Gothic *alpiza*, and the noun ***aldra-** < [PRE-VERNER] ***alpra-** < Pre-Germanic ***altro-** [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 ***alpizō-**. 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 *ealdor* ‘lifetime’ from the noun ***aldra-** < Pre-Germanic ***altro-**, similarly widely attested nouns derived from Proto-Celtic ***altrawo-** ‘nurturer, person acting as a parent’: Middle Irish *altru* ‘foster father, nourisher’, Middle Welsh *athro* ‘teacher, tutor, foster parent’, and its variant *alltraw* ‘godparent, sponsor’ (feminine *elltrewyn*), likewise Old Breton *altro(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 ***aldra-** (the cognate of *altru*, &c.) rather than the comparative adjective ***alpiza-**. ¶ Cf. Olsen 2019, 157.

PERSON ACTING (AT DISTANCE) ON BEHALF OF A SUPERIOR

***mbhaktō-** ~ ***mbhaktā-**. ● Proto-Germanic ***ambahta-** ‘servant, representative’: Gothic *andbahts* ‘servant, minister, διάκονος’, Old Norse *ambátt* ‘bondswoman, concubine’ < feminine ***ambahta-**, Old English *ambiht* ‘office, service, commission, command, attendant, messenger, officer’, Old High German *ambaht* ‘servant, employee, official’; ● Proto-Celtic ***ambaxto-** ~ ***ambaxtā-** ‘representative, vassal’ < Pre-Celtic ***mbhi-ag-tó-** ‘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 *ambaith* ‘agriculture’, Middle Welsh *amaeth* ‘ploughman, farmer’ (cf. the mythological ploughman *Amaethon* < ***Ambaxtonos** in *Culhwch ac Olwen* and other early Welsh sources). ¶ Etymologically Proto-Indo-European past passive participle of the compound verb ***H₂mbhi** + ***h₂eĝ-**. ¶ Words for ‘servant’ in other Indo-European languages have the same preposition as their first element: Sanskrit *abhi-cara* ‘servant’, Greek *ἄμφιπλος* ‘(female)

servant'. Latin *anculus* 'servant, slave', *ancilla* 'female servant, slave' < *H₂*mbhi-k^wolH₁o-* 'moving around, taking care' (Olson 2019, 157).

¶ 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 **Janb^aatⁱa** 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 **Janb^aatⁱa** stands for [ambaxtia:] 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 **VIRIATVS**. Against this possibility, it may be noted that these forms are not closely comparable with



Figure 41. The Hispano-Celtic personal names *Ambatus* and *Ambata*.

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 ABBOIOCVM RECTVGNI F. L. VX.** (CIL II, 6294; AE, 1987, 623 — Almadrones, Guadalajara), **T. MAGILIVS RECTVGNI F. VXAMA ARGELA** (CIL II, 290 — Herramélluri, La Rioja); **RECTVG(ENVS) 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 **RECTVGENVS** was influenced by the correct perception that the first element of the name was related to Latin *rectus* 'direct, &c.', cf. the **RECTVS RVFI F.** who made a dedication to the indigenous deity **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 **DVATIVS APINI F. BANDI TATIBEACIVI VOCTO SOLVI** (AE 1961, 87 — Fornos de Algodres, Viseu), where faulty **VOCTO** for **VOTO** implying that Latin *rectus* was commonly pronounced [retus] in Hispania. If it is valid to take Romanized Celtiberian **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.

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.

¶**CELTIBERIAN REGION.** **AMBATA** (Abásolo 1974a, 99; Albertos 1975a — Lara de los Infantes, Burgos); **AMBATAE [---] SEGEI F.** (Abásolo 1974a, 194 — Quintanilla de las Viñas, Burgos); **AMBATAE AIONCAE T[---]TI F.** (Abásolo 1974a, 155 — Lara de los Infantes, Burgos); **AMBATAE AIONCAE LOVGEI F.** (Abásolo 1974a, 185 — Lara de los Infantes, Burgos); **AMBATA ALBEAVCA? SEGOVETIS F.** (CIL II, 2855; Abásolo 1974a, 18 — Iglesia Pinta, Burgos); **AMBATA BETVCA AMBATI F.** (Abásolo 1974a, 60 — Lara de los Infantes, Burgos); **AMBATA CAELICA CAI F.** (Abásolo 1974a, 24 — Iglesia Pinta, Burgos); **AMBATA COR[---] (HEp, 10, 88 — Belorado, Burgos); AMBATAE [D] ESSIC[A]E RVFI [F.] (SOCERAE)** (AE, 1983, 600; HEp, 4, 198 — Lara de los Infantes, Burgos); **AMBATAE MEDICAE VERATI F.** (HEp, 10, 81 — Belorado, Burgos); **AMBATAE MEDICAE**

PLACIDI F. (Abásolo 1974a, 81; HEp, 4, 199 — Lara de los Infantes, Burgos); **AMBATA PAESICA ARGAMONICA AMBATI VXOR** (CIL II, 2856; Abásolo 1974a, 177 — Lara de los Infantes, Burgos); **AMBATA(E) PEDITAGE AMBATI** (Reyes 2000, 24; HEp, 10, 87 — Belorado, Burgos); **AMBATAE PLANDIDAE** (EE, VIII 172; Abásolo 1974b, 63–4 — Pancorbo, Burgos); **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); **[CA]LPVRNIAE AMBATAE LOVGEI F.** (AE, 1980, 587 — Lara de los Infantes, Burgos); **SEMPRONIAE AMBATAE CELTIBERI** (Abásolo 1974a, 209 — San Millán de Lara, Burgos); **AMBATAE TERENTIAE SEVERI F.** (CIL II, 2857; Abásolo 1974a, 212 — San Pedro de Arlanza, Hortigüela, Burgos); **VALERIA AMBADAE** (CIL II, 2909; Abásolo 1974b, 30 — Villafranca, Montes de Oca, Burgos); **[---] AMBATI L.** (CIL II, 2884; Abásolo 1974a, 141 — Lara de los Infantes, Burgos); **[A]MBATVS** (CIL II, 2790; Palol & Vilella 1987, 219 — Peñalba de Castro, Burgos); **[A]MBATO ALEBBIO [B]ODANI F.** (Reyes 2000, 5 — Belorado, Burgos); **AMBATO BVRGAE SEGILI F.** (HEp, 10, 84 — Belorado, Burgos); **AMBATVS VEMENVS ATI F.** (Abásolo 1974a, 55 — Lara de los Infantes, Burgos); **AMBATO VIROVARCO** (HEp, 9, 246 — Ubierna, Burgos); **ARCEA [---] AMBATI F.** (Abásolo 1974a, 188 — Lara de los Infantes, Burgos); **ARCEA [---]AVCA AMBATI TERENTI F.** (EE, VIII 150; Abásolo 1974a, 160 — Lara de los Infantes, Burgos); **CABEDVS SEGGVES AMBATI F.** (CIL II, 2863; AE, 1977, 447 — Carazo, Burgos); **MADICENVS CALAETVS AMBATI F.** (CIL II, 2869; EE, VIII 154; Abásolo 1974a, 108 — Lara de los Infantes, Burgos); **SECONTIO EBVREN[I]Q(VM) AMBATI F.** (Reyes 2000, 18 — Belorado, Burgos); **SEGILO AESPANCO(N) AMBATA[E] FILIO** (HEp, 10, 83 — Belorado, Burgos); **TALAVS CAESARIVS AMBATI F.** (Abásolo 1974a, 13 — Hontoria de la Cantera, Burgos); **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, 142 — 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[L]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[O] NI 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** (ERCan, 8 — Luriez, Cantabria); **AMBATI PENTOVIECI AMBATIQ. PENTOVI F.** (ERCan, 8 — Luriez, Cantabria); **TILLEGVS AMBATI F. SVSARRVS** **IO AIOBAIGIAECO** (IRLugo, 55; HEp, 8, 334 — Esperante, Folgoso do Caurel, Lugo); **AMBATI BVRILI TVROLI F.** (HAE, 1367 — Yecla de Yeltes, Salamanca); **AMBATVS DIV<I>LI F.** (HEp, 4, 962 — Hinojosa de Duero, Salamanca); **CAVRVNIVS AMBATI CAVRVNICVM** (Albertos 1975a, 18. n.º 196 — Yecla de Yeltes, Salamanca); **[A]MBATVS** (AE, 1972, 287 — Salamanca); **AMBATVS PINTOVI** (HAE, 1327 — Saldeana, Salamanca); **AMBATVS TANCINILI F.** (HEp, 2, 617; HEp, 5, 677 — San Martín del Castañar, Salamanca); **CLOVTI[A] AMBATI FILIA** (HAE, 1265; Navascués 1966, 212 — Hinojosa de Duero, Salamanca); **IANVA AMBATI** (HAE, 1253 — Cerralbo, Salamanca);

MENTINA AMBATI F. (CIL II, 5036; HEp, 10, 513 Yecla de Yeltes, Salamanca); **AMBATI ARQVICI** (HEp, 11, 361 — Barruecopardo; Salamanca); **AMBATO ARQVI F.** (ERZamora, 114; CIRPZ, 241 — Villalcampo, Zamora); **AVELCO AMBATI F.** (HAE, 920; CIRPZ, 246; ERZamora, 29 — Villalcampo, Zamora); **PINTOVIO AMBATI** (ILER, 2333; ERZamora, 210; CIRPZ, 271 — Villalcampo, Zamora); **AMBATO** (HEp, 18, 486 — Villardiegua de la Ribera, Zamora); **AMBATIA** (HEp, 18, 488 — Villardiegua de la Ribera, Zamora); ¶S.W. INSCRIPTIONS. **[anb^aatⁱa iob^aa]** (J.16.2 — San Salvador, Ourique, Beja) can be provisionally interpreted as nominative **[Amba(χ)tiā iō^amā]** ‘the youngest daughter of Amba(χ)tos’ or more generally ‘the youngest kinswoman or female descendant of Amba(χ)tos’.

¶OUTSIDE THE BRIGA-ZONE. **AMBATA APPAE F.** (CIL II, 2950 — Contrasta, Álava); **AMBATO** (HAE, 2522 — Angostina, Álava); **AMBATVS SERME F** (CIL II, 2951 — Contrasta, Álava); **AMBA[T]VS PLENDI F.** (CIL II, 2948 — Eguilaz, Álava); **[A]MBATVS [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. n.º 74 — Iruña, Álava); **SEGONTIVS AMBATI VECTI F.** (CIL II, 2956 — Contrasta, Álava); **AMBATA** (Castillo et al. 1981, 48 — Gastiáin, Navarra); **DOITENA AMBATI CELTI F.** (EE, VIII 167; Castillo et al. 1981, 53 — Marañón, Navarra); **DOITERV[S ---] AMBATI F.** (Castillo et al. 1981, 55; HEp, 5, 623 — Marañón, Navarra); **IVNIA AMBATA VIRO[NI] F.** (CIL II, 5827; Castillo et al. 1981, 45 — Gastiáin, Navarra); **PORCIA AMBATA SEGONTI FILIA** (CIL II, 5829; Fita 1913b, 565 — Gastiáin, Navarra); **AMBATV[S]** (HAE, 185; Alföldy 1975, 337 — Tarragona); **L. POSTVMIVS AMBATVS** (CIL II, 4024 — Villar del Arzobispo, Valencia).

PLEASANT, FAIR ***teki-**. ● Proto-Germanic ***pakkja-** ~ ***pekka-** [PRE-GRIMM 1]: Old Norse *þekkr* ‘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. negated Old Irish *étig* ‘unnatural, unseemly, ugly, repulsive’ = Middle Welsh *annhec* ‘unbeautiful, inelegant’ < Proto-Celtic ***an-teki-**.

RELATIVE, FRIEND < ONE WHO LOVES 2 ***priyānt-**. ● Proto-Germanic ***frijand-** ~ ***frijōnd-** [PRE-GRIMM 1]: Gothic *frijonds* ‘friend’, Old Norse *frændi*, *frjāndi* ‘relative, friend’, runic *frændi* (the meaning is ‘relative’ in the modern Scandinavian languages), Old English *frēond* ‘friend, loved one, relative’, Old Frisian *friūnd*, *friōnd* ‘friend, loved one, relative’, Old High German *friunt* ‘friend, loved one’; ● Proto-Celtic ***(p)riyant-**: Middle Welsh *ryeni*, *reeny*, also *rienni*, *hrienni* (with double *nn* < **nt*) ‘parents, forefathers, ancestors, close family, kindred, descendants, heirs’, Welsh *rhiant* ‘parents, ancestors, elders’, singular *rhiant*. ¶ This is a specialized CG lexicalized development of the participle of Proto-Indo-European **priH₁-eH₂-* ‘love’, cf. Sanskrit *priyate* ‘to be pleased’, Old Church Slavonic *prijati* ‘to take care of’. ¶ In Celtic, which is limited to Brythonic, the etymology is complicated because three or four nearly homophonous words with overlapping meanings have influenced each other: Middle Welsh *riein* ‘lady, queen’ < Proto-Celtic ***rīganī**, the compounds ***(p)ro-geno-** (cf. Latin *prōgenies* ‘progeny, offspring’) and ***rīgo-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 **Rīgantonā* glossed ‘Divine Queen’ or similar (e.g. Bartrum 1993, 552–3; Koch 2006); the stem in *-nt-* reflects conflation of the Proto-Celtic ***rīganī** ‘queen’ (Old Irish *rígain*) 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 *rouantelez* ‘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 *Vper-* ‘appear, bring forth’, is different.

SON, YOUTH ***maghus**. ● Proto-Germanic ***maguz** ‘son, boy’: Ancient Nordic dative **magōz** ‘son’ (Vetteland stone, Rogaland, Norway ~AD 0, Antonsen §18), accusative **magu** (Kjøllevik 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 ***mawī-**: Gothic *mawī*, genitive *maujos* ‘girl, maid’, Old Norse *mær*, genitive *meyjar* ‘girl, daughter’; ● Proto-Celtic ***magus**: Gaulish personal names **MAGVRIX**, **MAGVNVS**, **MAGVNIA**, **MAGVSATIA**, Old Irish *mug* ‘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 *Gallmau* 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-Núadat* ‘servant/youth/son of Núadu’ and *Mug-Néit*. 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 *druid*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] The meaning of Proto-Germanic ***maguz** ‘son, boy’ favours a link with Proto-Celtic ***mak^wos** ‘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*), Ogamic Primitive Irish genitive MAQQI, MAQI, Old Irish *macc* (cf. also the Old Irish kinship term *maccu* ‘descendant of the ancestor’, and the formula in Ogamic Primitive Irish MAQI MUCOI), Old Welsh, Old Breton, and Old Cornish *map*. The variation between

CG ***magus** ‘son, youth’ and Proto-Celtic ***makʷos** ‘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 ***maghus** might less probably be explained as a development from an Indo-European root also reflected in Avestan *maδava-* ‘unmarried’.

TRUSTWORTHY, RELIABLE ***droudo-** ~ ***drusd-** • Proto-Germanic ***trausta-** [PRE-GRIMM 2]: Old Norse *traustr* ‘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 *druid* ‘close(d), firm, trustworthy’, also the verb *drut* ‘act of closing, shutting, making secure’, cf. the Pictish personal names *Drust*, *Drustan*, *Drost*, *Drest*, *Drosten*, Ancient Brythonic **DRVSTANVS**. ¶ CG ***droudo-** can be explained as a compound of Indo-European roots *vdóru* ‘tree’ and *vsed-* ‘sit down, set’. ¶ Cf. also CGBS ‘LOYAL, TRUSTWORTHY’ ***drewu-** below.

WITNESS ***weidwōts** • Proto-Germanic **wīt wōps** < ***weitwāps**: Gothic *weitwops* ‘witness’ [PRE-GRIMM 2] [PRE-GRIMM 1]; • Proto-Celtic ***wēdwūts**: Old Irish *fiadu*, *fiado*, *fiada* ‘witness’, cf. *fiad* ‘presence’, Middle Welsh *gwyδ*. ¶ Old Prussian *waidewut* ‘priest’ is formally identical to the CG word, but has developed a different secondary meaning from Proto-Indo-European ***weidwōts** ‘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 *√weid-* ‘see, look, know’.

b. Italo-Celtic/Germanic (ICG)

CHOOSE, TRY ***gustu-** • Proto-Germanic ***kustu-** [PRE-GRIMM 2]: Gothic *kustus* ‘test, trial’, Old Norse *kostr* ‘choice, alternative, opportunity’, Old English *cyst* ‘choice, election, excellence, virtue’, Old High German *kust* ‘evaluation, trial, choice’; • Proto-Celtic ***gustu-**: Old Irish *gus* ‘excellence, force, vigour’, cf. Old Irish *Fergus*, Old Welsh *Guurgust* ‘chosen man, masculine force’; • Proto-Italic ***gustu-**: Latin *gustus* ‘taste’.

MADE CAPTIVE, BOUND, SLAVE ***kaptós** • Proto-Germanic ***hafta-** [PRE-GRIMM 1]: Gothic *hafts* ‘joined, bound’ (e.g. *liugôm hafts* ‘joined in marriage’), Old Norse *haptr* ‘captive’, cf. *Haptaguð* ‘god of prisoners, god of fetters’ (byname of Óðinn), Old English *hæft* ‘bond, fetter, made prisoner, captive’, Old Saxon, Old High German *haft* ‘made prisoner, captive’; • Proto-Celtic ***kaxto-**: Old Irish *cacht* (feminine) ‘female servant’, (masculine) ‘person in bondage, slave, confinement, constraint, compulsion’; Old Cornish *cait* glossing ‘servus’, Middle Welsh *caeth* ‘bond, bound, captive, captured, slavish, servile, confined, restricted’, Middle Breton *quaez* ‘poor, unfortunate’; • Proto-Italic ***kapto-**: Latin *captus* ‘thing or person taken’, cf. *captivus* ‘person captured in war’. ¶ Notional Proto-Indo-European past passive participle **kHp-tó-*.

SACRIFICE, OFFERING, RITUAL MEAL ***dapno-** ~ ***dapnā-** • Proto-Germanic ***tafna-** < Pre-Germanic ***dapno-** [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *tafn* ‘sacrificial animal, sacrificial meat’; • Proto-Celtic ***dawnā** < ***da(p)nā**: Middle Irish *dúan* ‘poem, song, verse composition, poem to be recited for payment’ (Watkins 1995, 118, 237); • Proto-Italic ***dapno-**: Latin *damnum* ‘loss, expense’. ¶ Possibly cognate with Armenian *tawn* ‘religious feast’. Note with the same root, but not the suffix, Latin *daps* ‘sacrificial meal’, Hittite *tappala-* ‘person responsible for court meal’, Tocharian A *tāp* ‘to eat’ < Proto-Indo-European *√dH₂ep-* ‘apportion’, possibly also Greek δάπτω ‘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*, *seolf*, 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 **selfo-*: 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 an accented form of the Proto-Celtic genitive pronoun **esyo*, **esyās* ‘his, her’. ¶ 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 *þagkjan* ‘to think, plan’, Old Norse *þekkja* ‘to perceive, notice, comprehend, know, recognize’, Old English *þencan* ‘to think’, Old Saxon *thenkian* ‘to think, consider, watch’, Old High German *denkan*, *denchen*, cf. Old Norse *þøkk* ‘pleasure’ < Proto-Germanic **þankō*; • Proto-Celtic **tongeti* ‘swears’: Old Irish *tongid* ‘swears’, Middle Welsh *twng* ‘swears, affirms strongly, curses’, probably also Gaulish *toncsiiontio* ‘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 ANDAI[--- F.]** (EE, VIII 10; Encarnação 1984, 574 — Elvas, Portalegre); **TONGIVS** (CPILC, 738 — Calzadilla de Coria, Cáceres); **TONGIV[S]** (CPILC, 592 — Valencia de Alcántara, Cáceres); **TONGI** (Almeida 1956, 227, nº 135 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **BOVDICAE 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.** (CPILC, 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.** (CPILC, 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(ILIVS) GENIO · AMMAIENCIS** (HEp, 13, 1001; AE, 2004, 706 — São Salvador de Aramenha, Marvão, Portalegre); **MAELO TONGI F. / TONGIVS** (CIL II, 749; CPILC, 89; CILCC I, 107 — Brozas, Cáceres); **AVITAE TONGI F.** (AE, 1967, 167 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **C. IVLIVS TONGIVS** (CIL II2/7, 956; HEp, 7, 147 — Monterrubio de la Serena, Badajoz); **CAMIRA TONGI F.** (CIL II, 757; CPILC, 25; Albertos 1977b, 38; CILCC I, 26 — Alcántara, Cáceres); **RVFVS TONGI F.** (CIL II, 729; AE, 1968, 214; CPILC, 586 = CPILC, 596 — Valencia de Alcántara, Cáceres); **TITANVS TONGI F.** (CIL II, 795 & p. 826; CPILC, 202; Beltrán 1975–1976, 26; Melena 1985, 498; AE, 1977, 388 — Ceclavín, Cáceres); **FLACCO TONGI**

F. (AE, 1967, 167 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **TONGIO TANCINI F.** (CIL II, 5310; CPILC, 269 — Hoyos, Cáceres); **TONGIVS SVNVAE F.** (CIL II, 757; CPILC, 25; Albertos 1977b, 38; CILCC I, 26 — Alcántara (Cáceres); **TONGIVS VIROTI** (CPILC, 221; HEp, 8, 77 — Coria, Cáceres); **[T]ONGIVS L. GOVTI** (CIL II, 840; CPILC, 188 = CPILC, 662 — Cáparra, Cáceres); **A. C. NORBANI TONGI F.** (CPILC, 734; CILCC I, 371 — Valdefuentes, Cáceres); **MATERNVS TONG[I]** (AE, 1985, 529; FE, 67 — Proença-a-Velha, Idanha-a-Nova, Castelo Branco); **NIGER TONGI F.** (HAE, 1173 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **TONGIVS TANGINI F.** (AE, 1967, 181 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **TANGINVS TONGINAE F.** (HEp, 4, 1051; HEp, 5, 1019 — Condeixa-a-Velha, Condeixa-a-Nova, Coimbra); **PROCVLO TONG(I)NI F.** (EE, IX 127; CPILC, 644; Melena 1985, 489 — Villamiel, Cáceres).

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 *dъlgъ*, Russian *dólg* ‘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*.



Figure 42. The Palaeohispanic personal names in *Tonc-* and *Tong-*.

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), Βοιωαμμον (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 | koimila** (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* < **Kuno-coimagnos*, *Cuncum* < **Kunocoimos*, *Guincum* ‘Fair and Dear’ also *Guinnccum* < **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 *cuf*, *cueff*. See below for numerous attestations of Hispano-Celtic **COEMEA**, **QVEMIA**, **ANCOEMA**, **ANQVEMA**, &c. • Baltic shows both *satəm* (< Proto-Balto-Slavic **śoim-*) and *centum* forms (< **koim-*), the latter possibly reflecting influence or borrowing from a western dialect, such as pre-Grimm 1 Pre-Germanic: Lithuanian *šeimā* ‘family’, *šeimė* ‘family, household’, Latvian *sāime* ‘members of a household, (extended) family’, Russian *semja* ‘family’, Latvian *kiēmas*, *kāimas*, Latvian *ciems*, Old Prussian *caymis* ‘farmstead, village’. ¶ Greek κοιμάω ‘put to sleep, lull’ shows that a word closely resembling the proto-form of these NW words existed in Proto-Indo-European and is derived from *√kei-* ‘lie down’, cf. Greek κείται ‘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 *éccaem* ‘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*/*Quemia* 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. **COEMEA SEMPRONIE PATERNIE L.** (CIL II, 2867; Abásolo 1974a, 20 — Iglesia Pinta, Burgos); **COEMEA AGOLIECA APLONI F.** (Abásolo 1974a, 173 — Lara de los Infantes, Burgos); **COEME(A) ALTICA NIGRI** (Abásolo 1974a, 45 — Lara de los Infantes, Burgos); **COEM[E]AE APONIAE APON[II] F.** (EE, VIII 152 — Lara de los Infantes, Burgos); **COEMEA BETVNIA CITI F.** (CIL II, 2788; Palol & Vilella 1987, 57; HEp, 2, 120 — Peñalba de Castro, Burgos); **COEMEA DESICAE APLONI F.** (Abásolo 1974a, 183 — Lara de los Infantes, Burgos); **COEMEA DESSICAE VISADI AQVINI? F.** (CIL II, 2866; Abásolo 1974a, 158 — Lara de los Infantes, Burgos); **COEMEA ELAESISC[A] AGRICOL(A)E F(ILIA)** (Abásolo 1974a, 84 — Lara de los Infantes, Burgos); **COEMEA PLANDICA PEDOLI F.** (Abásolo 1974a, 170 — Lara de los Infantes, Burgos); **QVEMIE B[OV]DICE** (Abásolo at al. 1982, 164 — Fuentebeza, Burgos); **QVEMIAE TAVROMETA BALBI F(ILIAE)** (HEp, 10, 85; HEp, 18, 70 — Belorado, Burgos); **QVEMIA MAGLAENA QVIETI LIB.** (HEp, 10, 91 — Belorado, Burgos); **AIAE QVEMIAE BODDI F. CELTIGVN** (CIL II, 6298 — Olleros de Pisuerga, Palencia); **[---] QVEMI F.** (Palol & Vilella 1987, 76; HEp, 2, 136 — Peñalba de Castro, Burgos); **[A]NCOEM[A] VENISTI F. CABVECON** (Abásolo 1974a, 51 — Lara de los Infantes, Burgos); **ANCOEMA DESICA SEGI F.** (Abásolo 1974a, 59 — Lara de los Infantes, Burgos); **ANCOEMA PLANDICA SEGVETI F.** (Abásolo 1974a, 150; Albertos 1983, 866 — Lara de los Infantes, Burgos); **ANQVEMAE POSTVM[]** (Abásolo 1974a, 85 — Lara de los Infantes, Burgos); **ANQVEME PESICE CORNELI [L]ATERANI** (Abásolo 1974a, 100 — Lara de los Infantes, Burgos).

¶WESTERN PENINSULA. **LABERIA COIMIA M. F.** (AE, 1978, 381 — Aljustrel, Beja); **COEMA** (Búa 2000, 542 — Guijo de Granadilla, Cáceres); **CAECILIA COEM[A] Q. F.** (CPILC, 440; CILCC I, 289 — Salvatierra de Santiago, Cáceres); **COEMIA** (CIRG II, 14; HEp, 6, 721 — Cangas de Morrazo, Pontevedra).

¶OUTSIDE THE BRIGA ZONE. **COEMA** (Castillo et al. 1981, 30 — San Martín de Unx, Navarra); **OPPIA COEMIA FRONONIS F.** (Castillo et al. 1981, 35 — Aguilar de Codés, Navarra).

LOYAL, TRUSTWORTHY ***drewu-** ~ ***derwo-**. ● Proto-Germanic ***trewwu-** [PRE-GRIMM 2]: Gothic *triggws* ‘loyal, trustworthy’, Old Norse *tryggr*, cf. *trúa* ‘to believe, trust’, Old English *trīewe* ‘loyal, trustworthy’, Old Frisian *triūwe*, Old Saxon *triwi*, cf. Old High German *trū(w)ēn* ‘to trust’; ● Proto-Celtic ***derwo-** ‘oak, certain’: Gaulish place-names *Derva*, *Dervia*, Old Irish *derb* ‘sure, certain, fixed, determinate, sure, certain, reliable’, Old Welsh *deruen* ‘oak tree’, ‘true, certain’ in compound kinship terms like Old Welsh *ceintiru* ‘male first cousins’, Old Breton *daeru* ‘oaks’. The Galatian place-name Δρυεμετον probably means ‘sacred oak wood’. ‘Oak-seer’ often explains the etymology of Gaulish *druvides*, Old Irish *druid* < Proto-Celtic ***dru-wides** ‘druids’, also in Brythonic, Middle Welsh *deruydon* ‘prophets, wise men, druids’ < ***deru-wid-** ~ ***daru-wid-**, Old Breton singular *dorguid* glossing ‘pithonicus’ ‘seer, sorcerer, soothsayer’. However, in light of the comparanda in this entry, ‘true-seer’ is also possible (aan de Weil 2006). As the first syllable of *dorguid* is in *i*-affection position, the *o* may be a hypercorrection, rather than a survival of Proto-Indo-European ***dóru-**. ● Baltic: Old Prussian *druwit* ‘to believe’, *druwēmai* ‘we believe’. ¶ *vdóru* ‘tree, oak’ is more widely Indo-European, cf. Sanskrit *dāru* ‘wood’, Greek *δρῦς* ‘oak’, Albanian *dru* ‘wood, tree’, *drushk* ‘oak’. It is the innovative metaphorical meaning ‘oak’ > ‘solid’ > ‘secure, true, faithful, to be believed’ that is shared uniquely by Germanic, Celtic, and Baltic. See further CG ‘TRUSTWORTHY, RELIABLE’ ***drouso-** ~ ***drusd-** above (§43a).

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 *gostъ*, Russian *gost* ‘guest’, these are possibly borrowed from Germanic.

HUMAN BEING < EARTHLING ***dhgh(e)m-** ~ ***dhghom-**

● Proto-Germanic ***gumō** ‘human being’ < Proto-Indo-European ***dhghm-on-** ‘earthling’: Gothic *guma* ‘man’, Old Norse *gumi*, Old English *guma*, Old Saxon *gumo*, Old High German *gomo*, cf. Old Norse *brúð-gumi*, Old English *brýd-guma*, Old Saxon *brūdi-gumo*, Old High German *brūti-gomo* ‘bridegroom’, Old Saxon *gumiski* ‘senate’; ● Proto-Celtic ***gdonyos** ‘human being’ < ***dhghom-yo-** ‘earthling’: Cisalpine Gaulish **teuo-xtonio-** [de:wogdonyo-] ‘DEIS ET HOMINIBVS’ ‘for gods and human beings’, Old Irish *duine*, Old Breton *don*, *den*, Old Cornish *den* glossing ‘homo’, Middle Welsh

dyn; ¶ 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 *dú*, 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 ***xemō**, accusative **xemonm** ‘human being, man’ < notional Proto-Indo-European **dh̥gh(e)m-ōn* ‘earthling’: Latin *homō*, Old Latin accusative singular *hemōnem*, Oscan nominative plural **humuns**, Umbrian dative plural *homonus*; • Baltic: Old Prussian *smunents*, *smūnets* ‘man’, Old Lithuanian *žmuo* ‘human being’, Lithuanian *žmónės* ‘people’ < **dh̥ghmōnes*. ¶ This is an ICGB semantic development (‘human being’ < ‘earthling’) derived from the word **dh̥ghm̥*, genitive **dh̥ghmós* ‘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 *χθών* ‘earth, ground, land, region’, Vedic *kṣám*, genitive *kṣmās* ‘earth, ground’, Old Church Slavonic *zemlja*, Albanian *dhe*, Tocharian B *keṃ*, 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-**.

LOVE, DESIRE 1 ***leubh-** ~ ***lubh-**. • Proto-Germanic ***leuba-** ‘dear, beloved’ (adjective): Gothic *liufs*, Old Norse *ljúfr*, Old English *lēof*, Old Frisian *luve*, Old Saxon *luḅa* ‘love, inclination’, Old High German *liub*, *liob*, cf. Gothic *liubaleiks* ‘desirable, lovely’, Old English *leoflic*, Old High German *lioblīh*; • Proto-Celtic ***lubi-** ‘love, desire’ (verb): Gaulish *lubi* ‘love!’ (imperative 2nd singular — Banassac), divine epithet **MATRONIS LVBICIS** (CIL XIII no. 8220 — Cologne).

¶ Numerous Palaeohispanic names: Celtiberian place-name **lubos**, personal name **LVBBVS VRDINOCVM LETONDONIS F. (CONTREBIENSIS)** (Fatás 1980; HEp, 3, 415; HEp, 5, 914; HEp, 6, 998 — Botorrita, Zaragoza), Western Palaeohispanic personal names **LVBACVS BOV[TI] F.** (HEp, 14, 96 — Robledillo de Trujillo, Cáceres), **[AL]BINVS LVBAECI F(ILIVS) ALBINVS LVBAECI F(ILIVS)** (HEp, 15, 96 — Santibáñez el Bajo, Cáceres), **BOVTIO LVBAECI F. PATERNO** (HAE, 1144; HEp, 11, 663 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco), **LVBAECVS APANONI[S] F.** (AE, 1977, 363; HEp, 13, 972 — Fundão, Fundão, Castelo Branco), **LVBAECO ANTAEI F. AVO** (HAE, 1144; HEp, 11, 663 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco), **MOCOSAE LVBAECI F(ILIAE)** (HEp, 15, 484; HEp, 17, 240 — Ermida, Sertã, Castelo Branco), **LVBAECI CABRVLEICI SERV.** (HEp, 1, 405; ERPL, 197 — Santa Marina de Somoza, León), **RVFINAE LVBAECI [F.]** (HEp, 4, 1070 — Santiago de Litém, Pombal, León), **TANGINV[S] LVBAECI F.** (Encarnação 1984, 635 — Seda, Alter do Chao, Portalegre), **LVBANAE AMOENE F.** (HAE, 1145 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco), divine epithet **LARES LVBANC(OS) DOVILONICOR(VM)** (ERCon, 11 — Condeixa-a-Velha, Condeixa-a-Nova, Coimbra), group name Λουβαίων (Greek genitive, Ptolemy II, 6.7).

• Proto-Italic ***luḃē-** ‘to desire’: Latin *lubīdo* ‘desire, lust’; • Slavic: Old Church Slavonic *ljubъ* ‘sweet pleasant’, *ljubiti* ‘to love, desire’, Church Slavic *ljuby* ‘love’. ¶ A specialized meaning has developed in the NW languages. Proto-Indo-European **leubh-eH-*: Sanskrit *lobháya-* ‘to make crazy’.

2 ***kāros** < **keH₂-ro-* ~ **kar-o-*. ● Proto-Germanic ***hōraz** ‘lover’ (< ***χāraz**) < Pre-Germanic ***kāros** [PRE-GRIMM 1]: Ancient Nordic **horaz** (Fyn 1 bracteate rune ~AD 440–560 (Wicker & Williams 2012)), Gothic **hors**, Old Norse **hórr** ‘adulterer’, cf. Proto-Germanic ***χārān-** > ***hōrōn-** ‘lover’ > ‘whore’: Old Norse **hora**, Old English **hōre**, Old Frisian **hōr**, Old High German **huorra** ‘adulterer’; ● Proto-Celtic ***karo-** ‘to love’ < **kH₂-ro-*: Old Irish **caraid** ‘loves, likes’, Middle Welsh **caraf** ‘I love, woo, court’, cf. Ancient Brythonic personal name **CARIATA** (Baldock, Hertfordshire, England), Gaulish personal name **KAPOMAPOC** (Alise-Sainte-Reine), **Venicarus** (= Old Irish **Finchar**), **Vocara**, **Vocarus**, **Cariatius**, the present participle Proto-Celtic ***karant-s**, ***karantes** ‘loving’ in Gaulish Personal names **CARANTIOS**, **CARANTIA**, **CARANTODIA**, **Carantillus**, **Carantilla**, Old Irish **carae** ‘friend, relative’, nominative plural **carait**, Ancient Brythonic **CARANTACVS** (CIIC no. 363 — Egremont = Middle Welsh **Caranhawc**), Early Welsh **car** ‘friend, relative, companion, dear one’, plural **carant**, later **kereint**.

¶ 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), **ALBVRA CARISI F.** (EE, VIII 118 — Braga), place-name **NICER CLVTOSI 3 CARIACA PRINCIPIIS ALBIONVM** (AE, 1946, 121; ERAsturias, 14 — La Corredoira, 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 *√keH₂-* ‘love’ occurs more widely: Sanskrit **kāyamāna-** ‘to wish, love, desire’.

PEOPLE, TRIBE ***teutā**. ● Proto-Germanic ***peuda-** ‘nation, people’ < [PRE-VERNER] ***peupa-** [PRE-GRIMM 1]: Gothic **þiuda**, Old Norse **þjóð**, Old English **þéod**, Old Saxon **thiod**, **thioda**, Old High German **diota**; ● Proto-Celtic ***toutā** ‘people, tribe, territory, group and land ruled by a **rīxs*’: Gaulish (Gallo-Greek) **TOOYTIOYC NAMAYCATIC** ‘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 ***toutā-** ‘town, society’: Oscan **touto** ‘ciuitas’ ‘community, city’, Venetic **teuta** ‘ciuitas’; ● Proto-Baltic ***tautā-**: Old Prussian **tauto**, 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, 703–4 — Castillejo de Iniesta, Cuenca); **sleitiu totinikum** (B3, III-33 — Botorrita, Zaragoza); **C(AIO) VITIO LIGIRICO VI[TII F(ILIO)] | C(AIVS) PALDI CLOVTER[ICVM] | TOUTIV(S) TREBAQVE B[---]** (Gorrochategui 2013c — Clunia).

¶ WESTERN PENINSULA. **AMA[ELO] TOVTO[NI]** (HAE, 1082; HEp, 13, 874; HEp, 16, 614 — Alcafozes, Idanha-a-Nova, Castelo Branco); **BOLOSA TOVTONI F.** (CIL II, 440 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **[C]AMA[LO] TOVTO[NI]** (HAE, 1082 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **TOVTONI ARCI F.** (AE, 1967, 144; HEp, 2, 770; HEp, 5, 989 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **TOVTONVS ARCONIS F.** (HAE, 1113 — Idanha-a-

Velha, Idanha-a-Nova, Castelo Branco); **TVOVTAE TONGI F.** (HAE, 1172; Almeida 1956, 133 — Idanha-a-Velha, Idanha-a-Nova, Castelo Branco); **MAGILO ELAESI F. TOVTONIQVM** (HAE, 1346; Albertos 1975a, 2. 211. n^o 206 — Yecla de Yeltes, Salamanca); **VIRONVS TOVTONI F.** (HAE, 1344 Yecla de Yeltes, Salamanca); **CABVRIAE TOVTONI F.** (HAE, 930; CIRPZ, 249; ERZamora, 31 — Villalcampo, Zamora); **MORILAE TOVTONI F.** (HAE, 923; CIRPZ, 278; ERZamora, 42 — Villalcampo, Zamora); **TOVTONO MATVCENI F.** (HAE, 927; ERZamora, 54; CIRPZ, 282 — Villalcampo, Zamora); **MELAMANIVS TOVTRI LIB(ERTVS)** (HEp, 13, 251 — Plasenzuela, Cáceres); **TOTONO ARCONIS** (ERZamora, 123; HEp, 5, 909 — Villardiegua de la Ribera, Zamora); divine name **MVNIDIE BEROBRIGAE TOVDOPALANDAIGAE** with personal name **AMMAIA BOVTILA** (AE, 1915, 8; CPILC, 471; Albertos 1977b, p. 35; CILCC I, 340 — Talaván, Cáceres); divine name **CROVGIAI TOVDADIGOE** (CIL II, 2565; IRG IV, 91; HEp, 2, 542; Gorrochategui 1987, 87; Gorrochategui 1994, 320–3; HEp, 5, 640; HEp, 6, 699 — Mosteiro de Ribera, Xinzo de Limia, Ourense).

¶ OUTSIDE THE *BRIGA* ZONE. **LOVESIVS TOVTONI F.** (Abascal 1994, 402 — Chillón (Ciudad Real); **PROCVLVS TOVTONI F.** (HEp, 6, 564 — Chillón, Ciudad Real); **TOTOVNI** (HEp, 17, 50 — Piedrabuena, Ciudad Real).

TRUE ***wēro-** ~ ***wērā-**. ● Proto-Germanic ***wēra-**: Old High German *wār* ‘true’; ● Proto-Celtic ***wīro-** ~ ***wīrā-**: Old Irish *fír* ‘true, truth, proof, right’, Old Welsh and Old Breton *guir* ‘true, law, right, just, justice’, Old Cornish *guir* glossing ‘verus’, Middle Welsh *gwir* ‘true, certain, right; law’, cf. Gaulish personal names *Couirus* (= Old Irish *cóir* ‘correct, straight, right, suitable, just’) *Couirius* ~ Middle Welsh *kywir* ‘correct, righteous’; ● Proto-Italic ***wēro-**: Latin *vērūs* ‘true, real, actual, genuine, reasonable’; ● Slavic: Old Church Slavonic *věra* ‘faith, belief’.

§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 *dalc*, *dolc* ‘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* ‘sting, bite’. The noun possibly derives from the Proto-Celtic verb ***delgo-** ‘hold, contain’: Gaulish *delgu* ‘I hold’ (Banassac), Old Breton *delgim* ‘to hold’, *dalg* ‘maintenance, tenure, holding’, Middle Welsh *daly* ‘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 *Caicocum*, *Matu-caium*, Old Breton plural *caiou* glossing ‘munimenta’ ‘fortifications’, Middle Welsh *cae* ‘hedge, fence, enclosed field; clasping brooch’, Cornish *ke* ‘hedge, ditch, enclosed field’. ¶ Possibly related to Proto-Italic ***koxo-** ‘hole’ or ‘tie, juncture’: Latin *cohūm* ‘the hollow in the middle of a yoke’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

ENCLOSURE ***katr-** ~ ***kētr-**. • Proto-Germanic ***hēōr-** <

[PRE-VERNER] ***xēpr-** [PRE-GRIMM 1]: Old English *hēađor* ‘enclosure, restraint, prison’; • Proto-Celtic ***katrik-**: 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 ***plōro-**. • Proto-Germanic ***flōruz** < ***flāruz** [PRE-GRIMM 1]:

Old Norse *flór* ‘floor of cowstall’, Old English *flōr*, Middle High German *vluor* ‘field, plain, floor’; • Proto-Celtic *(p)**lāro-**: Old Irish *lár* ‘ground, surface, middle’, Middle Welsh *llawr* ‘floor, deck, ground, platform’, Breton *leur*. ¶ Unique CG word formation and meaning: contrast Latin *planus* ‘level, flat’ < Proto-Indo-European **pl(e)H₂-nó-* ‘flattened’.

FORK ***ghabhlo-** ~ ***ghabhlā-**. • Proto-Germanic ***gabalō-**: Old

English *geafal*, *gafol*, Old Saxon *gabala*, Old High German *gabala*; • Proto-Celtic ***gablo-** ~ ***gablā-**: Old Irish *gabul* ‘fork’, Old Breton *mor-gablou* glossing ‘aestuaria’ (literally ‘sea forks’), Middle Welsh *gafyl* ‘f PC 12ork’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] ¶ On flesh forks in the Atlantic Bronze Age, see Needham & Bowman 2005.

FORTIFIED SETTLEMENT, HILLFORT ***bhrgh-**. 1 • Proto-Germanic

***burg-** ‘hillfort, fortified place, town, palisade’, nominative plural ***burgiz**: Gothic *baurgs* ‘town(s)’, Old Norse *borg* ‘town, citadel, small hill’, Old English *burg* ‘city, fortified town’, Old Frisian *burg* ‘town’, Old Saxon *burg* ‘castle, city’, Old High German *burg* ‘town’, cf. full-grade Proto-Germanic ***berga-** ‘hill, mountain’ < Pre-Germanic ***bhergh-**: Gothic *bairgahei* ‘hill country’, Old Norse *bjarg* ‘rock’, Old English *beorg* ‘hill, mountain’, Old Frisian *berch*, Old Saxon, Old High German *berg* ‘hill, mountain’; • Proto-Celtic ***brig-** ‘hill’ > ‘hillfort’ > ‘(fortified) town’: Hispano-Celtic *brigā*, Gaulish *brigā*, Middle Irish *brí*, Middle Welsh *bre*, Middle Breton *bre*. ¶ Proto-Indo-European *vbhergh-* ‘be high, hill’. ¶ Old Irish *burcc* glossing ‘curta’ ‘fortified town’ is a loanword from Germanic through Medieval Latin.

¶ In what was arguably the first line of *Y Gododdin*, before the Srath 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-brigā* (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); **BRIGAEICIS, 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 SEGOBRIG(ENSIS)** (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* = *Abulobrica* (near Tordesillas, Valladolid); *Caesarobriga* (Talavera de la Reina, Toledo).

¶ WESTERN PENINSULA. **ABOBRICA** (Abrega? Pontevedra); **AVOBRIGA/*AOBRIGA** (in the territory of *Aquae Flaviae*? Vila Real); **ADROBRICA** (fortified settlement of the Artabri? A Coruña); **AE[D?]IOBRICO** (Codesedo, Sarreaus, Ourense); **ALANOBRICAE** (Eiras, San Amaro, Ourense); **ARABRIGENSES** < **Arabriga* (Goujoim, Armamar, Viseu); **[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*; **ARCOBRICA** (Torrão?, Alcácer, Setúbal); *Artabris sinus* (referring to the estuaries near A Coruña? Guerra 2005); **LAETVS CATVRONIS F. AVIOBRIGENSIS** (HAE, 1918; AE, 1959, 82; Haley 1986, 183 — Fermedo, Arouca, Aveiro);



Figure 43. The zones of Palaeohispanic place-names with Celtic *-briga* and non-Indo-European *il(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 Supertamarci, Astorga, León) < **(p)lān-yo-bri-* according to Prósper (2002, 427); **BRIGAEIVM/BRIGAEINI** (Dehesa de Morales, Fuentes del Ropel, Zamora); **BANDI BRIALEAECO** (HEp, 18, 569 — Guarda); **CALVBRIGEN(SIS)** < **Calubriga* (S. Esteban de a Rúa?, Petín, Ourense); **CAETOBIRGA/Καιτουβριξ** (Setúbal); **Κουλιobριγα** (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/ CONIVMBRIGA** (Condeixa a Velha, Coimbra); **M. ALLACARIV[S] CELER PAVLLIANVS CONIMBRIGENSIS** (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 Molião, Lagos, Faro); **LANGOBRICV** (Longroiva, V. N. Fozcôa, Guarda); **Lambris** (Lambre, Ambroa, Irixoa? A Coruña); **APANA AMBOLLI F. CELTICA SVPERTAM(ARICA) [J] MAIOBRI** (HEp, 7, 397; HEp, 13, 436 — Lugo); **LETIOBRI, CASTELLO** (Braga); **HISPANVS TANGINI F. MEIDVBRIGENSIS** (AE, 1977, 362 — Fundão, Castelo Branco) *Medubriga/ Meidubriga* (Freixo de Numão?, Meda, Guarda); **MIROBRIGA** (Ciudad Rodrigo?, Salamanca); **MIROBRIGA/ MERIBRIGA/MEROBRICA** (Santiago do Cacém, Setúbal); **FLACCVS ARGANTON[I] MAGILANCV MROBRIGENSIS** (CPILC, 34; HEp, 13, 232; CILCC I, 200 — Garrovillas, Cáceres); **NEMETOBRICA** (HEp, 4, 586; HEp, 7, 548; AE, 1991, 1040 — Codesedo, Sarreaus, Ourense); **TALABRIGA** (in the territory of the Limici, Ponte de Lima, Estourãos, Viana do Castelo); **ANCEITVS VACCEI F. J TALABRIC(A)** (CILA Huelva, 24 — El Repilado, Huelva); **CAMALA ARQVI F. TALABRIGENSIS** (AE, 1952, 65 — Estoraos, Ponte de Lima, Viana do Castelo); **TONGOBRIGENSIVM** < **Tongobriga* (Marcos de Canaveses, Freixo, Porto) =? **Τουντοβριγα** (Ptolemy II, 6.38–48 in the territory of Callaecia Bracara) r. **Tungo-brigā** (García Alonso 2003, 238–9; 2009, 272 where it is listed as a Celtic name); **TVROBRIGA** (Aroche?, Huelva); **DOMINA ATTAEGINA TVRVBRIGA** (HEp, 1, 81 — Bienvenida, Badajoz); **DEA ATAECINA TVRIBRIG(ENSIS) PROSERPINA** (CIL II, 462; AE, 1959, 30; AE, 1961, 102 — Mérida, Badajoz); **D(EAE) S(ANCTAE)**

TVRVBRIGE L. A[.]ONIVS V.S. (cf. CIL II 71 — Beja); [...] **REI** [...] / [...] **NI TVRVBRI** [...] / [...] **E EX NARA** [...] / [...] **V * SVOTV SO** [luit?] (García 1991, 541 — Olhão, Faro); **DOMINAE TVRIBRI ADDEGINAE** (HEp, 2, 199; HEp, 5, 178; CILCC I, 35 — Alcuéscar, Cáceres); **TVRIBRI ATECINAE** (HEp, 5, 183; CILCC I, 40 — Alcuéscar, Cáceres); **TVR(O)LOBRIGA**(?) (Chaves, Vila Real); **VERVBRICO** (Arcucelos, Ourense); **VEIGEBREAEGO** (Rairiz da Veiga, Ourense); **BLOENA CAMALI F. VALABRIC(E)NSIS** (EE, VIII 119; AE, 1896, 72 — Braga) = **Ουολοβριγα** (Ptolemy II, 6.38–48 in Callaecia Bracarenensis; García Alonso 2003, 243; 2009, 272 where it is listed as a Celtic name).

¶ OUTSIDE THE *BRIGA* ZONE. **L(VCIO) SVLPICIO Q(VINTI) F(ILIO) GAL(ERIA) NIGRO GIBBIANO AVOBRIGENSI** (CIL II, 4247; Alföldy 1975, 307; Aquae Flaviae 2, p. 23 — Tarragona).

¶ IBERIAN PENINSULA, UNKNOWN LOCATION. [...] **BANDV AHOBRICO** (Albertos 1983, 478).

¶ FURTHER COMPARANDA. Ancient Celtic place-names. *Admagetobriga* (*Bello Gallico*); *Aliobrix*—Moldova; *Arebrigium*—near Le Pré-Saint-Didier, Italy; *Artobriga*—Traunstein? Germany; *Artobriga*—Vindeliccia, 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; *Brigetio*—Szöny, Hungary; *Briggogalus*—Saint-Epain, France; *Brigianii*—France; *Briginnum*?—Serre de Brienne, Brignon, France; *Brigiosum*/*Briossus*—Brioux, France; *Brigobannis**—Hüfingen, Germany; *Brigomagus**—Briançonnet? France; *Brigsina*—Brixen, Austria; *Brisigavi*—Germany; *Brixellon*, -um—Brescello, Italy; *Brixenetes*?—Bessanone, Italy; *Brixia*—Brescia, Italy; *Brixis*—Braye, Reignac-sur-Indre? France; *Eburobriga*—Avrolles (Yonnes), France; *Eccobriga*/*Ecobrogis*—nr. Sorsovus, Turkey;

Erubris fl.—Ruwer, Germany; *Gabris/Gabrae**—Gièvres, France; *Litanobriga*?—Thiverny/La Haute Pommeraiie/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)euvre(s) (Aube), France; *Vindobriga*—Vand(o)euvre(s) (Calvados), France; *Vindobriga*—Vand(o)euvre(s) (Indre), France.

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

- Proto-Germanic **Burgunpaz*: 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* (< **Brigantī*) 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 *breennhin* ‘king’ goes back to **brigantīnos*, possibly meaning ‘consort of **Brigantī* “Brigantia”’ (Binchy 1970; Charles-Edwards 1974) or **Brigantignos* ‘son of **Brigantī* “Brigantia”’. What is probably the same title (possibly used as a name) occurs as a Gaulish coin legend (in Iberian script) as *birikantin* (MLH V.1, XII). ¶ As a goddess name or epithet, the suffixed forms of **bhr̥gh-* ‘high, hill’ (whence **brixs* ‘hillfort’, see above) go back to Proto-Indo-European; cf., for example, Vedic *bṛhatī* ‘the high one’ (< **bhr̥ghntī*, 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 ‘Flavium Brigantium’ is the ancient name of A Coruña: (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 *zūn* ‘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-bych*, *Din-Illeu*, *Din Eidin*, Old Breton *din*, also Breton place-names, such as *Dinard*, *Dinan*. ¶ Latin *fūnus* ‘funeral, burial’ 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. Falileyev et al. 2010, 18): *Acitodunum* > *Acidunum* > *Ahun* (Holder, *AcS* — Creuse, France); *Arandunum** (Holder, *AcS*—Calvisson? / Hournèze (Sommières), France; *Aredunum*—*Ardin* (Deux-Sèvres), France; *Arialdunum*—Guadalquivir, Spain; *Augustodunum*—*Autun*, France; *Branodunum*—*Brancaster*, England; *Caesarodunum*/*Civitas Turonorum*—*Tours*; *Caladunum*—*Vilar de Perdizes*, Montalegre, Portugal; *Cambodunum*—*Champéon*, Mayenne), France; *Cambodunum*—*Kempton*, Germany; *Cambodunum*—*Leeds*? England; *Camulodunum*—*Slack*, England; *Camulodunum*—*Colchester*, England; *Carrodunum*—*Karnberg*, Bavaria; *Castellum*

Meidunium—*Castro de S. Facundo*, Orense, Spain; Δουνιον—*Dorset*, England; Δουνοβ —*Baltinglass*? Ireland (Toner 2000); Δουνοβ Κολπος—*Tees Bay*, England; *Dunense Castrum*—*Châteaudun*, France; *Dunum*—*Dhun*, France; *Dunum*—*Dun*, France; *Dunum*—*Dung*, France; *Eburodounon*/*Eburodunon*—*Brünn*/ *Brno*, Czech Republic; *Eburodunensis Lacus*—*Lac de Neuchâtel*, Switzerland; *Eburodunum*—*Averdon*, France; *Eburodunum*—*Ebréon*, Charentes, France; *Eburodunum*—*Embrun*, Hautes-Alpes, France; *Eburodunum*—*Yverdon*, Switzerland; *Eburodunum*—*Yverdun-les-Bains*, Switzerland; *Eburodunum* > *Ebrudunum*—*Embrun*, France; *Esttledunum*; *Exolidunum**—*Issoudon*, France; *Gabrodunum*—*Jabrun*, Cantal, France; *Idunum*—*Dunle-Palestel*? France; *Karrodonun*—*Western Ukraine*; *Lug(u)dunum*—*Lyon*, France; *Lugdunum Batavorum*—*Leiden/Leyde*, Netherlands; *Lugdunum*—*Katwijk*, 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*—*Marquion*, Pas-de-Calais, France; *Margidunum*—*Britain*; Μελιοδουνοβ—*Moracia*; *Meliiodunon*—*South Germany*; *Minnodunum*—*Moudon*? Switzerland; *Moridunum*—*Devon*, England; *Moridunum*—*Caerfyrddin*/*Carmarthen*, Wales; *Neviodunum*—*Carniola*/ *Krain*, Slovenia; *Neviodunum*—*Drnovo pri Krškem*, Slovenia; *Noiodounon Diablintum*—*Jublains*, France; *Noiodounon*—*near Sées*, France; *Nouiiodunum*—*Neung*, Loir-et-Cher, France; *Nouiiodunum*—*Nevers*, Nièvre, France; *Nouiiodunum*—*Nieudan*, Cantal, France; *Nouiiodunum*—*Nouan le Fuselier*,

Loire-et-Cher, France; *Noviodunum* —Isaccea, Romania; *Noviodunum*—Neung-sur-Beuvron, France; *Noviodunum?*/*Nevirmum?* > Ebirno—Nevers, France; *Noviodunum?*—Pommiers, France; *Parrodunum*—Burgheim, Germany; *Riduna Insula*—Alderney, Channel Islands; *Rigodounon?*—Castleshaw, England; *Sebendounon?*/*Beseldunum*—Besalú, Spain; *Sedunum**—Sitten/Sion, Switzerland; *Sinduni*—near Trento, Italy; *Singidunum*—Belgrade, Serbia; *Sorviodunum*—Old Sarum, Salisbury, Wiltshire, England; *Tarouedounon**—near Dunnet Head, Britain; *Uxellodunum*—Exodun, Deux-Sèvres, France; *Uxellodunum*—Issolou, Lot, France; *Uxellodunum*—Issoudun, Creuse, France; *Uxellodunum*—Puy d'Issolud, France; *Uxelodu(nu)m*—Stanwix, Cumbria, England; *Vellaunodunum* near Cenabum—France; *Verodunum*—Verdú, Catalonia, Spain; *Verodunum*—Verdun, Meuse, France; *Verodunum*—Verdun, Ariège, France; *Verodunum*—Verdun, Aude, France; *Verodunum*—Verduno, Piedmont, Italy; *Viriodunum*—Verdun, France.

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*, *sīge*, Old High German *sigi*, *sigu*; ● Proto-Celtic **sego-dūno-*: Gaulish *Segodūnum*, town of the Rutenes in Aquitania, also *Segeduno*—Britain; *Segedunum*—Wallsend, 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 *sekobirikez*, Σηγοβριχα (Ptolemy II, 6.57), *Segovia*, Σεγούουα (Ptolemy II, 6.55), Gaulish group name *Sego-uellauni*, Ancient Brythonic coin legend **SEGO**[, Old Irish *seg* (also *sed*) 'strength, vigour', Middle Welsh *hy* 'bold, brave, intrepid, undaunted', cf. Old Welsh personal names *Catthig*, *Cethij*, *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 **lepra-* [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 later than Celtic loss of Proto-Indo-European **p*: Ancient Nordic *leprō* 'leathery one' feminine nominative singular (Stårup neckring, South Jutland, Denmark ~AD 400, Antonsen §22); Old Norse *leðr*, Old English *leðer*, *leþer*, Old Frisian *leder*, *leer*, Old Saxon *leðar*, Old High German *ledar*; ● Proto-Celtic **(p)letrom* or **letrom*: Middle Irish *lethar* 'skin, leather', Middle Welsh *lledyr*, Middle Breton *lezh*. ¶ The native Germanic cognate is **fella-* 'skin', cf. Latin *pellis* 'skin' < **pel-ni-*. (Cf. Schmidt 1991, 145.)

LEATHER BAG, BELLOWS 1 **bholgh-*. ● Proto-Germanic **balgiz*: Gothic *balgs* 'leather bag, sack, leather bottle', Old Norse *belgr* 'skin, skin bag, bellows', Old English *belig*, *bælg*, *belg* 'bag, envelope, skin, (plural) bellows', Old High German *balg* 'skin, tube, pod'; ● Proto-Celtic **bolgo-* 'bag, belly, bellows': Gaulish plural *bulgas* 'sacculos' 'small bags', Old Irish *bolg* 'bag, satchel, sack, belly, stomach, smith's bellows', Old Welsh place-name *Bolg-ros* (Anglicized 'Bellimoor'), Middle Welsh *boly* 'belly, paunch, abdomen, stomach, bulge'. ¶ Proto-Indo-European **bhelgh-*: unique CG meaning, contrast Avestan *barəziš* 'pad, pillow' < **bholgh-is-*, Old Prussian *balsinis* 'pillow' < **bholgh-ino-*, Old Lithuanian *balgnas* 'saddle'.

MOUND, EARTHWORK **wert-* ~ **wort-*. ● Proto-Germanic **werpa-* ~ **wurpa-* [PRE-GRIMM 1]: Old Norse *varða*, *varði* 'milestone', *urð* 'heap of stones', Old English *worþ*, *weorð* 'enclosed place, yard', *weard* 'guarding', Old Frisian *wurth*, *worth* 'raised ground (for protection from flooding)', Old Saxon *wurth* 'raised ground for

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

OATS, BROMUS ***korkró-**. ● Proto-Germanic ***hagran-** < [PRE-VERNER] ***χaxrán-** < Pre-Germanic ***kokró-** [PRE-GRIMM 1]: Icelandic *hellin-hagra* 'a kind of thyme', Norwegian dialect *hagre* 'oats', Old Swedish *hagri* 'oats', Danish *hejre* 'brome grass'; ● Proto-Celtic ***korkyo-**: Middle Irish *corca*, *coirce* 'oats', Old Cornish (probably actually Old Welsh) *bara keirch* glossing 'panis avena' 'oat bread', Middle Welsh *keirch*, Breton *kerc'h* 'oats'.

PATH, ROAD, WAY, PASSAGE ***sento-**. ● Proto-Germanic ***sinpaz** 'way, journey' [PRE-GRIMM 1]: Gothic *sinþs*, Old Norse *sinn*, Old English *sīð* 'journey, road, turn', Old Saxon *sīð* 'way, direction', Old High German *sint*, *sind* 'road, path, journey', cf. Old High German *gisindo* 'fellow traveller, comrade', *sinnan* 'travel, to be travelling'; ● Proto-Celtic ***sento-**, ***sentu-** 'road, path, course': Old Irish *sét* 'path, way, journey', Ancient Brythonic *Gabrosentum* 'goat track', Middle Welsh *hynt* 'way, path, journey, march, career, campaign', cf. place-name *Epynt* < ***ek^wo-sentom** 'horse path', Middle Breton *hent*, cf. Old Irish *sétig* 'wife, consort, fellow, companion' < ***sentikī**, Middle Welsh *hennyδ* 'other, friend, companion, partner, opponent' < ***sentiyo** 'fellow traveller'. See further FELLOW TRAVELLER, COMRADE (§40a).

ROD, STAFF, LONG SLENDER PIECE OF WOOD ***(s)lat(t)-**. ● Proto-Germanic ***lappa- ~ *latta-**: Old English *lætt*, Middle English *lappe* < Old English **læpp-* 'thin strip of wood, lath', Old High German *lat(t)a*, *ladda* 'plank'; ● Proto-Celtic ***slattā** 'rod, staff, stalk': Middle Irish *slat* 'rod, lath, twig, branch, yard (unit of measure)', Scottish Gaelic *slat* 'rod, twig', Middle Welsh *llath* 'rod, staff, stick, yard (unit of measure)', Old Breton *lath* glossing 'stipite'

'log, branch'. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] It is hard to derive these from an Indo-European root. Comparable forms are absent from the other branches. The geminate *tt* and vowel *a* in the Proto-Celtic suggest a borrowing. Middle English *lappe* and Old High German *latta* appear to predate Grimm 1, but Old English *lætt* does not.

ROOF ***togo-**. ● Proto-Germanic ***paka-** [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *pak*, Old English *pæk* (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 **TOGIDVBNVS**. Gaulish personal names **TOGOS**, **TOGIVS**, **TOGIMARI**, **TOGIACVS**; **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 *v(s)teg-* '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 *paup* 'estate, land, field', Old Norse *þorp* 'village, hamlet, farmstead', Old English *þorp*, *þrop*, *ðrop* 'hamlet, village, farm, estate', Old Frisian *thorp*, *therp* 'village', Old Saxon *thorp* '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 *Atrebat* (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 *turmae* ‘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: Oscan accusative singular *trībúm* ‘domum’ ‘house’ ‘aedificium’ ‘building’ < **trēb-*; Lithuanian *trobà* ‘cottage, farmhouse’, Latvian *traba* ‘hut, hovel’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

SIEVE, STRAINER 1 **sētlā-*. • Proto-Germanic **sēpla-* [PRE-GRIMM 1]: Old Norse *sáld*, Finnish (< Germanic) *siekla*, *seula* ‘sieve’; • Proto-Celtic **sītīlā-*: 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 **sīt’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 *sextārius*, a term for a liquid measure.

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

THREAD, FATHOM **pot(a)mo-*. • Proto-Germanic **fapma-* ‘fathom’ [PRE-GRIMM 1]: Old Norse *faðmr*, Old English *fæðm* ‘embracing arms, spreading arms to full extent, fathom, bosom’, Old English *fæðmian* ‘to fathom, to embrace’, Old Frisian *fethm*, Old Saxon *fathmōs* ‘two outstretched arms’, Old High German *fadam*, *fadum* ‘cubit, fathom’, *fadamon* ‘to spin, to sew’, German *Faden* ‘thread, piece of thread’; • Proto-Celtic **(p)atamī-* ~ **(p)atimā-* ? ‘thread,

fathom’: Old Welsh *etem* ‘thread’, Scottish Gaelic *aitheamh* ‘fathom’. ¶ A CG word based on Proto-Indo-European *√petH₂-* ‘spread’ (Hamp 2007), cf. Greek *πετανύναι* ‘to spread out, unfold, open’, Latin *patēre* ‘to be open’, Oscan *patensins* ‘they would open’ (3rd plural imperfect subjunctive).

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)

DEVICE THAT LEANS AGAINST SOMETHING UPRIGHT, LEANTO **kleitro/ā-* ~ **klitro-*. • Proto-Germanic **hleipra-* < Pre-Germanic **kleitro-* [PRE-GRIMM 1]: Gothic *hleipra* ‘tent’, Old English *hlæder* ‘ladder, steps’, Old Frisian *hleder*, *hladder-*, Old High German *(h)leitara* ‘ladder’; • Proto-Celtic **klitro-*: Middle Irish *clithar* ‘shelter, covert, fastness, protection’, Middle Welsh *cledr* ‘rod, stave, pole, rail, palm of the hand, help’, Middle Breton *klezr*, *klezren* ‘wooden post’; • Proto-Italic **kleitrā-*: Latin *clitellae* ‘pack-saddle, pannier’, Umbrian accusative singular *kletram* ‘portable altar, seat, for icons or divinities’. ¶ Proto-Indo-European *√kley-* ‘lean’, cf. Greek *κλίμαξ* ‘ladder’.

FURROW **porkā* ~ **prkā-* ~ **prko-*. • Proto-Germanic **furh-* [PRE-GRIMM 1]: Old Norse *for* ‘trench, drain’, Old English *furh* ‘furrow’, Old Frisian *furch*, Old High German *furh*, *furuh*; • Proto-Celtic **(p)rikā-*: Gaulish *rica*, Middle Irish *etarche* < **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’ < **rikk-* or **rixs-*; • Proto-Italic **porkā-*: Latin *porca* ‘ridge of soil between ploughed furrows’. ¶ Specialized ICG meaning from Proto-Indo-European, cf. Sanskrit *pársāna-* ‘rift’ < **pe/ork-ono-*.

HARROW *oketā-. ● Proto-Germanic ***agipō-** ‘harrow, rake’ < [PRE-VERNER] ***axipā-** [PRE-GRIMM 1]: Old English *egede*, 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 ? ***ešeti-**: Old Prussian *aketes*, Lithuanian *akėčios*, Latvian *ecē(k)šas* ‘harrow’, Russian *osét* ‘rack for drying grain’. ¶ Proto-Indo-European *√H₁ek-* ‘sharp’. The Baltic cognates show *centum* reflexes of **k* and were possibly borrowed from Pre-Germanic, which implies that the specialized meaning ‘harrow’ is ICG, rather than ANW.

REAPING, MOWING *met-e/o- ~ *mēto-. ● Proto-Germanic ***mēpa-** ~ ***mapa-** [PRE-GRIMM 1]: Old English *mæð*, 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 ***met-e/o-** ‘reap’: Middle Welsh *medi* ‘reap, harvest, cut’, *Medi* ‘September’, Middle Breton *midiff*, cf. 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 *metù* ‘I throw’ and *mėtas* ‘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 **CANECOSIEDLON** (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 *√sed-* ‘sit’.

SIEVE, STRAINER 2 *kreidhro-. ● Proto-Germanic ***hrīdra-** ‘sieve’: Old English *hrīdder*, *hrider*, *hrīddel*, Old High German *rītera*; ● Proto-Celtic ***krētrom** ‘sieve’ < ***krei-dhro-**: Old Irish *críathar*, Old Welsh *cruitr* ‘winnowing-shovel’ (¶ the preform of the Celtic originally probably had the same suffix as that of the Germanic and Italic, 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 *krwydraw* ‘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 *√(s)kre(H₁)i-* ‘separate, sift’.

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

ARABLE LAND, PLOUGHED FIELD *polkā. ● Proto-Germanic ***falgō-** ‘arable land lying fallow’ < ***falxā-** [PRE-GRIMM 1]: Old English *fealh* ‘a piece of ploughed land’, Middle English *falge*, Old Frisian *fallach*, *flach*, Old High German *felga* ‘ploughed land’; ● Proto-Celtic ***(p)olkā**: Gaulish *olca* ‘arable land’; ● Slavic: Russian *polosá* ‘strip of arable land’. ¶ Notional Proto-Indo-European **polkēH₂*.

BUTTER *ang^wen-. ● Proto-Germanic ***ank^wan-** [PRE-GRIMM 2]: Old High German *ancho*; ● Proto-Celtic ***amben-**: Old Irish *imb*, Old Welsh *emeninn*, Old Cornish *amanen* glossing ‘butirum’ ‘butter’, Middle Welsh *ymenyn*, Middle Breton *amanen*; ● Baltic: Old Prussian *anctan* ‘butter’. ¶ Proto-Indo-European *√H₃eng^w-* ‘smear, anoint’: Sanskrit *anákṭi*, 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 *emeninn* is probably due to confusion with the masculine form of the singulative suffix *-inn*.

DOUGH ***tais-**. ● Proto-Germanic ***paismjan-** ‘sourdough’ < ***teH₂is-mon-** [PRE-GRIMM 1]: Old English *þæ̃sma*, Old High German *deismo*; ● Proto-Celtic ***taisto-** < ***teH₂isto-**: 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 *hjørð*, Old English *heord* ‘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 ***kerdhyos**; ● Proto-Celtic ***kordos ~ *krodos**: Middle Irish *croth* ‘cattle, herds, stock, goods, property, wealth, payments, dowry, stipend’, Scottish Gaelic *crodh* ‘cattle, herds, dowry’; the Middle Welsh compound *korddilan* ‘fold, pen for livestock’ more probably contains Proto-Celtic ***kordo-** ‘herd’ than ***koryo-** ‘warband’, i.e. ***kordo-landā** ‘enclosed land for a herd’; ● Balto-Slavic: Old Church Slavonic *črêda* ‘order, herd, flock’, cf. Lithuanian *keřdžius*, *skeřdžius* ‘herdsman, shepherd’ < ***(s)kerdhyos**. ¶ Cf. Sanskrit *sārdha-* ‘troop’. The closest meaning outside CGBS is Avestan *sarəda-* ‘species, sort (of cattle)’.

LEATHER BAG, BELLOWS 2 ***mokon- ~ *mokīnā-**. ● Proto-Germanic ***magan-** ‘stomach’ < [PRE-VERNER] ***mayan-** < Pre-Germanic ***mokon-** [PRE-GRIMM 1]: Old Norse *magi*, Old English *maga* ‘stomach of an animal, maw’, Old Frisian *maga*, Old High German *mago* ‘stomach’; ● Proto-Celtic ***makīnā** ‘bellows’ ? < ***mokīnā**: Middle Welsh *megin*, Middle Breton *meguin*; ● Balto-Slavic: Lithuanian *mākas* ‘purse, pouch’, Latvian *maks* ‘purse’, Old Church Slavonic *moš̃na* ‘small bag, scrip’, Serbo-Croatian *mōšnja* ‘purse, scrotum’ < ***mok-in-eH₂-**.

ROOFED OUTBUILDING ***krōpos**. ● Proto-Germanic ***hrōfa-** ‘roof’ (< ***xrāfa-**) [PRE-GRIMM 1]: Old Norse *hróf* ‘roofed shed under which ships are built’, Old English *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 *craw* ‘shed, sty, pigsty, hovel, stockade’, Old Breton *crou* glossing ‘hara .i. stabulum porcorum’ ‘pigsty’, Breton *kraou* ‘cow shed, byre, sty’; ● Slavic: Old Church Slavonic *stropъ* ‘roof’ < ***krōp-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)o-*). 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.

SMEAR, GLUE, STICK ***gleina- ~ *glina-**. ● Proto-Germanic ***klīnjan- ~ *klinan-** [PRE-GRIMM 2]: Old Norse *klína* ‘to smear’, Old High German *klenan*, cf. ***klajja-** ‘clay’; ● Proto-Celtic ***glina-**: Old Irish *glenaid* ‘adheres, cleaves, sticks to’, Middle Welsh *glynu* ‘adheres, clings, cleaves, sticks to’; ● Baltic: Lithuanian *gliėti* ‘putty’, Lithuanian dialect *glejù* ‘smear’.

STAFF, POST ***stabho- ~ *stabhā-**. ● Proto-Germanic ***staba-** ‘staff’: Gothic *stabos* ‘letters, elements’, Old Norse *stafr* ‘staff, stave’, Old English *stæf* ‘staff, stick, letter’, Old Frisian *stef*, Old Saxon *-staf*, Old High German *stap* ‘staff’; ● Proto-Celtic ***stabo-** ‘pole, shaft’: Middle Irish *sab* ‘staff, pole, stake, spear-shaft’, cf. Old Breton *sab* ‘rises’, Middle Welsh *safaf* ‘I stand’, Welsh *saf* ‘standing, station, standpoint’ < Proto-Celtic ***stab-**; ● Baltic: Lithuanian *stābas* ‘post’. ¶ Proto-Indo-European *VsteH₂-* ‘stand’.

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

GRAIN ***bhar-**. ● Proto-Germanic ***bariz** ~ ***barza-** ‘barley’: Gothic *barizeins* ‘made of barley’, Old Norse *barr*, Old English *bere* ‘barley’; ● Proto-Celtic ***baregi-**, ***baragi-**: Old Irish *bairgen* ‘bread, loaf, (plain) food’, Old Cornish *bara* glossing ‘panis’, Middle Welsh *bara* ‘bread, loaf, food, sustenance’; ● Proto-Italic ***fars**, ***faros**: Latin *far*, *farris* ‘husked wheat, emmer, grain, flour’, *farīna*, Oscan and Umbrian *far* ‘flour’; ● Balto-Slavic: Latvian *barība* ‘food’, Old Church Slavonic *brašĭno* ‘food’, Russian *bórošno* ‘ryemeal’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

PORTABLE WOODEN FRAMEWORK ***korb-**. ● Proto-Germanic ***harpōn-** ‘harp, i.e. musical instrument comprised of wooden framework and strings’ [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *harpa*, Old English *hearpe*, Old Saxon *harpa*, Old High German *harpha*; ● Proto-Celtic ***korbo-** ‘chariot’: Old Irish *corb* is a glossary word defined with the probably related common word *carpat* ‘war-chariot, car, wagon; gum, palate’ = Middle Welsh *carfan* ‘weaver’s beam, frame, side of cart; gum’, Middle Breton *caruan* ‘weaver’s beam; gum’ < ***karbanto-**, Gaulish and Ancient Brythonic *carbanto-*, Gallo-Latin *carpentum* ‘two-wheeled covered carriage, chariot’; ● Italic: Latin *corbis* ‘basket’; ● Balto-Slavic: Lithuanian *kaĩbas* ‘basket’, Russian *kórob* ‘box, basket’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] The comparative forms make it difficult to reconstruct a viable Indo-European root structure.

SOW, PLANT SEED, SCATTER ***se-** ~ ***seg-** ~ ***sē-**. ● Proto-Germanic ***sēana-** ‘to sow’: Gothic *saian*, Old Norse *sá*, Old English *sāwan*, Old Saxon *sāian*, Old High German *sāen*, cf. Old English *sæd* ‘seed’; ● Proto-Celtic ***segyo-**: Middle Welsh *hëu* ‘to sow, scatter, plant’, cf. *hat* ‘seed’; ● Proto-Italic ***sise/o-** ‘to sow’: Latin *serō*, *-ere* ‘to sow seed, plant’, cf. *sē-men*; ● Balto-Slavic: Lithuanian *sėjū*, *sėti*, Latvian *sēt* ‘to sow’, Old Church Slavonic *sějō*, *sěti* ‘to sow’. ¶ These forms are usually attributed to two distinct Proto-Indo-

European roots: *√seġ-* ‘attach’ for Middle Welsh *hëu*, likewise Latin *seges* ‘field of corn, arable land’ < Proto-Italic ***seġet-**, and *√seH₁-* ‘sow’ for Gothic *saian*, Latin *serō*, and Lithuanian *sėti*. While the derivation from ‘attach’ > ‘sow’ might be reconsidered, the key point presently is that a Celtic word that was similar phonetically to reflexes of NW *√seH₁-* ‘sow’ acquired that meaning to the exclusion of any other.

§45. Language and oral tradition

a. *Celto-Germanic (CG)*

DISCUSSION (?) ***trapto-**. Old Irish *tráchtaid* ‘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 *tractō* ‘drag along, haul, handle, manage’. However, an alternative derivation may be preferable, namely as cognates of ● Proto-Germanic ***prafta-** < Pre-Germanic ***trapto-** [PRE-GRIMM 1]: Old Norse *þrapt* ‘gossip’, Old English *þræft* ‘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 ***trapto-** < ***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 *mære* ‘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 **aiþaz* [PRE-GRIMM 1]: Goth. *aips* ‘oath’, Old Norse *eiðr*, Old English *āþ*, Old Saxon *ēð*, 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 ‘oitos *oîtos* ‘faith’, all from PIE **H₂oi-to-s* ‘walking’ < **H₂ei-* ‘go’, cf. the Old Norse idiom *ganga eið* ‘take the oath’, literally ‘go the oath’.

2 **leugho-* ~ **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-* ~ **skötlo-*. ● Proto-Germanic **skāpla-* [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’.

SECRET, SECRET KNOWLEDGE **rūn-*. ● Proto-Germanic **rūnō-*: Ancient Nordic *rūnō* ‘rune’ accusative singular (Einang stone, Oppland, Norway ~AD 350–400, Antonsen §20; Noleby stone, Västergötland, Sweden ~AD 450, Antonsen §46), Gothic *rūna* ‘secret’ (cf. Gothic *birūnains* ‘plot’), Old Norse *rún* ‘rune, secret’, Old English *rún*, Old Saxon *rūna* ‘whisper, secret, rune, secret conversation’, cf. Gothic *garūni* ‘council, counsel’, Old High German *girūni* ‘secret, mystery’; ● Proto-Celtic **rūnā* ‘secret’: Old Irish *rún*, Old Breton *rin* glossing ‘secretum’, Middle Welsh *rin* ‘spell, enchantment, secret’, Old Welsh *ringuedaulion* glossing ‘arcana’, Middle Welsh *kyfrin* ‘secret’, Middle Breton *queffrin* ‘mystery, secret’, cf. Middle Irish *comrún*, *cobruín* ‘shared secret, confidence’, Gaulish personal name *Cobrunus*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] However, Finnish *runo* ‘poem’ < ‘incantation’ is probably a borrowing from Germanic.

SPEAK 1 *rōdhi-. ● Proto-Germanic ***rōdjana-** (< ***rādjana-**): Gothic *rodjan* ‘speak’, Old Norse *rōðā* ‘to speak’, cf. Old High German *rātan* ‘advise’; ● Proto-Celtic ***rādi-**: Old Irish *ráidid* ‘speaks, says, tells’, Middle Welsh *atrawδ* ‘tells, speaks, declares, tells, relates, repeats’ < Proto-Celtic ***ati-rādi-**, Old Welsh *amraud* ‘mind, thought, intention’ < Proto-Celtic ***ambi-rādi-**. ¶ Proto-Indo-European *√(H)reHdh-* ‘perform successfully’. Contrast the CG meanings with Sanskrit *rādh-* ‘perform successfully’. Lithuanian *rodýti*, Latvian *rādīt* ‘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*, *bīht* ‘confession’; ● Proto-Celtic ***yex̥ti-** ‘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 ***yex̥ti-** was probably assimilated in Brythonic to the productive category, the *ā*-stems, as **yex̥tā-*. ¶ 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.

b. Italo-Celto/Germanic (ICG)

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 *íegumi* ‘I say’ and paradigmatic forms of the same *íexstumi*, *íexsetesi* (Châteaubateau); ● Proto-Italic ***yoko-** ‘saying’: Latin *iocus* ‘joke, jest’, Umbrian accusative plural *iuka*, *iuku* ‘words’ or ‘prayers’. ¶ The inclusion of ***yekti-** and ***yek-** as CG and ICG words is contingent on assigning Sanskrit *yācati* ‘asks, entreats’ to a different root (LIV 311; Matasović 2011, s.n. **yextV-*). 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 ***toliyo-**: Middle Irish *tuilid* ‘sleeps, falls asleep’ < ***toliyeti** ‘make quiet’, also the compound *con-tuili* ‘sleeps’; ● Baltic: Lithuanian *tylā* ‘quiet person’, *tylėti* ‘be silent’, *tilti* ‘fall silent, abate, subside’.

REACH TO, ENTREAT (?) *tekye-. ● Proto-Germanic ***pegjan-** ‘to request’ < [PRE-VERNER] ***pexja-** [PRE-GRIMM 1]: Old Norse *biggja* ‘to obtain, accept’, Old English *picgan*, 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, entreats’; ● Baltic: Lithuanian *tèkti* ‘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)*

BLEAT (?) ***bhled-** ~ ***bhleid-** ~ ***bhlēd-**. ● Proto-Germanic ***blējan-** ~ ***blēatjan-** [PRE-GRIMM 2]: Old English *blætan*, Old High German *blāen*, *blāzen*; ● Proto-Celtic ***bled-**: Old Irish *bled* glossing ‘pistrix’ ‘whale, sea monster’, Old Cornish *bleit* glossing ‘lupus’, Old Breton *bleit*, Middle Welsh *bleið* ‘wolf’; ● Proto-Italic ***flē(ye/o-)**: Latin *fleō* ‘cry, weep’, cf. Middle Irish *bláed* ‘shout, cry’, Middle Welsh *bloed* ‘shout, cry, clamour’; ● Balto-Slavic: Latvian *blēt* ‘bleat, bellow’, Russian *bléjat’* ‘bleat’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] ¶ If we assume an original meaning ‘bleat, i.e. loud cry of a large animal’, the distinct developments found in Goidelic and Brythonic are intelligible, bearing in mind that both whales and wolves are often heard in the distance and not seen, so that the wolf is most often experienced only as its howl.

CALL, SHOUT, SPEAK OUT ***gal-**. ● Proto-Germanic ***kalzōjan-** ‘to call, shout’ < Pre-Germanic ***gols-** [PRE-GRIMM 2]: Old Norse *kalla* ‘to cry, shout, say, to summon in a loud voice, to name, to claim’, Old English *ceallian* ‘cry out, declare, announce, call’, Old Frisian *kella* ‘to name, be called’, Old High German *kallōn* ‘to chatter, talk’; ● Proto-Celtic ***galwo-** ‘call’: Old Breton *galu*, Middle Welsh *galw* ‘call, shout, invitation, demand’; ● Italic: cf. Latin *gallus* ‘farmyard cockerel’ < *‘caller, crier’; ● Proto-Balto-Slavic ***galsa-** < ***gols-o-**: Lithuanian *gaĩsas* ‘echo’, Old Church Slavonic *glasъ* ‘voice’, *glagolati* ‘speak’ < ***gal-gal-**. ¶ The only possible non-NW cognate is Ossetic *yalas* ‘sound’ (Mallory & Adams 2006, 354).

§46. Beliefs and the supernatural

a. *Celto-Germanic (CG)*

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

- Proto-Germanic ***Ala-fader** < [PRE-VERNER] ***Ala-fapēr** [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 *Eochu 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 *uile*, Middle Welsh *holl*, *oll* ‘all’, Old Breton *holl*, Middle Breton *holl*, *oll*; Proto-Italic ***al-no-**: Oscan *allo* ‘whole’; Proto-Balto-Slavic: Lithuanian *aliaĩ* ‘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-brunst* ‘burnt offering’, Galatian genitive Ολοριγος, contrasting with the Gaulish divine names **OLLODAG**[, personal name *Ollognatus* and other Ancient Celtic examples with double *ll*. 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 **H₁elk-yo-*: Old Norse *illr* ‘ill, evil, bad, mean’, Faroese *illur* ‘evil, unfriendly, poor, miserable, angry’; ● Proto-Celtic ***elko-** ~ ***elkā-** (< **H₁elk-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.

GOD-INSPIRED ***wātis** < Notional Proto-Indo-European **weH₂tis*.
● Proto-Germanic ***wōðaz** < [PRE-VERNER] ***wāpaz** ‘inspired, possessed, crazy’ [PRE-GRIMM 1]: Ancient Nordic personal names **unwōdz** ‘calm one’ < ‘not furious’ (Gårdlösa clasp, Skåne, Sweden ~AD 200 Antonsen §6), **wōdurīde** ‘furious rider’ (Tune stone, Østfold, Norway ~AD 400, Antonsen §27), Gothic *wops* ‘furious’, Old Norse *ōðr* ‘poetry, furious’, Old English *wōp* ‘song, poetry’; cf. Old Norse god’s name *Óðinn*, Old English *Wōden*, Old High German *Wuotan*; ● Proto-Celtic ***wāti-**: Gallo-Latin *vātes* ‘prophets’, Old Irish *fáith* ‘prophet’, *fáth* ‘prophetic wisdom, learning, maxims, skill’, Old Welsh *guaut* ‘prophetic verse, panegyric, eulogy’.
¶ Unique CG word, as Latin *vātes* ‘prophet, soothsayer, seer’ is probably a Celtic loanword.

OMEN, FORESIGHT ***kail-**. ● Proto-Germanic ***hail-** < Pre-Germanic ***kail-** [PRE-GRIMM 1]: Old English *hæł* ‘omen’, *hælsian* ‘to augur, to invoke, to implore, to curse’, Old High German *heilisōn* ‘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 ‘haruspicem’ ‘soothsayer’, Old Cornish *chuillioc* glossing ‘augur’ ‘soothsayer’, cf. Hispano-Celtic place-name Κοιλιοβριγῶν (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). ¶ 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 *heill*, &c., < Proto-Germanic ***hailaz**) may be unrelated. ¶ Old Irish *cél* ‘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 *háihis* ‘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 Ingcél 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 ***ténk-e-** [PRE-GRIMM 1]: Gothic *peihan*, Old English *peon*, (*ge-*)*þingan*, Old Saxon *thīhan*, Old High German *dīhan*; ● Proto-Celtic ***tonketom** ‘fortune, destiny, good luck’: Old Irish *tocad* glossing ‘fors’ ‘chance, luck’, Middle Welsh *tyngghet* ‘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 **TVNCCETACE** (CIIC no. 451 — St Nicholas, Pembrokeshire), Ogam TOGITACC (CIIC no. 172 — Ballywiheen [Baile Uí 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 TANCINI F.** (CIL II, 5349; CPILC, 80 — Belvís de Monroy (Cáceres); **TONGETA PROBINA E 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); **TONGETAE RVFI** (HEp, 2, 904 — Cárquere, Resende, Viseu); **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. nº 234 — Yecla de Yeltes, Salamanca); **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(ilia) H(ic) · S(ita) · E(st) · S(it) · T(ibi) · 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 *tīkti* (*tinkù*) ‘to be good (for), to be suitable’ < **tnk-e-*, *taikyti* ‘to arrange, fit’, Ukrainian *t’aknuty* ‘to be helpful’ < **tnk-neu-*.

SACRED GROVE, SANCTUARY ***nemet-**. • Proto-Germanic ***nemīpa-** [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 **NEMETOBICA** (HEp, 4, 586; HEp, 7, 548; AE, 1991, 1040 — Codesedo, Sarreaus, Ourense), personal name **NEMETI[VS] FIRMVS** (AE, 1950, 256 — Lisboa), Celtiberian divine name **NEM[E]DO AVGVSTO** (HEp, 5, 685; HEp, 7, 690; ERSg, 170 - 032 — Pedraza, Segovia), **NEMEDO** (HEp, 5, 686; HEp, 7, 712; ERSg, 170 - 054 — Pedraza, Segovia); Gaulish **CEGOMAPOC | OYIALLONEOC | TOOYTIOYC | NAMAYCATIC | EIΩPOY BHΛH | CAMI COCIN | NEMHTON** ‘Segomāros son of Uillonos, citizen of Nîmes, dedicated this holy thing/place to Belesama’ = *sosin nemeton* (RIG 1 G-153 — Vaison), personal name from Noricum **NEMETA**, coin legend from Noricum **NEMET** (Allen & Nash 1980, 193); Gaulish place-names *Ar(e) nemeton*—Arlempres (Haute-Loire), France; *Arnemetici* (Holder, AcS — in the arch-diocese of Arles on the right bank of the Rhône), *Augustonemeton/ Mezunemusus/*Medionemeton* — Clermont-Ferrand, France; *Nemetacon*, -um—Arras, France; *Nemetacum/ Nemetocenna*—France; *Nemetae Noviomagus*—Speyer, Germany; *Nemetes*—Germany; *Nemetoduron/ Nannetodurum*—Nanterre (Calvados), France; *Nemetoduron*—Nanterre (Loiret), France; *Nemetoduron*—Nemedon, Germany; *Nemetoduron*, *Nemetodurum**, *Nemptudoro*—Nanterre (Hauts-du-Seine), France; *Nemetoduron*—Némy (Poitou), France; *Nemetoduron*—Némy (Hainaut), *Nemetotacio/Nemetostatia*—North Tawton, Devon, England; *Nemeturii*—upper Verdon or Var valley? France; *Nouionemeton*—Nonant (Calvados), France; *Nouionemeton*—Nonant (Orne), France; *Tasinemeti*—Saint Georg am Sternberg? Austria; *Tasinemetum*—Norica, near Villach; *Vernemetum*—near Agen (Fortunat), France; *Vernemetis*—Vernou-sur-Brenne, France;

*Aquae Arnemetiae**—Buxton, England; Galatian place-name Δρυμετον (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 (*Gododdin*) *niuet* ‘special privilege’; Ancient Brythonic place-name, *Uernemetum* = Old Welsh personal name *Guornemet*, Old Welsh personal names *Nimet*, *lu[d]nemet*; Old Breton personal names *Catnemet*, *Iudnimet*. ¶ Unique CG suffixed formation: contrast Greek νέμος ‘wooded pasture, glade’, Latin *nemus* ‘sacred grove’, possibly also Sanskrit *nāmas-* ‘worship, honour’ < Proto-Indo-European **némos* without the suffix.

STONE LANDMARK, STONE RELIGIOUS MONUMENT ***kar-**

● Proto-Germanic ***hargu-** ‘sacrificial mound?’ < [PRE-VERNER] ***xarxú-** < Pre-Germanic ***karkú-** (per Kroonen) [PRE-GRIMM 1]: Old Norse *høgrgr* ‘pile of rocks, sanctuary’, Old English *hearg* ‘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* < ***krakyā-**, Old Welsh *carrecc* < ***karrikā-**; however, Proto-Celtic ***karnom** ‘ancient stone funerary monument’ < ***kṛn-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 **karnitu** (RIG 2–1, 42–52 — Todì), plural **karnitus** (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.

SUPERNATURAL BEING, PHANTOM, GHOST 1 ***dhroughós**. ● Proto-Germanic ***drauga-**: Old Norse *draugr* ‘ghost’; ● Proto-Celtic ***drougo-**: Old Irish *airdrech* ‘sprite, phantom’ < ***(p)ari-drougo-**. ¶ Unique CG secondary meaning possibly from the Proto-Indo-European word reflected in Avestan *draoγa-* ‘lie’, Old Persian *drauga-* ‘lie, treason, felony’, cf. Sanskrit *drúhyati* ‘deceives’.

2 ***skōk-slo-**. ● Proto-Germanic ***skōhsla-** (< ***skāx-sla-**)

[PRE-GRIMM 1]: Gothic *skōhsl* ‘evil spirit, demon’; ● Proto-Celtic ***skāxslo-**: 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 *gāst*, *gæst* ‘breath, spirit, soul, ghost’, Old Frisian *gāst*, *jēst*, Old Saxon *gēst* ‘soul, vitality, spirit, demon’, Old High German *geist*, cf. Gothic *usgaisjan* ‘to terrify’, Old Norse *geisa* ‘to rage’; ● Proto-Celtic ***goisto-**: Old Irish *gáes* ‘sagacity, intelligence, acuteness’.

THUNDER, THUNDER GOD 1 ***ton(a)ros** ~ ***tṇros**. ● Proto-Germanic ***þunraz** [PRE-GRIMM 1]: Old Norse *þórr*, Old English *þunor*, *þuner*, Old Frisian *thuner*, Old Saxon *thunar*, Old High German *donar*; ● Proto-Celtic ***tonaros** > ***toranos**: Gaulish divine names *Taranis*, *Taranucnos*, *Taranucus*, 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; RIB 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

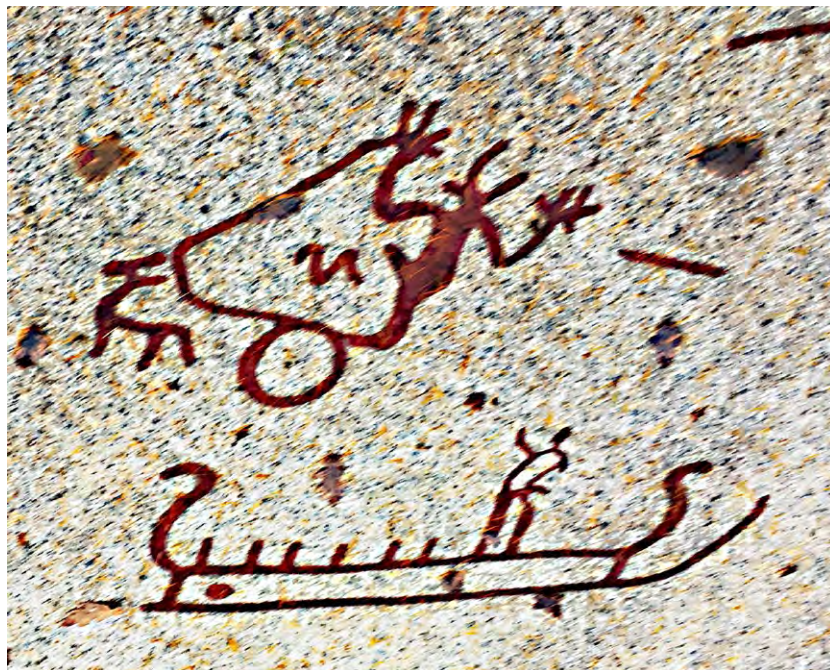


Figure 44. CG *weghnos 'WHEELED VEHICLE', *ton(a)ros ~ *tnros 'THUNDER, THUNDER GOD' 1. This rock carving, in which a large bihorned figure standing on a chariot pulled by a small horned quadruped to the apparent wonder of man standing aboard a vessel below (from the famous Vitlycke panel, Tanum, Bohuslän, Sweden) is reminiscent of the associations of Thor in Norse mythological literature, riding through the sky in a chariot pulled by goats. The zigzag in front of him might represent the namesake thunder bolt (photo: J. Koch).

officer from [CL]VNIA, i.e. Burgos, so this may attest the god in Celtiberian. Cf. also an ancient name of the River Po *Tanarus*. As recognized by Untermann (MLH IV, 166), South-western Celtic . . .] t^arnek^u<k^u>un b^aane | [r]o-b^aare na^rk^e[e . . . (J.26.1 — Herdade do Gavião, Aljustrel, Beja) appears to contain a typical genitive plural Hispano-Celtic kindred name; the first word can be interpreted as /tar(a)nekūm/ 'of the descendants of Tar(a)nos' or 'Tar(a)nus'. ¶ Proto-Indo-European *v(s)tenH₂-* 'thunder': Vedic *stanáyati* 'thunders', Latin *tonāre* 'to thunder', probably also Greek στένω 'sigh, moan, groan'. What is probably a different

formation in Celtic from the same root occurs as Celtiberian *steniotes* /*steniontes*/ (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 *v(s)tenH₂-* was unrelated.

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

THUNDER, THUNDER GOD 2 *perk^wunos. • Proto-Germanic *fergunja- 'mountain' < [PRE-VERNER] *ferḡunyā < Pre-Germanic *Perk^wunyā [PRE-GRIMM 1]: Gothic *fairguni* 'mountain range', cf. Old Norse gods' names *Fjörgyn* 'earth' (mother of Thor), *Fjörgynn* (father of Frigg), Old English *firgen* 'mountain', Old High German *Firgunnea* 'Ore Mountains' < *perk^w-n-ieH₂-; • Proto-Celtic place-name *(P)erkunyā: Latinized Gaulish *silva Hercynia*, also the ancient central European group name *Hercuniates*, Ἑρκουνιάτες (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 *melld* 'lightning, thunderbolts' (in Welsh the basic meaning 'hammer' has been

replaced by the related loanword *mrwthwl* < 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 *melltēn*, Gaulish god’s name (dative) **MELDIO** (Bazan, France), group name *Meldi*;
 ● Proto-Balto-Slavic ***mild-n-** ~ ***meld-n-**: Old Prussian *mealde* ‘lightning bolt’, Latvian *milna* ‘hammer of the thunder god’, Old Church Slavonic *mьni* ‘lightning’ < **mьldni*, *mlatъ* ‘hammer’ < **molH₁-tlo-* ‘grinding device’. ¶ Proto-Indo-European *√melH₂-* ‘grind’: cf. Old Norse *mjǫl* ‘meal’, Middle Welsh *malu* ‘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-** < **molH₁-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 Hrungrnir. ¶ As Paulus van Sluis noted at the Indo-European Interfaces conference, deriving Welsh *mellt* 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 **ll* 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 ***dhwos-**: Middle High German *getwās* ‘phantom, ghost’; ● Proto-Celtic ***dwosyos**: Gaulish *dusios* ‘incubus’ ‘daemon’ ‘type of demon’;
- Baltic: Lithuanian *dvasià* ‘breath, spirit, soul’, Latvian *dvaša*.

MAGIC, SORCERY ***soito-/ā-**. ● Proto-Germanic ***saida-** ‘magic, charm’ < [PRE-VERNER] ***saipa-** [PRE-GRIMM 1]: Old Norse *seiðr* ‘magic, spell, enchantment’; Old Norse *síða* ‘to work charms’, Old English *-siden* ‘magic’ < **sidnō-*; ● Proto-Celtic ***soito-** ‘magic’:

Middle Welsh *hud*, Breton *hud*, Old Cornish *hudol* glossing ‘magus’; ● Baltic: Lithuanian *saĩtas* ‘sign, soothsaying, soothsayer, talisman’, also ‘string, necklace’ (< ‘talisman’), *seĩtas* ‘magic’. Probably originally identical to Proto-Indo-European ***soito-** ‘string, rope’ < *√seH₂-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)

FEVER ***krīt-** ~ ***krit-**. ● Proto-Germanic ***hrīpan-** ~ ***hrittan-** ‘fever, shivering’ [PRE-GRIMM 1]: Norwegian *ri* ‘sudden illness, short period, hard weather’ (Bjorvand & Lindeman 2000, 724), Old English *hrīða* ‘fever’, Old Saxon *hrido*, Old High German *rīdo*, *rit(t)o*; ● Proto-Celtic ***krito-**: Old Irish *crith* ‘trembling, fever’, Old Welsh *crit* gl. ‘timore’ ‘trembling’, Old Breton *crit* glossing ‘frenesin’ ‘tremors, fear’, Middle Welsh *cryd* ‘shivering, trembling, fear, fever’.

HEALER, PHYSICIAN, LEECH ***lēgi-**. ● Proto-Germanic ***lēkijaz** < Pre-Germanic ***lēgyos** [PRE-GRIMM 2]: Gothic *lekeis* ‘doctor’, Old Norse *lækir*, Old English *læce* ‘doctor, leech’, Old Frisian dative *letza*, *leischa*, Old High German *lāhhi*, *lāchi*, cf. Gothic *lekinon* ‘to heal’, Old Norse *lækna*, Old English *lācnian*, Old High German *lāhhinōn*;
 ● Proto-Celtic ***lēgis** (?): Old Irish *lieig*, *liaig* ‘physician, healer, leech’.

HEALING PLANT ***lubhi-** ~ **loubhos**. • 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 *luib* ‘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 ‘ολούφω ‘peel’, Lithuanian *lubà* ‘plank’, Old Prussian *lubbo* ‘plank, shelf’ and the formally equivalent Gothic, Old Norse *lauf* ‘leaf, foliage’, Old English *lēaf*, Old Frisian *lāf*, Old Saxon *lōf*, Old High German *loub* < Proto-Germanic ***lauba-** < Pre-Germanic ***loubho-**; Latin *liber* ‘bark, rind’ < ***lubhro-**.

LEPROSY ***truts-**. • Proto-Germanic ***pruts-** [PRE-GRIMM 1]: Gothic *pruts-fill*, Old English *ðrúst-fell*; • Proto-Celtic ***trussko-** ‘leprous’: Old Irish *trosc* ‘leprosy, leprous’, 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 ***seukaz** ‘sick’: Gothic *siuks*, 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 ***suxto-**: 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 *sterva* ‘to die’, Old Saxon *sterban*, Old High German *sterbo* ‘death’; • Proto-Celtic ***sterbā-**: Old Irish *ussarb* ‘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 ***ghren-** ~ ***ghran-**. • Proto-Germanic ***granō-**: Gothic *grano*, Old Norse *gr̥n*, ‘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, face, 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 coat’: Gothic *brunjō*, Old Norse *brynja* ‘mail coat’, Old English *byrne* ‘cuirass, corslet, coat of mail’, Old Saxon *brunnia* ‘mail coat’, Old High German *brunja*, *brunna* ‘mail coat’; • Proto-Celtic ***brusnā** ~ ***brusnyo-** ‘breast, bosom, thorax’: Old Irish *bruinne* ‘breast, bosom, chest’, Old Breton *bronn*, Middle Welsh *bron*, cf. Middle Welsh *brynn* ‘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 1]: Old Norse *þjó*, Old English *pēoh*, *þíoh*, Old Frisian *thiach*, Old High German *dioh*; • Proto-Celtic *tuknī ~ *tuknā: Old Irish *tón* 'buttocks, hindquarters, rear', Middle Welsh *tin* '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 *tukŭ*, Russian *tuku* 'fat of animals'.

DIGIT, FINGER, TOE, BRANCH *g^wistis. • Proto-Germanic *k^wistiz [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] *tayla- [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*, *zagel* '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.**

Figure 45. CG ***g^wistis** 'DIGIT, FINGER'. Bronze Age rock art on a panel from Backa-Brastad, Bohuslän, Sweden, showing a warrior figure with raised arms and 10 splayed fingers (photo: J. Koch).



Figure 46. CG ***g^wistis** 'DIGIT, FINGER', ICG ***ark^wo-** 'BOW AND ARROW'. Late Bronze Age stela from Las Yuntas, Capilla, Badajoz, Spain, showing a warrior with a bow and arrow, and clear representation of 10 splayed fingers (photo: J. Koch).



LEFT, LEFT-HAND *kley- ~ *kli-. • Proto-Germanic *hleī- < Pre-Germanic *kley- [PRE-GRIMM 1]: Gothic *hleiduma* 'left, left-hand'; • Proto-Celtic *kliyā** 'left': Old Irish *clé*, Old Welsh *cled* (cf. also Middle Welsh *gogleδ* 'north'), Middle Breton *cleiz*. ¶ Proto-Indo-European *√kley-* 'sloping, inclined'. The CG words show a specific semantic development, as the opposite of 'straight, level' = 'right'. Contrast Proto-Italic ***kle/owyo-**: Latin *clivius* 'inauspicious, ominous'; Baltic: Lithuanian *šleivās* 'bow-legged'.**

THICK, FAT ***tegus**, feminine ***teg^wī**. ● Proto-Germanic ***pekuz** ~ ***pik^wī** ‘fat’ [PRE-GRIMM 2] [PRE-GRIMM 1]: Old Norse *þjokkr*, *þjukkr*, *þykk*, Old English *picce*, Old Frisian *thiukke* ‘extent’, Old Saxon *thikki* ‘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 *teu*, *teo*, Cornish *tew*.

b. Italo-Celtic/Germanic (ICG)

CURLY HAIR ***krisp-**. ● Proto-Germanic ***hrispon-** ‘curl’ < Pre-Germanic ***krisp-ā-** [PRE-GRIMM 1]: Middle Low German *rispe* ‘truss’, Middle High German *rispe*, cf. Old High German *hrispa* ‘shrubbery’, Middle High German *rispen*, *rispeln* ‘to ripple, curl’; ● Proto-Celtic ***krixso-** ~ ***krixsā-** ‘curly-haired’ < Pre-Celtic ***kripso-** < ***krispo-**: Gaulish personal name *Crixsus*, Middle Welsh *crych* ‘curly, wrinkled, rough’, Middle Breton *crech*; ● Proto-Italic ***krispo-** ‘curly, crumpled, twisted’: Latin *crispus* ‘curly, curled’.

HEAD ***kápu-**. ● Proto-Germanic ***ha(u)bida** ~ ***ha(u)beda** ~ ***ha(u)buda** < [PRE-VERNER] ***χαφύβα-** < Pre-Germanic ***kaputo-** [PRE-GRIMM 1]: Gothic *haubip*, Old Norse *hǫfuð*, Old English *hæfud*, Old Frisian *hāved*, Old Saxon *hōbīd*, Old High German *houbit*;
● Proto-Celtic ***ka(p)uko-**: Old Irish *cuäch* ‘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 ***kólsos**. ● Proto-Germanic ***halsaz** [PRE-GRIMM 1]: Gothic, Old Norse *háls* ‘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 ***kolsos**: Latin *collus* ‘neck’.

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

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

VOMIT, DEFECATE (?) ***ski-**. ● Proto-Germanic ***skitan-** ‘to shit’: Old Norse *skíta*, Old English *scītan*, Old High German *scīzan*; ● Proto-Celtic ***ski-yo-** ~ ***skeyeti** ‘vomit’: Old Irish *sceïd*, Middle Welsh *chwyf* ‘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 *vskey-* ‘split, separate’: Greek σκίζω ‘split’ < **skid-ye/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 ***baiza-**: 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 *borovū* ‘boar’ would have to reflect a loanword from Germanic.

CLOVER ***smeryon-** ~ ***semar-**. ● Proto-Germanic ***smērjōn-**: Old Norse *smāri* ‘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 *meilhionou* glossing ‘violas’, Middle Welsh *meillyon* ‘clover, trefoil’, Old Cornish singulative *melhyonen* glossing ‘vi[o]la’, Middle Breton singulative *melchonennn*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

DARK ***dhem(H)-**. ● Proto-Germanic ***dimma-** < Pre-Germanic ***dhem(H)-no-**: Old Norse *dimmr*, Old English *dim*, *dimm*, Old Frisian *dim*, cf. Old High German *timbar* ‘dim, dark, obscure’; ● Proto-Celtic ***dem-** ‘dark’: Middle Irish *deime* ‘darkness (of night)’ < ***demyā-**.

DWARFLIKE CREATURE, WATER CREATURE ***aban-**. ● Proto-Germanic ***apan-** ‘monkey, ape’ [PRE-GRIMM 2]: Old Norse *api*, Old English *apa*, Old Saxon *apo*, Old High German *affo*; ● Proto-Celtic ***abanko-** < ***abŋko-** ‘river dweller’: Middle Irish *abacc* ‘dwarf’, Middle Welsh *afanc* ‘beaver, dwarf, water monster’ (cf. Middle Welsh *aðanc* ‘water monster’), Breton *avank* ‘dwarf, sea monster’, cf. Old Breton *amachdu* ‘black water monster’ = Welsh *Afagddu*, name of a legendary ugly and untalented youth who dwelt at what became the bottom of Llyn Tegid (Bala Lake).

EARTH, CLAY, MUD ***ūr-** ~ ***our-**. ● Proto-Germanic ***aura-**: Old Norse *aurr* ‘loam, wet clay, mud’, Old English *ēar* ‘humus, earth, sea’; ● Proto-Celtic ***ūro-** ~ ***ūrā-**: Middle Irish *úr*, also *úir* ‘mould, earth, clay, soil, the grave’, Scottish Gaelic *ùir* ‘mould, dust, earth’.

EXTREMITIES OF A LIVING THING ***pinn-**. ● Proto-Germanic ***fin(n)ōn-** [PRE-GRIMM 1]: Old Norse *fina*, Swedish *fena* ‘fin, chaff, husk’, Old English *finn* ‘fin’, Middle Dutch *vinne* ‘fin, wing, prickle, awn’, Middle Low German *finne*; ● Proto-Celtic ***(p)innā-**: Old Irish *inn*, *ind* ‘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 *smairþir* ‘grease’, Old Norse *smjǫr*, *smjǫr* ‘butter, grease’, Old English *smeoru* ‘fat, grease, tallow’, Old Frisian *smere* Old Saxon *smeoru*, *smeru* ‘fat’, Old High German *smero*, *smer*, cf. Gothic *smairþr* ‘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-** ~ ***smertā-** ‘anointed’: Old Celtic goddess name *Ro-smerta* ‘anointed one’, possibly also Galatian personal names Ζμερτοριξ ‘anointed king’, Ζμερτομαρα, Ζμερτομαρος, Old Irish *smiur* glossing ‘medulla’ ‘marrow’, cf. Old Irish *smeraid* ‘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 *holezn*, *holen*, Old High German *hulis*, *huls*; ● Proto-Celtic ***kolino-**: Old Irish *cuilenn*, Old Cornish *kelin*, Middle Welsh *kelyn*, Middle Breton *queleenn*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

LARK ***laiwad** ~ ***alaud**. ● Proto-Germanic ***laiwaz-**: Old Norse *lævirke*, Old English *læwerce*, Old High German *lêrahha*; 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-** < ***lewo-** < ***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. *√lewH-*, showing a different development of the meaning.

NATURALLY OVERGROWN LAND *kaito-. • Proto-Germanic ***haiþi-** [PRE-GRIMM 1]: Gothic *haiþi* ‘open field, heath, open untilled land, pasture, open country’, Old Norse *heiðr* ‘heath, barren land, moor’, Old English *hæþ* ‘uncultivated land, wasteland, heather’, Old High German *heida* ‘uncultivated land’; • Proto-Celtic ***kaito-**: Hispano-Celtic place-name **CAETOBIRGA**/Καιτουβριξ (Setúbal), Old Welsh *coit* ‘wood, forest’, Old Cornish *cuit* glossing ‘silva’, 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.

PINE *gisnó-. • Proto-Germanic ***kizna-** ‘pine tree’ [PRE-GRIMM 2]: Old English *cēn* ‘pine tree, spruce’, Old High German *kien* ‘pine tree, pinewood torch’; • Proto-Celtic ***ginso-**: Old Irish *crand gius* glossing ‘pinus’ ‘pine tree, fir tree’, Scottish Gaelic *giuthas* ‘fir’.
¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

RUSH *sem-. • Proto-Germanic ***semepa-** ~ ***semepō-**: 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 ***sákaso-** ~ ***sakyó-**: Old English *sæcg* glossing ‘gladiolum’ ‘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 ***seṡskā/i-** ‘rushes, sedge’: Middle Irish *seisc*, 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*, *secāre*, Old Norse *sōg* ‘saw’, Old English *sagu*, Old Saxon *saga*, Old High German *sega*, *saga* ‘saw’, Old Church Slavonic *sěšti* ‘you cut’, Lithuanian *-sėkti*.

SHINING, CLEAR *ghleiwo-. • Proto-Germanic ***glīwa-**: Old Norse *glý* ‘joy’, *gljá* ‘to shine’, Faroese *gliggja* ‘to shine’, Old English *glīw*, *glēow* ‘jesting, fun, game’; • Proto-Celtic ***glēwo-/ā-** ‘clear liquid’: Ancient Brythonic place-name *Glēvum* ‘Gloucester’, Old Welsh *gloiu* glossing ‘liquidum’, Old Breton *gloeui*, Middle Welsh *gloyw* ‘bright, shining, sparkling, polished, clear, transparent’, Old Irish *glé* ‘clear, plain, evident’. ¶ Proto-Indo-European *√ghel-* ‘shine’.

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 *kenn* ‘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 *√sek-* ‘to cut’.

WILD, WILDMAN *g^whelti-. • Proto-Germanic ***wilþjaz** ‘wild’, ***wilþaz** ‘wild beast’ [possibly borrowed after Gallo-Brythonic **w* < **g^w* < **g^wh*] [PRE-GRIMM 1]: Gothic *wilþeis* ‘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^welti-**: 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 Wyllt* 'Wild Merlin', Old Breton *guelde-nes* 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*, *wiodu*, later *wudu*, Old High German *witu*, *wito*; ● Proto-Celtic ***widus**: Gaulish group name *Vidu-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 *næddre*, Old Saxon *nādra*, *nādāra*, *nātāra*, Old High German *nātara*, *nātra* 'viper'; ● Proto-Celtic ***natrik-**: Old Irish *nathir*, genitive *nathrach* 'snake, serpent, venomous snake, viper', Middle Welsh *neidyr*, plural *nadreð*, *nadroeð* 'adder, snake'; ● Proto-Italic ***natrik-**: Latin *natrix* 'water snake'.

BADGER ***takso-**. ● Proto-Germanic ***pahzu-** [PRE-GRIMM 1]: Norwegian *toks*, Middle Dutch *das*, Middle High German *dahs*; ● 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[II] MORITASGO** and **DEO MORITASGO** 'sea-badger?', personal names **TASGETIOS**, **TASGIVS**, **TASGILLVS**, *Tascouanos* 'badger-slayer' ~ Ancient Brythonic personal name on coin legends **TASCIOVANI**

(genitive), **TASCIOVANTIS** AD 20–43, Old Welsh *Teuhant*, *Teuhuant* 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 ***amslā**: Old English *ōsle*, 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 *smólach* 'thrush', Scottish Gaelic *smeórach*, Modern Irish *smólach*, *smaol*, *smól*, *smíol*; ● 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 *mwyalch* 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-walch* ‘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 ‘blackbird’). Therefore, a Proto-Italo-Celtic **mesalā* is possible. We might start with an ablauting preform like Proto-Italo-Celtic *e*-grade **mesalā* and zero-grade **msal-* 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).

BLOOM, FLOURISH, FLOWER **bhlō-*. ● Proto-Germanic **blōan-* ‘to bloom, flourish’, **blōmō-* ‘flower’ < **blā-*: Gothic *blōma* ‘flower’, Old English *blōwan* ‘bloom’, Old Frisian *bloia*, Old Saxon *blōian*, Old High German *bluoen*; ● Proto-Celtic **blātu-* ‘flower’ < **bhlo-tu-*: Gaulish personal names *Blatuna*, *Blatumarus*, Old Irish *bláth* ‘flower, bloom, blossom, flourishing appearance’, Middle Welsh *blawt* ‘flowers, blooms, blossoms, buds’, Middle Breton *bleuzff*; ● Proto-Italic **flōs-* ‘flower’ < **bhleH₃-ōs-* ‘blossoming’: Latin *flōs*, *flōris* ‘flower, blossom’, cf. Oscan dative *fluusaí* (the goddess Flora). ¶ < Proto-Indo-European **bhleH₃-* ‘bloom’.

BLOW, BREATHE **spei-*. ● Proto-Germanic **fisan-* < Pre-Germanic **(s)péis-e-* [PRE-GRIMM 1]: Old Norse *físa* ‘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 **sḃoinā-* < **spoinā-*: Middle Welsh *fun*, Modern *ffûn* ‘breath, gasp, blast, spirit, life, soul’; ● Proto-Italic **speis-*: Latin *spīrō*, *spīrāre* ‘breathe’.

BROWN, DARK **dheus-*. ● Proto-Germanic **duska-* ‘dark’ < Pre-Germanic **dhus-ko-* ~ **dhus-kā-*: Old English *dox*, *dux* ‘dark-haired, sallow, dusky’, Modern *dusk*; ● Proto-Celtic **dunno-* ~ **dunnā-* < 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-* ~ **dhus-ko/ā-*: Latin *furvus* ‘dark-coloured, dusky’, *fuscus* ‘dark, swarthy, dusky’. ¶ It is not certain whether Old English *dunn* ‘dingy brown, dark-coloured, dun’ is a loanword from Celtic or a cognate.

FREEZE, FROST **preus-*. ● Proto-Germanic **freusan-* ~ **fraus-* ~ **fruz-* < Pre-Germanic **préus-e-* [PRE-GRIMM 1]: Old Norse *frjósa* ‘freeze’, *frørinn* ‘frozen’, Old English *freosan* ‘freeze’, *froren* ‘frozen’, Old High German *friosan* ‘freeze’, *gifroran* ‘frozen’, cf. Gothic *frius* ‘frost’; ● Proto-Celtic **(p)reuso-*: Old Cornish *reu* glossing ‘gelum’ ‘frost, icy coldness’, Middle Breton *reu* ‘frost, ice’, Middle Welsh *rew* ‘frost, ice’, *reuhid*, *rewittor* ‘freezes’, cf. Old Irish *reód* ‘hoar-frost’, Middle Irish *reódaid* ‘freezes’; ● Proto-Italic **pruswo-* ‘freezing’, **pruswīnā* ‘frost’: Latin *pruīna* ‘hoar-frost, rime’ (Hamp 1973). ¶ Proto-Indo-European **vpreus-* refers to a cool tingling sensation, as in Sanskrit *pruṣvā/prúṣvā* ‘drop of dew, cool drop’ < **prus-wo-*, cf. Latin *prūriō* ‘itch, tingle’ < Proto-Italic **prousyē/o-*. The meaning ‘frost, freezing’ developed in Italo-Celtic/Germanic.

JUNIPER, RUSHES, REED ***yoini-**. • Proto-Germanic

***(j)ainja-** ‘juniper’: Old Norse *einir* ‘juniper’, German dialectal *Einbeerbaum*; • Proto-Celtic ***yoini-**: Old Irish *óine*, Middle Irish *áin* ‘rushes, reed’; • Proto-Italic ***yoini-**: Latin *iuncus* ‘juniper’, *iūniperus* ‘juniper berry’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] Alternatively, possibly related to Hittite *ejan-* ‘a certain evergreen tree’.

LIGHTNING ***louk-**. • Proto-Germanic ***lauhatjana-** [PRE-GRIMM 1]:

Gothic *láuhatjan* ‘to flash (of lightning), lighten’, Old High German *lougizzen* ‘to flash’, *lohazzen* ‘to be fiery’ (cf. Old English *lieget* ‘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 *lóchet* ‘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 *vleuk-* ‘shine’, cf. Greek *λευκός* ‘clear, white’, and developed from this along similar formal and semantic lines. However, it is difficult to reconstruct a common ICG proto-form beyond the root. The single -C- of **LOVCETIVS** can correspond to Gothic -h- and Old Irish -ch-, but not the -ch- in Middle Welsh *lluchet*; contrast the regular reflex in Middle Welsh *lluc* ‘light, radiance, lustre, brightness’ < Proto-Celtic ***louko-**. The Breton and Cornish forms indicate that this medial consonant varied in Brythonic. The -T- of **LOVCETIVS** corresponds regularly to the Welsh, Cornish, and Breton -t [-ð], but not (in inherited vocabulary) to the final consonant of Old Irish *lóchet*, which would regularly go back to -nt-. It is likely that the basis for the attested forms was, as in Germanic, a verb ***louk-** ‘flash’, which in Celtic produced suffixed forms supplying nouns meaning ‘lightning’. Analogical influence in Brythonic from a word formed like Middle Welsh *luch* ‘bright, gleaming’ is possible. Other considerations include familiarity with the Goidelic form of

the 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 *lluched* 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 *lóchet* < ***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 *hnót*, Old English *hnutu*, plural *hnyte*, Old High German *hnuz*, *nuz*; • Proto-Celtic ***know-**: Old Irish *cnú*, Middle Welsh *kneu* ‘nuts’, Middle Breton singulative *cnouenn*; • Proto-Italic ***knuk-s**: Latin *nux*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

OAK, TREE ***perk^wo-**. • Proto-Germanic ***ferh^wa-** < Pre-Germanic

***perk^wo-** [PRE-GRIMM 1]: Old Norse *fura*, *fyri-* ‘fir tree’, poetic *fjorr* ‘tree’, Old English *furh(wudu)* ‘fir tree’, Old High German *forha*, *fereh-eih* ‘tree’; • Proto-Celtic ***k^werxto-** ‘tree’ < ***k^werk^w-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^werk^w-u/o-** ‘oak tree’ < ***perk^w-u/o-**: Latin *quercus*. ¶ See also THUNDER GOD 2, §46c above.

SMELL STRONGLY ***bhrag- ~ *bhrēg-** < *VbhreH₂g-*. • Proto-

Germanic ***brēkjan-** [PRE-GRIMM 2]: Middle High German *bræhen* ‘to smell’; • Proto-Celtic ***bregno-/ā-** < ***bhreg-no-/ā-**: Middle Irish *brén* ‘stinking, fetid, putrid, rotten, foul’, Middle Welsh *braen* ‘rotten, putrid, corrupt, mouldy, withered’, Middle Breton *brein* ‘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*, *slinkan* ‘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 *sliñkti* ‘to creep, sneak’.

OPEN LAND ***lendh-** ~ **lndh-**. ● Proto-Germanic ***landa** < 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 ***lndh-** ‘open land’: Old Irish *lann* ‘land, plot, church(yard)’, Old Welsh and Old Breton *lann* ‘churchyard, church’, Middle Welsh *llan(n)* ‘church, churchyard, enclosure, yard’, cf. Ancient Brythonic place-name *Vindolanda*; ● Slavic: Old Church Slavonic *lędina* ‘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 *derën* ‘cornel cherry’. ¶ The reconstruction is ‘questionable’ according to Mallory and Adams (2006, 160).

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

ALDER ***al(i)sno-**. ● Proto-Germanic ***aliz-** ‘alder’: Old Norse *plr*, Old English *alaer*, *alor*, *alrr*, Old Frisian *erl*, *ierl*, Old Saxon *elira*, *aeleri*, *els*, Old High German *elira*, *erila*; ● Proto-Celtic ?***aliso-**, ***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 *al̃ksnis*, *eļksnis* ‘alder’, Latvian *āļksnis*, Russian *ol’xá*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

ANGELICA (?) ***kʷóndhr/n-**. ● Proto-Germanic ***hwannō-** ‘(stalk of) angelica’ [PRE-GRIMM 1]: Old Norse *hvønn*; ● Celtic: Scottish Gaelic *contran*, Irish *cuinneog* ‘wild angelica’; ● Italic: Latin *combrētum* ‘some kind of aromatic plant with thin leaves’; ● Baltic: Lithuanian plural *šveñdrai* ‘reed, reed-mace’. ¶ These comparisons are dismissed by de Vaan.

BEE ***bhei-** ~ ***bhi-** ~ ***bhoi-**. ● Proto-Germanic ***bīōn-** < Pre-Germanic ***bhei-** ‘bee’: Old Norse *bý*, Old English *bēo*, Old High German *bīa*, cf. Old High German *bini* ‘bee’; ● Proto-Celtic ***bikos** < Pre-Celtic ***bhikos**: Old Irish *bech* ‘honeybee’, Middle Welsh *bygegyr* ‘drone’; ● Proto-Italic ***foikos** < Proto-Italo-Celtic ***bhoikos**: Latin *fūcus* ‘drone, gadfly, hornet’; ● Proto-Baltic ***bit-** ‘bee’: Old Prussian *bitte*, Lithuanian *bitė*; Proto-Slavic ***bikela-** ‘bee’: Old Church Slavonic *бѣчѣла*. ¶ [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 *lí* ‘beauty, lustre, glory’, Old Cornish *liu* glossing ‘color’, Old Breton *liou* glossing ‘neuum’ ‘stain, slumps of [aint, colour], Middle Welsh *lliw* ‘colour, hue, tint’; ● Proto-Italic ***(s)līwo-**: Latin *līvidus* ‘dull blue-grey’, *līvor* ‘bluish discoloration’; ● Balto-Slavic: Lithuanian *slýwas*, Old Church Slavonic *sliva* ‘plum’.

ELM ***elmo-** ~ ***olmo-** ~ ***limo-** ~ ***leimo-**. ● Proto-Germanic ***almaz** ~ ***elmaz**: Old Norse *almr*, Old English *elm*, Old High German *elm(boum)*, *elmo*; ● Proto-Celtic ***lēmo-** ~ ***limo-**: Middle Irish *lem* < ***limo-**, Middle Welsh collective *llywf* < ***lēmo-** < ***leimo-**, place-name *Llwyfein* ‘elmwood’, Hispano-Celtic group name in Galicia *Lemaui*, Λεμαυων, feminine singular **LEMAVA**, masculine **LEMAVS** (Pliny, *Naturalis Historia* §28; Ptolemy II, 6.25; CIL XVI 73, 157, 161), Gaulish *Lemouices* ‘elm-fighters’; ● Proto-Italic ***olmos** <? **H.elimos*: Latin *ulmus*; ● Slavic: Russian *il’m* ‘mountain elm’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

HAZEL ***kós(V)los**. ● Proto-Germanic ***hasla-** < Pre-Germanic ***koslo-** [PRE-GRIMM 1]: Old Norse *hasl*, *hesli*, Old English *hæsel*, Old High German *hasal*; ● Proto-Celtic ***koslo-** < ***kos-elo-**: Old Irish *coll*, Old Welsh *coll*; ● Proto-Italic ***kosolo** ~ ***kosulo-**: Latin *corulus*, *corylus* ‘hazel-tree, hazel-wood’; ● Baltic: Old Lithuanian *kasùlas* ‘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 the Italic and Baltic.

HENBANE ***bhélōn**, 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 *filius*, *filicis* ‘fern’; ● Slavic: Russian *belená* ‘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 ἐλέα 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 *qlpt*, *elptr*, Old English *ilfetu*, Old High German *albiz*, *elbiz*; ● Proto-Celtic ***elIV-**: 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 **H₁elṛsko-*; ● Proto-Italic ***elōr** ‘swan’: Latin *olor*; ● Slavic: Russian *lébed* < **elbedъ*. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE]

§50. Miscellaneous, no definite social domain

a. Celto-Germanic (CG)

BOILED > PASSIONATE ***bhruto-** ~ ***bhrutu-**. ● Proto-Germanic ***broþom**, also ***brupa** ‘broth’ < Pre-Germanic ***bhruto-** [PRE-GRIMM 1]: Old Norse *broð* ‘broth’, cf. *bráðr* ‘hasty, rash, passionate’, Old English *broþ* ‘broth’, Middle English *brōþ* ‘impetuous, violent, passionate, wrathful’, Old High German *brod*, *prod* ‘broth’; ● Proto-Celtic ***brutu-** < ***bhrutu-**: Old Irish *bruth* ‘raging violent boiling heat, blaze, glow, vehemence, fervour, valour’, Old Welsh *brut* glossing ‘animus’, Old Breton *brot* glossing ‘zelotypiae’ ‘jealousy’, Old Cornish *bredion* glossing ‘coctio’ ‘cooked, heated’, Middle Welsh *brwt* ‘hot, warm, zealous, enthusiastic’. ¶ Contrast Proto-Italic ***fruto-** < ***bhruto-**: Latin *dēfrutum* ‘boiled wine’, lacking the secondary sense ‘passionate’ shared by Germanic and Celtic.

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 ***dergo-** ‘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 would also 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* ‘cloud’, Lithuanian *dargà* ‘bad, rainy weather’, *dérgti* ‘to sleet, make dirty, soil, slander, defile, spoil’.

DEEP *dheubhnó- ~ *dhubhnó- ~ *dhubhni- ● Proto-Germanic ***deupa-** < Pre-Germanic ***dheubhnó-**: Gothic *diups*, Old Norse *djúpr*, Old English *dēop*, *dīop*, Old Frisian *diāp*, Old Saxon *diop*, *diap*, Old High German *tiuf*, *tiof*, also metathesized ***budman-** ~ ***buttman-** ‘bottom’; ● Proto-Celtic ***dubni-** ‘deep’ ~ ***dubno-** ‘world’: numerous Gaulish personal names including **DVBNACVS**, **DVBNATIVS**, **DVBNI**, **DVBNOMARA**, **DVBNORIX**, Old Irish *domain* ‘deep’, *domun* ‘world’, cf. place-name *Dumna* > *Domon* ‘Isle of Lewis’, Ancient Brythonic personal names **DVBNOVELLAVNOS**, **DVMNOCOVEROS**, group name *Dumnonii* > ‘Devon’ (Middle Welsh *Dyfnein(t)*), also *Domnonia* applied to Northern Brittany in the Early Middle Ages, cf. Middle Irish mythological group name *Fir Domnann*, Middle Welsh *dwfyn* ‘deep, profound, depths (of the ocean), abyss, world’, Middle Breton *doun* ‘deep’. ¶ The word is of Indo-European origin: Tocharian A *tpär*, Tocharian B *tapre* ‘high’. Lithuanian *dubùs* hollow, deep, spacious’ < ***dhubhu-** is very close semantically, but lacks the nasal suffix reconstructed in both the Germanic and Celtic.

GOOD, DESIRABLE *swent- ~ *sunt- ~ *swnt- ● Proto-Germanic ***swinpa-** ~ ***sunpa-** ‘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 ***H₁su-** ‘good’ and the suffix ***(e)nt-**.

GREY *keiro- ~ *koiro- ● Proto-Germanic ***hairaz** ‘hoary, grey-haired’ < Pre-Germanic ***koiros** [PRE-GRIMM 1]: Old Norse *hárr*, 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 *cíar* ‘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 *hraukr* ‘pile’, *hrúga* ‘pile’, *hró* ‘hillock’, Old English *hrēacc* ‘stack, haycock, rick’; ● Proto-Celtic ***krouko-** ‘hillock, hill’: Old Irish *crúach* ‘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 Κρουκιατοννον (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*. ¶ [POSSIBLY PRE-INDO-EUROPEAN SOURCE] Latin *crux*, *crucis* ‘cross’ is possibly related, though the meaning is not close. Germanic and Celtic cannot be exact cognates. The initial ***k-** of the Celtic corresponds regularly

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/ [g̊], 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 *mūhhen* 'lie in ambush for'; ● Proto-Celtic **mūg-* 'conceal': Old Irish *for-múchtha* 'smothered, concealed, inaudible'.

LONG **sit-* ~ **seit-*. ● Proto-Germanic **sīda-* < [PRE-VERNER] **sīpa-* [PRE-GRIMM 1]: Old Norse *sīðr* 'long (e.g. of hair)', Old English *sīd* 'wide, broad, ample', Old High German *sīto* 'loose'; ● Proto-Celtic **siti-* < **SHi-ti-*: Old Irish *sith-* (*sith-be* 'pole' is part of the stock descriptions of chariots in the Irish sagas), Old Welsh and Old Breton *hit*, Middle Welsh *hyt*, Middle Breton *het* 'length, duration', cf. Gaulish place-name *Sitilla*, Old Irish *sír* '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*, *penth*, Middle Low German *pin*, *pinne* 'pin, nail'; ● Proto-Celtic **bend-nā-* ~ **band-no-* 'peak, top, horn': Gaulish place-name *Canto-bennicus*, *Canto-bennum*, 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', *scutizôn* 'to shudder, shake'; ● Proto-Celtic **skutu-*: Middle Welsh *ysgydv* 'shake (violently), swing, wag, jolt, jerk'.

SPLIT, SPLINTER **splid-* ~ **spleid-*. ● Proto-Germanic **splītan-* [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 **kribi-*: Old Irish *crib* 'quickly, swiftly'; this possibly goes with Old Cornish *crif* 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) **bhéHilus*, genitive **bhHluós*. ● Proto-Germanic **blēwa-* 'blue': Old Norse *blár* 'blue, livid, black', Old Frisian *blāw*, Old High German *blāo*; ● Proto-Celtic **blawo-*: Middle Irish *blá* 'yellow, blond'; ● Proto-Italic **flāwo-*: Latin *flāvus* 'yellow, blond'.

EMPTY ***wāstos** < ***w(e)H₂stos**. ● Proto-Germanic ***wōstaz** ‘uninhabited, desert, waste’ < Pre-Germanic ***wāsto-** ~ ***wāstā-**: Old English *wēste*, Old Frisian *wōst*, Old Saxon *wōsti*, Old High German *wuosti*; ● Proto-Celtic ***wāsto-** ~ ***wāstā-**: Old Irish *fás* ‘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, leaven’, 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(a)mentom**: Latin *fermentum* ‘ferment, yeast’. ¶ From Proto-Indo-European *vbhreu-* ‘boil’, a root not found in Asian branches of Indo-European.

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

SOFT ***lento-** ~ ***l̥nt-**. ● Proto-Germanic ***linpa-** ‘soft, flexible’ [PRE-GRIMM 1]: Old Norse *linnr* ‘mild, soft’, Old English *līð*, *līðe*, *lýðe* ‘soft, lithe’, Old Saxon *līthi* ‘soft’, Old High German *lind*, *lindi* ‘mild, tender’; ● Proto-Celtic ***lantro-** < ***l̥nt-ro-**: Middle Welsh *llathyr* ‘bright, brilliant, glittering, shiny, smooth, sleek (of hair)’; ● Proto-Italic ***lento-** ‘soft’: Latin *lentus* ‘pliant, flexible, tough, sticky, slow’.

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

DIRTY, YELLOWISH BROWN ***sal-**. ● Proto-Germanic ***salwa-** < ***solwo-** ‘yellowish brown, dirty’: Old Norse *sqlr* ‘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 *halou* 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 *halauc* ‘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.

MANY ***menek-** ~ ***monek-**. ● Proto-Germanic ***managai** ‘many’ < [PRE-VERNER] ***manaḡai** [PRE-GRIMM 1]: Gothic *manags* ‘frequent, abundant’, Old Norse *mangr*, *margr*, Old English *mænig*, *manig*, *monig*, *menig*, Old Frisian *monige*, *manich*, *monich*, Old Saxon *manag*, Old High German *manag*, *manīg*, *menig*; ● Proto-Celtic ***menekki-**: Old Irish *menicc* ‘frequent, recurring often, abundant’, cf. *meince* ‘abundance’, Middle Welsh *mynych* ‘abundant, frequent, often, numerous’; ● Slavic: Old Church Slavonic *mъnogъ* ‘much, many’, Russian *mnógij* ‘much, many, numerous’. ¶ [POSSIBLY NON-INDO-EUROPEAN SOURCE] Cf. Finnish *moni* ‘multi-’.

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-scehan*, *scehan* ‘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 *ysgogi* ‘move, stir, shake, tremble’; ● Proto-Balto-Slavic ***skok-eye-**: Old Church Slavonic *sکوčiti* ‘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 *hratian*, *hradian* ‘to rush, hasten’; ● Proto-Celtic ***krotā-**: Old Irish *crothaid* ‘shakes, causes to tremble, brandishes, scatters, ravages (a territory)’; ● Baltic: Lithuanian *kretėti* ‘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 ***walx-** [PRE-GRIMM 1]: Old Norse *valgr*, 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 *valks* ‘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 *gēl*, 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, ashen, 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 ***χeliwo-**: Latin *helvus* ‘yellow, dun’; ● Baltic: Lithuanian *žėlvas* ‘greenish’. ¶ The formation **ghelH₃-wo-*, underlying all the preceding forms, is limited to the NW languages, but the Proto-Indo-European root *√ghelH₃-* occurs more widely: Sanskrit *híri-* ‘yellow’ (in compounds), Greek *χλωρός* ‘pale green, greenish yellow’.

SUCK ***seug-** ~ ***seuk-**. ● Proto-Germanic ***sūgan-** ~ ***sūkan-** ~ ***suk̥k/gōn-**: Old Norse *súga*, 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 **souk̥-HeH₂-*: Latin *sūgō*, *sūgere* (cf. *sūcus* ‘juice’) ‘to suck’; ● Balto-Slavic: Latvian *sūkt*, Old Church Slavonic *сѣсати*, Russian *sosát*. ¶ ‘Suck’ is partly onomatopoeic, 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-*.

WARM ***klēwo-** ~ ***klewo-** ~ ***klēyo-** ~ ***kl̥tō-** ~ ***kl̥-**. ● Proto-Germanic ***hlēwa-** ‘lukewarm’ ~ **hlewa-** ‘shelter (from wind)’ ~ ***hlēja-** ‘warm, mild’ [PRE-GRIMM 1]: Old Norse *hlær* ‘warm, mild’, *hlé* ‘shelter, lee’, *hlýr* ‘mild, arm’, Old English *hlēo(w)* ‘shelter, lee’, *hlīwe*, *hlēowe* ‘warm, sheltered’, Old Frisian *hlī* ‘shelter, lee’, Old Saxon *hlēo* ‘concealment’, Old High German *lāo* ‘lukewarm’; ● Proto-Celtic ***klitō-** ~ ***kliyarō-** ‘warm’: Middle Welsh *clyd* ‘warm, snug, comfortable, well off’, *clear*, *claeir* ‘warm, gentle’, Breton *klouar* ‘tepid, kind, gentle’; ● Proto-Italic ***kalē-** < **klH₁-eH₁-* ‘be warm’: Latin *caleō*; ● Baltic: Lithuanian *šiltas*, Latvian *silts* ‘warm’ < ***kl̥tō-**. ¶ Notional Proto-Indo-European *√kelH₁-* ‘be warm’, probably a development of *√kel-* ‘conceal, cover’.

§51. Some rejected entries

FRAMEWORK, FENCE, WICKER STRUCTURE ***kor(V)t-** ~ ***kr(V)t-**.

- Proto-Germanic ***hurdiz** ‘wickerwork door’ < [PRE-VERNER] ***χurþis** < Pre-Germanic ***kurti-** < ***krH₂-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 seried 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 ***krittā**: Middle Irish *cret* ‘frame, body, trunk’ (meaning ‘chariot frame’, *cret* is part of the stock descriptions of chariots in the Irish sagas), Middle Welsh *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 *κruptά* ‘wickerwork’, *κύρτη*, *κύρτος* ‘fishing-creel, cage’ is close in both form and meaning.

HEMP ROPE ***werk-**. ● Proto-Germanic ***werka-**: West Frisian *wurk*, Middle Dutch *werc*, Old High German *werh*, *werih* ‘string of hemp, rope’; ● Proto-Celtic ***werk-**: Old Breton *coarcholion* glossing ‘canabina’ ‘things made of hemp’, Middle Welsh *kywarch* < ***kom-werk-** ‘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 *struō* ‘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-** ~ ***rukk-** ~ ***roukk-**.

- Proto-Germanic ***rukkaz**: Old Norse *rokkr*, Old English *rocc* ‘over-garment’, Old Frisian *hrok*, Old Saxon *hrok* ‘upper garment, robe’, Old High German *rock*;
- Proto-Celtic ***ruk-** ~ ***roukk-**: Middle Irish *rucht* ‘tunic, garment’ < ***ruxtu-**, Middle Welsh *ruch* ‘rough garment, cloak, mantle’ < ***roukkā**;
- Slavic: Old Church Slavonic *ruxo* ‘garment’. ¶ Even as an inter-Celtic comparison (Middle Irish *rucht* 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 *kǫttr*, Old English *cat*, *catte*, Old Frisian *katte*, Old High German *chazzâ*, *kazza*, masculine *katere*; ● Proto-Celtic ***kattos**: Gaulish personal names **CATTA** (Virunum, Noricum) and **CISIAMBOS CATTOS VEROBRETO** (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 **deH₂nu-* ‘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 Ἰστέρις 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.

LEGGING, TROUSER ***brāk-**. ● Proto-Germanic plural ***brōkiz** [POST-GRIMM 1]: Old Norse *brækr*, Old English *brēc*, Old Frisian *brēk*, Old High German *bruoh*; ● Celtic ***brāk-**: Gaulish *brācae* ‘trousers’, cf. Ancient Brythonic personal name *Mandubracius* ‘wearing trousers for riding a small horse’.

PLEASANT TASTE. ● Proto-Germanic ***swekk-** [POST-GRIMM 1]: Old English *swecc*, *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 *crum* ‘hunchback’, Middle Welsh *crwm* ‘convex, crooked, bent, bowed, curved, stooping, crook-backed’.

BIBLIOGRAPHY

Bibliographical abbreviations

- AE = *L'Année épigraphique*, Revue des publications épigraphiques relatives à l'Antiquité romaine. Paris.
- ALEW = Hock, W., with E.-J. Bukevičiūtė, C. Schiller, R. Fecht, A. H. Feulner, E. Hill, & D. S. Wodtko 2015 *Altltauisches etymologisches Wörterbuch*, 2 vols. Hamburg, Baar-Verlag.
- B3 = the long Celtiberian inscription from Botorrita, forms cited from Beltrán, F., J. de Hoz, J. Untermann 1996 *El tercer bronce de Botorrita (Contrebia Belaisca)*, Colección Arqueología 19. Aragon.
- CIIC = Macalister, R. A. S. 1996 *Corpus Inscriptionum Insularum Celticarum*. Blackrock, Co. Dublin, Four Courts Press. First published Dublin, Stationery Office, 1945, 1949.
- CIL II = Hüber, E. 1869–92 *Corpus Inscriptionum Latinarum II. Inscriptiones Hispaniae Latinae*. Berlin. *Inscriptionum Latinarum Supplementum*. Berlin.
- CIL VI = Henzen, G., I. B. De Rossi, E. Borman, C. Huelsen, M. Bang 1876–1989 *Corpus Inscriptionum Latinarum VI. Inscriptiones Urbis Romae Latinae. Partes I–VII*. Berlin.
- CIL XII = *Corpus inscriptionum Latinarum XII. Inscriptiones Galliae Narbonensis Latinae*, ed. O. Hirschfeld 1888. Berlin.
- CIL XIII = *Corpus inscriptionum Latinarum XIII. Inscriptiones trium Galliarum et Germaniarum Latinae*, ed. O. Hirschfeld, C. Zangemeister 1899–1943. Berlin.
- CIL XVI = *Corpus inscriptionum Latinarum XVI. Diplomata militaria*. Post Th. Mommsen, ed. H. Nesselhauf. 1936. Berlin.

- CIL II 2/5 = Stylow, A. U., R. Atencia, J. González, C. González, M. Pastor, P. Rodríguez 1998 *Corpus Inscriptionum Latinarum II. Inscriptiones Hispaniae Latinae. Editio Altera. Pars V. Conventus Astigitanus*.
- CIL II 2/7 = Stylow, A. U. (ed.) 1995 *Corpus inscriptionum Latinarum. Vol. II editio altera, Inscriptiones Hispaniae Latinae. CIL II / 2. Pars VII. Conventus Cordubensis*. Berlin / New York.
- CIL 2/14 = Alföldy, G., M. Clauss, M. Mayer 1995 *Corpus Inscriptionum Latinarum II. Inscriptiones Hispaniae Latinae. Editio Altera. Pars XIV, fasciculis I. Pars meridionalis conventus Tarraconensis*. Berlin / New York.
- CILA Huelva = González, J. 1989 *Corpus de inscripciones latinas de Andalucía. Vol. I Huelva*. Sevilla.
- CILCC I = Esteban Ortega, J. 2007 *Corpus de inscripciones latinas de Cáceres. Vol. I. Norba*, Universidad de Extremadura, Cáceres.
- CIRG II = Baños, G. 1994 *Corpus de inscripciones romanas de Galicia (= CIRG) II: Provincia de Pontevedra*. Santiago de Compostela.
- CIRPZ = Alonso Ávila, A., & S. Crespo Ortiz de Zárate 2000 *Corpus de inscripciones romanas de la provincia de Zamora*. Valladolid.
- CPILC = Hurtado de San Antonio, R. 1977 *Corpus provincial de inscripciones latinas (Cáceres)*. Cáceres, Diputación Provincial de Cáceres.
- DAG = Whatmough, J. 1970 *The Dialects of Ancient Gaul: Prolegomena and Records of the Dialects*. New ed. Cambridge, Mass., Harvard University Press.
- ECMW = Nash-Williams, V. E. 1950 *The Early Christian Monuments of Wales*. Cardiff, University of Wales Press.
- eDIL = *Electronic Dictionary of the Irish Language*. <http://www.dil.ie/>
- EE = *Ephemeris epigraphica*.
- ER Asturias = Diego Santos, F. 1985 *Epigrafía romana de Asturias*. Oviedo.
- ERAv = Hernando Sobrino, M. R. 2005 *Epigrafía romana de Ávila, Petrae Hispaniarum 4. Burdeos*.
- ERCan = Iglesias, J. M., & A. Ruiz 1998 *Epigrafía romana de Cantabria*. Bordeaux / Santander.

- ERCon = Étienne, R., G. Fabre, M. Lévêque & P. Lévêque 1976 *Fouilles de Conimbriga II. Épigraphie et sculpture*. Paris.
- ERPL = Rabanal Alonso, M. A., & S. M.ª García Martínez 2001 *Epigrafía romana de la provincia de León: revisión y actualizaciones*. León.
- ERRBragança = Redentor, A. 2002 *Epigrafía romana da região de Bragança*, Trabalhos de Arqueologia 24. Lisboa.
- ERSg = Santos Yanguas, J., Á. L. Hoces de la Guardia Bermejo & J. del Hoyo 2005 *Epigrafía romana de Segovia y su provincial*. Segovia, Caja Segovia/ Diputación Provincial de Segovia.
- ERZamora = Bragado Toranzo, J. M.ª 1991 *Fuentes literarias y epigráficas de la provincial de Zamora y su relación con las vías romanas de la Cuenca del Duero*. Universidad de León.
- FE = *Ficheiro Epigráfico*. Suplemento de Conimbriga. Coimbra.
- GOI = Thurneysen, R. 1975 *A Grammar of Old Irish*, trans. D. A. Binchy & O. Bergin. Rev. and enlarged edn. Dublin, Dublin Institute for Advanced Studies. First published, 1946.
- GPC = *Geiriadur Prifysgol Cymru, A Dictionary of the Welsh Language*. Caerdydd, Gwasg Prifysgol Cymru, 1950–2002. <http://welsh-dictionary.ac.uk/gpc/gpc.html>
- GPN = Evans, D. E. 1967 *Gaulish Personal Names: A Study of Some Continental Celtic Formations*. Oxford, Clarendon.
- HAE = *Hispania Antiqua Epigraphica, Suplemento anual de Archivo Español de Arqueología*. Madrid, Consejo Superior de Investigaciones Científicas.
- HEp = *Hispania Epigraphica*, Archivo Epigráfico de Hispania. Madrid, Universidad Complutense.
- HB = *Historia Brittonum*, ed. & trans. J. Morris 1980 *British history and the Welsh annals*, History from the Sources 8. London & Chichester, Phillimore.
- Holder, AcS = Holder, A. 1896–1913 *Alt-celtischer Sprachschatz*. 3 vols. Leipzig, Teubner.
- IdgEW = Pokorny, J. 2002 *Indogermanisches etymologisches Wörterbuch*. 4th ed. 2 vols. Tübingen: A. Francke.
- ILER = Vives, J. 1971–2 *Inscripciones latinas de la España romana I–II*. Barcelona.

- IRG IV = Lorenzo, J., Á. d'Ors & F. Bouza 1968 *Inscripciones romanas de Galicia, Vol IV. Provincia de Orense*. Santiago de Compostela.
- IRLugo = Arias, F., P. Le Roux & A. Tranoy 1979 *Inscriptions romaines de la province de Lugo*. Paris, Diffusion de Boccad.
- IRPL = Diego Santos, F. 1986 *Inscripciones romanas de la provincia de León*. León, Diputación Provincial de León.
- LEIA = Vendryès, J. 1959– *Lexique étymologique de l'irlandais ancien*. Dublin, Dublin Institute for Advanced Studies.
- LHEB = Jackson, K. H. *Language and History in Early Britain: A Chronological Survey of the Brittonic Languages from the 1st to the 12th c. AD*. 2nd rev. ed. Dublin, Four Courts Press 1994; First published, Edinburgh, Edinburgh University Press, 1953.
- LIV = Rix, H. 2001 *Lexikon der indogermanischen Verben*. Wiesbaden, Ludwig Reichert.
- MLH IV = Untermann, J. (mit D. S. Wodtko) 1997 *Monumenta Linguarum Hispanicarum. Band IV. Die tartessischen, keltiberischen und lusitanischen Inschriften*. Wiesbaden, Ludwig Reichert.
- MLH V.1 = Wodtko, D. S. 2000 *Monumenta Linguarum Hispanicarum 5.1, Wörterbuch der keltiberischen Inschriften*, ed. J. Untermann. Wiesbaden, Ludwig Reichert.
- OED = *OED Online*. Oxford University Press, March 2020. <https://www.oed.com/>
- Ptolemy = Müller, K. (ed.) 1883–1901 *Claudii Ptolemaei Geographia*. 2 vols. Paris, Firmin Didot.
- RIB 1 = R. G. Collingwood & R. P. Wright 1965 *The Roman Inscriptions of Britain I, Inscriptions on Stone*. Oxford, Oxford University Press.
- RIG = Duval, P.-M. (ed.) 1985– *Recueil des inscriptions gauloises*, sous la direction de P.-M. Duval. Paris, Centre national de la recherche scientifique. vol. 1 *Testes gallo-grecs*, M. Lejeune, 1985. vol. 2–1 *Textes gallo-étrusques. Textes gallo-latins sur pierre*, M. Lejeune, 1998.
- VKG = H. Pedersen, 1909–13 *Vergleichende Grammatik der keltischen Sprachen*. Göttingen, Vandenhoeck and Ruprecht.
- aan de Weil, C. 2006 'druids [3] the word', *Celtic Culture: A Historical Encyclopedia*, ed. J. T. Koch, vol. 2, 615–16. Santa Barbara, ABC-Clío.
- Abascal Palazón, J. M. 1983 'Epigrafía romana de la provincia de Guadalajara', *Wad-al-Hayara*, 49–115.
- Abascal Palazón, J. M. 1994 'Inscripciones romanas y celtibéricas en los manuscritos de Fidel Fita en la Real Academia de la Historia', *Archivo de Prehistoria Levantina* 21, 367–90, Valencia.
- Abascal Palazón, J. M. 1999 «Apuntes epigráficos (Mirobriga, Ilici, Jumilla, Segobriga, Saldeana, Carpio de Tajo y Alóvera», *Archivo español de arqueología* 72, 287–98.
- Abásolo Álvarez, J. A. 1974a *Epigrafía romana de la región de Lara de los Infantes*. Burgos.
- Abásolo Álvarez, J. A. 1974b *Carta arqueológica de la provincia de Burgos. I Partidos judiciales de Belorado y Miranda de Ebro*, *Studia Archaeologica* 33, Santiago-Valladolid.
- Abásolo Álvarez, J. A., J. M. Alonso, & F. Sainz 1982 'Nuevas inscripciones romanas procedentes de Briongos y Monasterio de Rodilla', *Boletín de la Institución Fernán González* 198, 161–8.
- Ahlström, T. 1997 'Pitted-Ware skeletons and boreal temperatures', *Lund Archaeological Review* 3, 37–48.
- Alberro, M. & C. Jordán Cólera 2008 *Los celtas de la Península Ibérica*, Serie Keltia. A Coruña, Editorial Toxosoutos.
- Albertos Firmat, M^a L. 1975a *Organizaciones suprafamiliares en la Hispania antigua*, *Studia Archaeologica* 37. Valladolid.
- Albertos Firmat, M^a L. 1977b 'Correcciones a los trabajos sobre onomástica indígena de M. Palomar Lapesa y M.^a Lourdes Albertos Firmat', *Emerita* 45, 33–54.
- Albertos Firmat, M^a L. 1983 'Teónimos hispanos', *Primitivas religiones ibéricas II. Religiones Prerromanas*, ed. J. M^a Blázquez, 477–48. Madrid.
- Alföldy, G. 1975 *Die römische Inschriften von Tarraco I-II*. Berlin.
- Allen, D. F. 1980 *The Coins of the Ancient Celts*, ed. D. Nash. Edinburgh, Edinburgh University Press.
- Allentoft, M. E., M. Sikora, K.-G. Sjögren, S. Rasmussen, M. Rasmussen, J. Stenderup, P. B. Damgaard, H. Schroeder, T. Ahlström, L. Vinner, A.-S. Malaspina, A. Margaryan, T. Higham, D. Chivall, N. Lynnerup, L. Harvig, J. Baron, Ph. Della Casa, P. Dąbrowski, P. R. Duffy, A. V. Ebel, A. Epimakhov, K. Frei, M. Furmanek, T. Gralak, A. Gromov, S. Gronkiewicz, G. Grupe, T. Hajdu, R. Jarysz, V. Khartanovich, A. Khokhlov, V. Kiss, J. Kolář, A. Kriiska, I. Lasak, C. Longhi, G. McGlynn, A. Merkevicius, I. Merkyte, M. Metspalu, R. Mkrtychyan, V. Moiseyev, L. Paja, G. Pálfi, D. Pokutta, Ł. Pospieszny, T. D. Price, L. Saag, M. Sablin, N. Shishlina, V. Smrčka, V. I. Soenov, V. Szeverényi, G. Tóth, S. V. Trifanova, L. Varul, M. Vicze, L. Yepiskoposyan, V. Zhitenev, L. Orlando, T. Sicheritz-Pontén, S. Brunak, R. Nielsen, K. Kristiansen & E. Willerslev 2015 'Population genomics of Bronze Age Eurasia', *Nature* 522, 167–72.
- Almagro Basch, M. 1966 *La estelas decoradas del suroeste peninsular*, *Bibliotheca Praehistoria Hispana* VIII. Madrid, Imprenta Fareso.
- Almagro-Gorbea, M. 2001 'Cyprus, Phoenicia and Iberia: from «Precolonization» to colonization in the «Far West»', *Italy and Cyprus in Antiquity 1500–450 BC. Proceedings of an International Symposium held at the Italian Academy for Advanced Studies in America at Columbia University, November 16–18, 2000*, eds. L. Bonfante & V. Karageorghis, 239–70. Nicosia, The Costakis and Leto Severis Foundation.
- Almagro-Gorbea, M. 2004a 'Inscripciones y grafitos tartesicos de la necrópolis orientalizante de Medellín', *Palaeohispanica* 4.13–44.
- Almagro-Gorbea, M. 2008 'Inscripciones tartésicas y grafitos', *La necrópolis de Medellín II: estudio de los hallazgos* (*Bibliotheca Archaeologica Hispanica* 26–2/*Studia Hispano-Phoenica* 5–2), ed. M. Almagro-Gorbea, 751–71. Madrid, Real Academia de la Historia.
- Almeida, D. F. de 1956 *Egitânia. História e arqueologia*. Lisboa.
- Anreiter 2001 *Die vorrömischen Namen Pannoniens*. Budapest, Archaeolingua.

- Anthony, D. W. 2007 *The Horse, the Wheel, and Language: How Bronze-Age Riders from the Eurasian Steppes Shaped the Modern World*. Princeton, Princeton University Press.
- Anthony, D. W. & D. R. Brown 2017a 'Molecular Archaeology and Indo-European Linguistics: Impressions from New Data', *Usque ad Radices: Indo-European studies in Honour of Birgit Anette Olsen*, Copenhagen Studies in Indo-European 8, eds. B. S. S. Hansen, A. Hyllested, A. R. Jørgensen, G. Kroonen, J. H. Larsson, B. N. Whitehead, T. Olander, T. M. Søbørg, 25–54. Copenhagen, Museum Tusculanum Press.
- Anthony, D. W. & D. R. Brown 2017b 'The dogs of war: a Bronze Age initiation ritual in the Russian steppes', *Journal of Anthropological Archaeology* 38, 134–48.
- Anthony, D. W., & D. Ringe 2015 'The Indo-European Homeland from Linguistic and Archaeological Perspectives', *Annual Review of Linguistics* 1, 199–219. <https://doi.org/10.1146/annurev-linguist-030514-124812>
- Antonsen, E. H. 1975 *A Concise Grammar of the Older Runic Inscriptions*. Tübingen, Max Niemeyer.
- Artursson, M. 2015 'The long-house as a transforming agent. Emergent complexity in Late Neolithic and Early Bronze Age Southern Scandinavia 2300–1300 BC', *The Bell Beaker Transition in Europe. Mobility and Local Evolution during the 3rd Millennium BC*, ed. M. P. Prieto Martinez & L. Salanova, 69–76. Oxford.
- Aubet, M. E. 2001 *The Phoenicians and the West: Politics, Colonies, and Trade*, trans. M. Turton. 2nd edn Cambridge, Cambridge University Press. 1st English edn, 1993.
- Austvoll, K. I. 2018 *Seaways to Complexity. A study of sociopolitical organisation along the coast of Northwestern Scandinavia in the Late Neolithic and Early Bronze Age*. Dissertation for the Degree of Philosophy Doctor (Ph.D.). Department of Archaeology, Conservation, and Ancient History. University of Oslo, Norway.
- Bartrum, P. C. 1993 *A Welsh Classical Dictionary: People in History and Legend up to About AD 1000*. Aberystwyth, National Library of Wales.
- Bauer, B. 2008 'Studien zu den Altbretonischen Glossen', Mag.Phil. thesis, Universität Wien.
- Beattie, A. J. 1956 'Mr. Ventris' Decipherment of the Minoan Linear B Script', *The Journal of Hellenic Studies* 76, 1–17.
- Beekes, R. (with L. van Beek) 2010 *Etymological Dictionary of Greek*. 2 vols. Leiden Indo-European Etymological Dictionary Series 10. Leiden and Boston, Brill.
- Beltrán Lloris, M. 1975–1976 «Aportaciones a la epigrafía y arqueología romana de Cáceres: 1. Epigrafía romana inédita de Cáceres», *Caesaraugusta* 39–40, 19–101.
- Bengtsson, B. 2017 *Sailing rock art boats. A reassessment of seafaring abilities in Bronze Age Scandinavia and the introduction of the sail in the North*, BAR International Series 2865. Oxford, BAR.
- Berger, D., J. Soles, A. R. Giumlia-Mair, G. Brüggmann, E. Galili, N. Lockhoff & E. Pernicka 2019 'Isotope systematics and chemical composition of tin ingots from Mochlos (Crete) and other Late Bronze Age sites in the eastern Mediterranean Sea. An ultimate key to tin provenance?' *PLoS ONE* 14 (6), e0218326. <https://doi.org/10.1371/journal.pone.0218326>
- Bertilsson, U. 2015 'Examples of application of modern digital techniques and methods. Structure for motion (SfM) and Multiview Stereo (MVS) for three dimensional Documentation of rock carvings in Tanum creating new opportunities for interpretation and dating', *Prospects for prehistoric Rock Art research. XXVI Valcamonica Symposium*, ed. F. Troletti, 57–62. Capo di Ponte, Edizione del Centro.
- Bichlmeier, H. 2011 'Einige grundsätzliche Überlegungen zum Verhältnis von Indogermanistik und voreinzelsprachlicher resp. alteuropäischer Namenkunde mit einigen Fallbeispielen (Moderne Indogermanistik vs. traditionelle Namenkunde, Teil 1)', *Namenkundliche Informationen* 95/96, 2009, 173–208.
- Bichlmeier, H. 2012 'Anmerkungen zum terminologischen Problem der „alteuropäischen Hydronymie“ samt indogermanistischen Ergänzungen zum Namen der Elbe', *Beiträge zur Namenforschung*, Neue Folge 47/4, 365–95.
- Bichlmeier, H. 2013 'Analyse und Bewertung der sprachwissenschaftlichen Standards aktueller Forschungen traditioneller Art zur „alteuropäischen Hydronymie“ aus der Perspektive der heutigen Indogermanistik', *Namenkundliche Informationen* 101/102, 397–437. (www.namenkundliche-informationen.de)
- Binchy, D. A. 1970 *Celtic and Anglo-Saxon Kingship. O'Donnell Lectures 1968*. London, Oxford University Press.
- Blázquez, J. M^a. 1962 *Religiones primitivas de Hispania*. Roma.
- Bosch Gimpera, P. 1942 The Two Celtic Waves in Spain, Sir John Rhys Memorial Lecture 1939, *Proceedings of the British Academy* 26. London.
- Bouckaert, R., P. Lemey, M. Dunn, S. J. Greenhill, A. V. Alekseyenko, A. J. Drummond, R. D. Gray, M. A. Suchard & Q. D. Atkinson 2012 'Mapping the Origins and Expansion of the Indo-European Language Family', *Science* 337, 957–60. <http://dx.doi.org/10.1126/science.1219669>
- Bouckaert, R., P. Lemey, M. Dunn, S.J. Greenhill, A. V. Alekseyenko, A. J. Drummond, R. D. Gray, M. A. Suchard & Q. D. Atkinson 2013 'Correction to: Mapping the Origins and Expansion of the Indo-European Language Family', *Science* 342, 1446. <http://dx.doi.org/10.1126/science.342.6165.1446-a>
- Brandherm, D. 2013a 'Westward Ho? Sword-Bearers and All the Rest of it ...', *Celtic from the West 2: Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications 16, ed. J. T. Koch & B. Cunliffe, 147–156. Oxford, Oxbow Books.
- Brandherm, D. 2013b 'Mediterranes, Atlantisches und Kontinentales in der bronze- und ältereisenzeitlichen Stelenkunst der Iberischen Halbinsel', *Petasos: Festschrift für Hans Lohmann*, ed. G. Kalaitzoglou & G. Lüdorf, 131–48. Paderborn, Fink & Schöningh. Bochum, Ruhr-Universität.
- Brandherm, D. 2016 'Stelae, funerary practice, and group identities in the Bronze and Iron Ages of SW Iberia. A moyenne durée perspective', *Celtic from the West 3: Atlantic Europe in the Metal Ages — questions of shared language*, ed. J. Koch, et al., 179–216. Oxford, Oxbow Books.

- Brown, D. R., D. W. Anthony 2019 'Late Bronze Age midwinter dog sacrifices and warrior initiations at Krasnosamarskoe, Russia', *Tracing the Indo-Europeans: New evidence for archaeology and historical linguistics*, ed. B. A. Olsen, T. Olander, & K. Kristiansen, 97–122. Oxford, Oxbow Books.
- Brunel, S., E. A. Bennetta, L. Cardina, D. Garrauda, H. Barrand Emam, A. Beyliere, B. Boulesteing, F. Chenald, E. Ciesielskif, F. Convertini, Bernard Dedet, S. Desbrosse-Degobertiereh, S. Desenne, J. Dubouloz, H. Duday, G. Escalon, V. Fabre, E. Gailledrat, M. I. Gandelin, Y. Gleizeg, S. Goepfert, J. Guilaine, L. Hachem, M. Ilett, F. Lambach, F. Maziere, B. Perrinc, S. Plouin, E. Pinard, I. Praudh, I. Richard, V. Riquier, R. Roure, B. Sendra, C. Thevenet, S. Thiol, E. Vauquelin, L. Vergnaud, T. Grangea, E.-M. Geigla, & M. Pruvost 2020 'Ancient genomes from present-day France unveil 7,000 years of its demographic history' www.pnas.org/cgi/doi/10.1073/pnas.1918034117
- Búa, J. C. 2000 'Estudio de la teonimia lusitano-gallega', Universidad de Salamanca, Tesis doctoral inédita.
- Burgess, C. & B. O'Connor 2008 'Iberia, the Atlantic Bronze Age and the Mediterranean', *Contacto cultural entre el Mediterráneo y el Atlántico (siglos XII–VIII ANE)*, *La precolonización a debate*, N. Rafel & X.-L. Armada, Serie Arqueológica 11, ed. S. Celestino, 41–58. Madrid, Escuela Española de Historia y Arqueología en Roma CSIC.
- Busse, P. E., & J. T. Koch 2006a 'Cimbri and Teutones', *Celtic Culture: A Historical Encyclopedia*, ed. J. T. Koch, vol 2, 437. Santa Barbara, ABC-Clio.
- Busse, P. E., & J. T. Koch 2006b 'Togail Bruidne Da Derga', *Celtic Culture: A Historical Encyclopedia*, ed. J. T. Koch, vol 5, 1677–9. Santa Barbara, ABC-Clio.
- Carey, J. 2014 'A Poem on the Troubles before the Last Days', *The End and Beyond: Medieval Irish Eschatology*, Celtic Studies Publications 18, ed. J. Carey, E. Nic Cárthaigh, & C. Ó Dochartaigh, 607–27. Aberystwyth, Celtic Studies Publications.
- Carey, J. 2019 *Magic, Metallurgy and Imagination in Medieval Ireland*, Celtic Studies Publications 21. Aberystwyth, Celtic Studies Publications.
- Cassidy, L. M., R. Martiniano, E. M. Murphy, M. D. Teasdale, J. Mallory, B. Hartwell & D. G. Bradley 2016 'Neolithic and Bronze Age migration to Ireland and establishment of the insular Atlantic genome', *PNAS* 113 (2), 368–73.
- Castillo, C., J. Gómez-Pantoja & M^a. D. Mauleón 1981 *Inscripciones romanas del Museo de Navarra*. Pamplona.
- Celestino Pérez, S. 2001 *Estelas de guerrero y stelas diademadas: La precolonización y formación del mundo tartésico*. Barcelona, Edicions Bellaterra.
- Chadwick, J. 1992 *The Decipherment of Linear B*. Cambridge University Press. 4th edn, first published 1958.
- Chang, W., C. Cathcart, D. Hall, & A. Garrett 2015 'Ancestry-Constrained Phylogenetic Analysis Supports the Indo-European Steppe Hypothesis', *Language* 91/ 1, 194–244.
- Charles-Edwards, T. M. 1974 'Native Political Organisation in Roman Britain and the Origin of Middle Welsh *Brenhin*', *Antiquitates Indogermanicae*, ed. M. Mayrhofer et al., 35–45. Innsbruck.
- Charles-Edwards, T. M. 2013 *Wales and the Britons 350–1064*. Oxford, Oxford University Press.
- Childe, V. G. 1926 *The Aryans: A study of Indo-European origins*. London, Kegan Paul.
- Clackson, J., & G. Horrocks 2007 *The Blackwell History of the Latin Language*. Malden & Oxford, Blackwell.
- Clark, G. 1966 'The Invasion Hypothesis in British Archaeology', *Antiquity* 40, 172–89.
- Clausen, B. L. 1993 *Tomoko. En krigskano fra Salomonøerne*. Roskilde, Viking Ship Museum.
- Cleary, K. 2016 'Burial Practices in Ireland during the Late Third Millennium BC: connecting new ideologies with local expressions', *Celtic from the West 3: Atlantic Europe in the Metal Ages — questions of shared language*, Celtic Studies Publications 19, ed. Koch, Cunliffe, Cleary, Gibson, 139–78. Oxford, Oxbow Books.
- Cleary, K. & C. Gibson 2019 'Connectivity in Atlantic Europe during the Bronze Age (2800–800 BC)', *Exploring Celtic Origins: New ways forward in archaeology, linguistics, and genetics*, Celtic Studies Publications 22, ed. B. Cunliffe & J. T. Koch, 80–116. Oxford, Oxbow Books.
- Cowgill, W. 1970 'Italic and Celtic Superlatives and the Dialects of Indo-European', *Indo-European and Indo-Europeans*, ed. G. Cardona et al., 113–53. Philadelphia, University of Pennsylvania Press.
- Crumlin-Pedersen, O., & A. Trakadas (eds) 2003 *Hjortspring. A Pre-Roman Iron-Age Warship in Context*. Ships and Boats of the North 5. Roskilde, Viking Ship Museum.
- Cunliffe, B. 2001 *Facing the Ocean. The Atlantic and its Peoples 8000 BC–AD 1500*. Oxford, Oxford University Press.
- Cunliffe, B. 2008 *Europe between the Oceans, 9000 BC–AD 1000*. New Haven, Yale University Press.
- Cunliffe, B. 2010 'Celticization from the West. The Contribution of Archaeology', *Celtic from the West. Alternative Perspectives from Archaeology, Genetics, Language and Literature*, ed. B. Cunliffe & J. T. Koch, 13–38. Oxford, Oxbow Books.
- Cunliffe, B. 2013 *Britain Begins*. Oxford, Oxford University Press.
- Cunliffe, B. 2015 *By Desert, Steppe, & Ocean: The birth of Eurasia*. Oxford, Oxford University Press.
- Cunliffe, B. 2017 *On the Ocean. The Mediterranean and the Atlantic from Prehistory to AD 1500*, Oxford, Oxford University Press.
- Damgaard, P. de Barros, R. Martiniano, J. Kamm, J. V. Moreno-Mayar, G. Kroonen, M. Peyrot, G. Barjamovic, S. Rasmussen, C. Zacho, N. Baimukhanov, V. Zaibert, V. Merz, A. Biddanda, I. Merz, V. Loman, V. Evdokimov, E. Usmanova, B. Hemphill, A. Seguin-Orlando, F. E. Yediay, I. Ullah, K.-G. Sjögren, K. H. Iversen, J. Choin, C. de la Fuente, M. Ilardo, H. Schroeder, V. Moiseyev, A. Gromov, A. Polyakov, S. Omura, S. Y. Senyurt, H. Ahmad, C. McKenzie, A. Margaryan, A. Hameed, A. Samad, N. Gul, M. H. Khokhar, O. I. Goriunova, V. I. Bazaliiskii, J. Novembre, A. W. Weber, L. Orlando, M. E. Allentoft, R. Nielsen, K. Kristiansen, M. Sikora, A. K. Outram, R. Durbin, E. Willerslev 2018 'The first horse herders and the impact of early Bronze Age steppe expansions into Asia', *Science* 360. doi: 10.1126/science.aar7711
- Delamarre, X. 2003 *Dictionnaire de la langue gauloise: une approche linguistique du vieux-celtique continental*. Collection des Hespérides. Paris, Errance. First published, 2001.

- Delamarre, X. 2007 *Nomina celtica antiqua selecta inscriptionum*. Paris, Errance.
- Delamarre, X. 2012 *Noms de lieux celtiques de l'Europe ancienne*. Paris, Errance.
- Derksen, R. 2015 *Etymological Dictionary of the Baltic Inherited Lexicon*, Leiden Indo-European Etymological Dictionary Series 13, ed. A. Lubotsky. Leiden/Boston, Brill.
- de Vaan, M. 2008 *Etymological Dictionary of Latin and the other Italic Languages*, Leiden Indo-European Etymological Dictionary Series, ed. A. Lubotsky. Leiden, Brill.
- De Vries, J. 1960 *Kelten und Germanen*. Bern und München, Francke Verlag.
- Díaz-Guardamino, M. 2010 *Las estelas decoradas en la Prehistoria de la Península Ibérica*. Madrid, Universidad Complutense de Madrid.
- Díaz-Guardamino, M., & D. W. Wheatley 2013 'Rock Art and Digital Technologies. The Application of Reflectance Transformation Imaging (RTI) and 3D Laser Scanning to the Study of late Bronze Age Iberian Stelae', *Menga: Revista de prehistoria de Andalucía* 4, 187–203.
- Díaz-Guardamino, M., L. García Sanjuán, D. Wheatley, V. Rodríguez Zamora 2015 'RTI and the study of engraved rock art: A re-examination of the Iberian south-western stelae of Setefilla and Almadén de la Plata 2 (Seville, Spain)', *Digital Applications in Archaeology and Cultural Heritage* 2, 41–54.
- Díaz-Guardamino, M., L. García-Sanjuán, D. Wheatley, J. A. Lozano-Rodríguez, M. Á. Rogerio-Candelera, & M. Casado-Ariza 2019a 'Late Prehistoric Stelae, Persistent Places and Connected Worlds: A Multi-disciplinary Review of the Evidence at Almargen (Lands of Antequera, Spain)', *Cambridge Archaeological Journal* 30:1, 69–96. doi:10.1017/S0959774319000490
- Díaz-Guardamino, M., L. García-Sanjuán, D. Wheatley, J. A. Lozano-Rodríguez, M. Á. Rogerio-Candelera, M. Krueger, M. Krueger, M. Hunt Ortiz, M. Murillo-Barroso, V. Balsera Nieto 2019b 'Rethinking Iberian "warrior" stelae: a multidisciplinary investigation of Mirasiviene and its connection to Setefilla (Lora del Río, Seville, Spain), *Archaeological and Anthropological Sciences* 11, 6111–6140. https://doi.org/10.1007/s12520-019-00909-1
- Diego Santos, F. 1986 *Inscripciones romanas de la provincia de León*. León, Diputación Provincial de León.
- Dillon, M. & N. K. Chadwick 1967 *The Celtic Realms*. New York, New American Library.
- Dixon, R. M. W. 1997 *The Rise and Fall of Languages*. Cambridge, Cambridge University Press.
- Dolfini, A., R. J. Crellin, C. Horn, & M. Uckelmann (eds) 2018 *Prehistoric Warfare and Violence. Quantitative and Qualitative Approaches*. Cham, Springer.
- Earle, T., J. Ling, C. Uhnér, Z. Stos-Gale & L. Melheim 2015 'The Political Economy and Metal Trade in Bronze Age Europe. Understanding Regional Variability in Terms of Comparative Advantages and Articulations', *European Journal of Archaeology* 18 (4), 633–57.
- Elena, A. G., R. Mar, & M. Martins 2008 *A Fonte do Ídolo. Análise, interpretação e reconstrução do santuário, Bracara Augusta, Escavações Arqueológicas*. Braga.
- Encarnação, J. d' 1975 *Divindades indígenas sob o domínio romano em Portugal*, Lisboa.
- Encarnação, J. d' 1984 *Inscrições romanas do Conventus Pacensis I-II*. Coimbra.
- Encarnação, J. d' 1986 'Sagaivs – um novo gentílico romano documentado em Casével (Castro Verde)', *Arquivo de Beja*, vol III, 2ª série, 133–40. Beja.
- Eogan, G. 1995 'Ideas, people and things. Ireland and the external world during the Late Bronze Age', *Ireland in the Bronze Age. Proceedings of the Dublin Conference, April 1995*, ed. J. Waddell & E. S. Twohig, 128–35. Dublin, Stationery Office.
- Espinosa, U. 1986 *Epigrafia romana de La Rioja*. Logroño.
- Eska, J. F. 2006a 'Continental Celtic', *Celtic Culture: A Historical Encyclopedia*, ed. J. T. Koch, vol 2, 480–4. Santa Barbara, ABC-Clio.
- Eska, J. F. 2006b 'Lepontic', *Celtic Culture: A Historical Encyclopedia*, ed. J. T. Koch, vol 3, 1142–4. Santa Barbara, ABC-Clio.
- Faarlund, J. T. 2008 'Ancient Nordic', *The Ancient Languages of Europe*, ed. R. D. Woodard, 215–29. Cambridge, Cambridge University Press.
- Falileyev, A. 2008 *Le Vieux-Gallois*. Potsdam, Universitätsverlag Potsdam.
- Falileyev, A., with A. E. Gohil & N. Ward 2010 *Dictionary of Continental Celtic Place-Names. A Celtic Companion to the Barrington Atlas of the Greek and Roman World*. Aberystwyth, CMCS.
- Falileyev, A., & P. Kocharov 2012 'Celtic, Armenian and Eastern Indo-European Languages: comments on a recent hypothesis', *Ireland and Armenia: Studies in Language, History and Narrative*, Journal of Indo-European Studies Monograph Series 61, ed. M. Fomin, A. Jivanyan, & S. Mac Mathúna. Washington DC, Institute for the Study of Man.
- Fatás, G. 1980 *Contrebia Belaisca (Botorrita, Zaragoza) II. Tabula Contrebiensis*, Monografías Arqueológicas 23. Zaragoza.
- Faulkes, A. (ed.) 1998 *Snorri Sturluson: Edda. Skáldskaparmál: 1. Introduction, Text and Notes*. Viking Society for Northern Research, University College London.
- Fita, F. 1913b 'Lápidas romanas de Gastiáin (Navarra)', *Boletín de la Real Academia de la Historia* 63, 556–66.
- Fitzpatrick, A. P. 2013 'The Arrival of the Bell Beaker Set in Britain and Ireland', *Celtic from the West 2. Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications 16, ed. J. T. Koch & B. Cunliffe, 41–70. Oxford, Oxbow Books.
- Fontijn, D. 2005 'Giving up weapons', *Warfare, violence and slavery in prehistory*, ed. M. Parker Pearson & I. J. N. Thorpe, 145–54. Oxford, Archaeopress.
- Fornander, E., G. Eriksson & K. Lidén 2018 'Wild at heart: Approaching Pitted Ware identity, economy and cosmology through stable isotopes in skeletal material from the Neolithic site Korsnäs in Eastern Central Sweden', *Journal of Anthropological Archaeology* 27, 281–97.
- Fortson, B. W. 2009 *Indo-European Language and Culture: An Introduction*. Oxford, Wiley-Blackwell.
- Freeman, P. M. 2001 *The Galatian Language: A Comprehensive Survey of the Language of the Ancient Celts of Greco-Roman Asia Minor*, Ancient Near Eastern Texts and Studies 13. Lampeter, Edwin Mellen Press.

- Frieman, C. J., & D. Hofmann 2019 'Present pasts in the archaeology of genetics, identity, and migration in Europe. A critical essay', *World Archaeology*, 32, 1-18. doi: 10.1080/00438243.2019.1627907
- Friese, K. 2018 '4500-year-old DNA from Rakhigarhi reveals evidence that will unsettle Hindutva nationalists', *India Today* 31 August, also online: www.indiatoday.in/magazine/cover-story/story/20180910-rakhigarhi-dna-study-findings-indus-valley-civilisation-1327247-2018-08-31 (accessed February 2019).
- Fuhrholt, M. 2019 'Re-integrating Archaeology. A Contribution to aDNA Studies and the Migration Discourse on the 3rd Millennium BC in Europe', *Proceedings of the Prehistoric Society* 85, 115-29.
- Fulk, R. D. 2018 *A Comparative Grammar of the Early Germanic Languages*. Amsterdam/Philadelphia, John Benjamins Publishing Company.
- Garcia, J. M. 1991 *Religiões antigas de Portugal. Aditamentos e observações às Religiões da Lusitânia de J. Leite de Vasconcellos*. Lisboa.
- García Alonso, J. L. 2003 *La península Ibérica en la Geografía de Claudio Ptolomeo*. Vitoria, Universidad del País Vasco.
- García Alonso, J. L. 2009 'Lenguas indoeuropeas prerromanas en el noroeste peninsular', *Paleohispanica* 9, 163-74.
- Garrett, A. 1999 'A new model of Indo-European subgrouping and dispersal', *Proceedings of the Twenty-Fifth Annual Meeting of the Berkeley Linguistics Society, February 12-15, 1999*, ed. S. S. Chang, L. Liaw, J. Ruppenhofer, 146-56. Berkeley, Berkeley Linguistics Society.
- Garrett, A. 2006 'Convergence in the Formation of Indo-European Subgroups. Phylogeny and Chronology', *Phylogenetic Methods and the Prehistory of Languages*, ed. P. Forster & C. Renfrew, 139-151. Cambridge, McDonald Institute for Archaeological Research.
- Gerloff, S. 2004 'Hallstatt Fascination. "Hallstatt" Buckets, Swords and Chapes from Britain and Ireland', *From Megaliths to Metals. Essays in Honour of George Eogan*, ed. H. Roche, E. Grogan, J. Bradley, J. Coles, & B. Raftery, 124-54. Oxford, Oxbow Books.
- Gerloff, S. (with J. P. Northover) 2010 *Atlantic Cauldrons and Buckets of the Late Bronze and Early Iron Ages in Western Europe: With a Review of Comparable Vessels from Central Europe and Italy*, *Prähistorische Bronzefunde* II, 18. Stuttgart, Franz Steiner.
- Gibson, C. D. 2013 'Beakers into Bronze: Tracing connections between Western Iberia and the British Isles 2800-800 BC', *Celtic from the West 2: Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications 16, ed. J. T. Koch & B. Cunliffe, 71-100. Oxford, Oxbow Books.
- Gimbutas, M. 1970 'Proto-Indo-European Culture: The Kurgan Culture During the 5th to the 3rd millennia BC', *Indo-European and Indo-Europeans*, ed. G. Cardona, H. M. Koenigswald, & A. Senn, 155-198. Philadelphia, University of Pennsylvania Press.
- Gimbutas, M. 1981 'The Three Waves of the Kurgan People into Old Europe, 4500-2500 BC', *Anthropologie et archéologie: le cas des premiers âges des Métaux. Actes du Symposium de Sils-Maria, 25-30 septembre 1978*, *Archives Suisses Anthr. Générale* 43, ed. R. Menk & A. Gallay, 113-37.
- Gimbutas, M. 1997 *The Kurgan culture and the Indo-Europeanization of Europe: Selected articles from 1952 to 1993*, ed. M. R. Dexter & K. Jones-Bley. Washington DC, Institute for the Study of Man.
- Goldberg, A., T. Günther, N. A. Rosenberg & M. Jakobsson 2017 'Ancient X chromosomes reveal contrasting sex bias in Neolithic and Bronze Age Eurasian migrations', *PNAS* 114/10, 2657-62.
- González de Canales, F., L. Serrano, & J. Llopart 2008 'The Emporium of Huelva and Phoenician Chronology. Present and Future Possibilities', *Beyond the Homeland. Mariners in Phoenician Chronology*, *Ancient Near Eastern Studies Supplement* 28, ed. C. Sagana, 631-55. Leuven, Peeters.
- Gorochategui Churrua, J. 1984 *Estudio sobre la onomástica indígena de Aquitania*. Bilbao, Servicio Editorial Universidad del País Vasco.
- Gorochategui, J. 1987 'En torno a la clasificación del lusitano', *Actas del IV Coloquio Coloquio sobre lenguas y culturas prerromanas de la Península Ibérica (Vitoria/Gasteiz, 6-10 de mayo de 1985)*, 77-91. Vitoria.
- Gorochategui, J. 1994 'La declinación céltica de los temas en -a y los datos hispanos', *Indogermanica et Caucasica*, ed. R. Bielmeier & R. Stempel 316-30. Berlin, De Gruyter.
- Gorochategui, J. 2013 'Toutius trebaque: instituciones políticas peregrinas arévacas', *Magistrados locales de Hispania. Aspectos históricos, jurídicos, lingüísticos*, ed. E. Ortiz de Urbina, 159-69. Vitoria.
- Gray, R. D. & Q. Atkinson 2003 'Language-Tree Divergence Times Support the Anatolian Theory of Indo-European Origin', *Nature* 426, 435-39. <http://dx.doi.org/10.1038/nature02029>
- Guerra, A. 2005 'Povos, cultura e língua no ocidente peninsular: uma perspectiva, a partir da toponomástica', *Acta Palaeohispanica* 9/ *Palaeohispanica* 5, 793-822.
- Haak, W., I. Lazaridis, N. Patterson, N. Rohland, S. Mallick, B. Llamas, G. Brandt, S. Nordenfelt, E. Harney, K. Stewardson, Q. Fu, A. Mittnik, E. Bánffy, C. Economou, M. Francken, S. Friederich, R. G. Pena, F. Hallgren, V. Khartanovich, A. Khokhlov, M. Kunst, P. Kuznetsov, H. Meller, O. Mochalov, V. Moiseyev, N. Nicklisch, S. L. Pichler, R. Risch, M. A. Rojo Guerra, C. Roth, A. Szécsényi-Nagy, J. Wahl, M. Meyer, J. Krause, D. Brown, D. Anthony, A. Cooper, K. W. Alt, & D. Reich 2015 'Massive migration from the steppe was a source for Indo-European languages in Europe', *Nature* 522, 207-11.
- Hakenbeck, S. E. 2019 'Genetics, archaeology and the far right', *World Archaeology* 32, 1-11. DOI: 10.1080/00438243.2019.1617189
- Haley, E. W. 1986 'Foreigners in Roman Imperial Spain: Investigations of Geographical Mobility in the Spanish Provinces of the Roman Empire 30 BC- AD 284', U. MI Dissertation Information Service, Diss. Columbia.
- Halloran, J. A. 2006 *Sumerian Lexicon: A Dictionary Guide to the Ancient Sumerian Language*. Los Angeles, Logogram Publishing.
- Halloran, J. A. 2020 *Sumerian Lexicon: Version 3.0*. <https://www.sumerian.org/sumerian.pdf> accessed 26 February 2020
- Hamp E. P. 1973 'Formations indo-européennes à second élément *(H₀)k^m-'', *Bulletin de la Société de linguistique de Paris* 68, 77-92.

- Hamp, E. P. 1998 'Whose were the Tocharians?' *The Bronze Age and Early Iron Age Peoples of Eastern Central Asia*, ed. V. H. Mair, vol 1, 307–46. Journal of Indo-European Studies Monograph 26. Washington DC, Institute of the Study of Man.
- Hamp, E. P. 2007 'Germanic *fapmaz and gravity in the North. North-Western European', *Language Evolution* 54/55, 349–52.
- Hamp, E. P. (with D. Q. Adams) 2013 *The Expansion of the Indo-European Languages: An Indo-Europeanist's Evolving View*, Sino-Platonic Papers 239, Philadelphia, Department of East Asian Languages and Civilizations, University of Pennsylvania.
- Harbison, P. 1975 'The Coming of Indo-European to Ireland: An Archaeological Viewpoint', *Journal of Indo-European Studies* 3, 101–19.
- Harding, A. 1990 'The Wessex connection. Developments and perspectives', *Orientalisch-agäische Einflüsse in der europäischen Bronzezeit. Ergebnisse eines Kolloquiums* (1985), Monographien RGZM 15, ed. P. Schauer, 139–54. Mainz, Zabern.
- Harding, A., & H. Fokkens (eds) 2013 *The Oxford Handbook of the European Bronze Age*. Oxford, Oxford University Press.
- Harrison, R. J. 2004 *Symbols and Warriors. Images of the European Bronze Age*. Bristol, Western Academic & Specialist Press.
- Harrison, R. J. & V. Heyd 2007 'The Transformation of Europe in the Third Millennium BC. The Example of "Le Petit Chasseur I + III" (Sion, Valais, Switzerland)', *Prähistorische Zeitschrift* 82, 129–214.
- Hayden, B. 2018 *The Power of Ritual in Prehistory: Secret Societies and Origins of Social Complexity*. Cambridge, Cambridge University Press.
- Heggarty, P. 2014 'Prehistory by Bayesian Phylogenetics? The State of the Art on Indo-European Origins', *Antiquity* 88, 566–77. <http://antiquity.ac.uk/ant/088/anto880566.htm>.
- Helms, M. W. 1988 *Ulysses' Sail: An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*. Princeton, Princeton University Press.
- Hernando Sobrino, M. R. 2005 *Epigrafía romana de Ávila*, *Petrae Hispaniarum* 4. Burdeos.
- Hernando Sobrino, M. R. 2007 'El Padre Andrés Marcos Burriel y la procedencia de CIL II 2323 y CIL II 2324', *Gerión* 25, 489–500.
- Herodotus: *The Histories*, trans. A. de Sélincourt, rev. edn. 1972, 1st edn. 1954. Harmondsworth, Penguin.
- Heyd, V. 2007 'Families, Prestige Goods, Warriors & Complex Societies: Beaker Groups of the 3rd Millennium cal BC Along the Upper & Middle Danube', *Proceedings of the Prehistoric Society* 73, 327–79.
- Heyd, V. 2017 'Kossinna's smile', *Antiquity* 91 (356), 348–59. <https://doi.org/10.15184/aqy.2017.21>
- Holder, A. 1891–1913 *Alt-celtischer Sprachschatz*. 3 vols. Leipzig, Teubner.
- Holm, H. 2007 'The New Aboretum of Indo-European "Trees". Can New Algorithms Reveal the Phylogeny and Even Prehistory of Indo-European?' *Journal of Quantitative Linguistics* 14, 167–214.
- Holzer, G. 1989 *Entlehnungen an seiner bisher unbekannten Indogermanischen Sprache im Ursprache und Urbaltischen*. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Horn, C. 2014 *Studien zu den europäischen Stabdolchen*, Universitätsforschungen zur Prähistorischen Archäologie 246. Bonn, Habelt.
- Horn, C. & K. Kristiansen (eds) 2018 *Warfare in Bronze Age society*. Cambridge, Cambridge University Press.
- Horn, C., J. Ling, U. Bertilsson, & R. Potter 2018 'By all means necessary. 2.5D and 3D recording of surfaces in the study of southern Scandinavian rock art' *Open Archaeology* 4 (1), 81–96.
- Hoz, J. de 1992 'The Celts of the Iberian Peninsula'. *Zeitschrift für celtische Philologie* 45.1–37.
- Hoz, J. de 2010 *Historia lingüística de la Península Ibérica en la Antigüedad I: Preliminares y mundo meridional prerromana*, *Manuales y Anejos de "Emerita"* L. Madrid, Consejo Superior de Investigaciones Científicas.
- Hoz, J. de, et al. 2005 *Catálogo de estelas decoradas del Museo Arqueológico Provincial de Badajoz*.
- Hyllested, A., 2010 'The Precursors of Celtic and Germanic', *Proceedings of the 21st Annual UCLA Indo European Conference*, ed. S. W. Jamison, H. C. Melchert & B. Vine, 107–28. Bremen, Hemen.
- Isaac, G. R. 1993 'Canu Aneirin Awdl LI', *Journal of Celtic Linguistics* 2, 65–91.
- Isaac, G. R. 2007 *Studies in Celtic Sound Changes and their Chronology*. Innsbruck, Institut für Sprachen und Literaturen der Universität Innsbruck.
- Isaac, G. R. 2010 'The Origins of the Celtic Languages: Language Spread from East to West', *Celtic from the West. Alternative Perspectives from Archaeology, Genetics, Language, and Literature*, ed. B. Cunliffe & J. T. Koch, 153–67. Oxford, Oxbow Books.
- Iversen, R. 2014 'Transformation of Neolithic societies – an East Danish perspective 3rd millennium'. PhD dissertation. Faculty of Humanities. University of Copenhagen. Copenhagen.
- Iversen, R. 2015a *The transformation of Neolithic societies. An Eastern Danish perspective on the 3rd millennium BC*. Jutland Archaeological Society Publications vol. 88. Aarhus.
- Iversen, R. 2015b 'Creolization processes in the later south Scandinavian Neolithic', *Neolithic diversities. Perspectives from a conference in Lund, Sweden*, ed. K. Brink, S. Hydén, K. Jennbert, L. Larsson & D. Olsson. Acta Archaeologica Lundensia. Series in 8º, No. 65. Department of Archaeology and Ancient history. Lund University. Lund.
- Iversen, R. 2016 'Arrowheads as indicators of interpersonal violence and group identity among the Neolithic Pitted Ware hunters of southwestern Scandinavia' *Journal of Anthropological Archaeology* 44, 69–86. doi:10.1016/j.jaa.2016.09.004.
- Iversen, R. 2019 'On the emergence of Corded Ware societies in Northern Europe: Reconsidering the migration hypothesis', *Tracing the Indo-Europeans: New evidence from archaeology and historical linguistics*, ed. B. A. Olsen, T. Olander, & K. Kristiansen, 73–95. Oxford, Oxbow Books.
- Iversen, R., & G. Kroonen 2017 'Talking Neolithic. Linguistic and Archaeological Perspectives on how Indo-European was Implemented in Southern Scandinavia', *American Journal of Archaeology* 121/4, 511–25.
- Jantzen, D., J. Orschiedt, J. Piek & T. Terberger (eds) 2014 *Tod im Tollensetal. Forschungen zu den Hinterlassenschaften eines bronzezeitlichen Gewaltkonfliktes in Mecklenburg-Vorpommern*, Beiträge zur Ur- und Frühgeschichte Mecklenburg-Vorpommerns 50. Schwerin, Landesamt für Kultur und Denkmalpflege.

- Jantzen, D., U. Brinker, J. Orschiedt, J. Heinemeier, J. Piek, K. Hauenstein, J. Krüger, G. Lidke, H. Lübke, R. Lampe, S. Lorenz & T. Terberger, 2011 'A Bronze Age battlefield? Weapons and trauma in the Tollense Valley, north-eastern Germany', *Antiquity* 85 (328), 417–33.
- Jasanoff, J. H. 1994. 'Germanic (le germanique)', *Langues indo-européennes*, ed. F. Bader, 251–80. Paris, CNRS Editions.
- Jasanoff, J. H. 1997 'An Italo-Celtic isogloss: The 3rd plural Mediopassive in *-ntro', *Festschrift for Eric P. Hamp I*, Journal of Indo-European Studies Monographs 23, ed. D. Q. Adams, 146–61. Washington DC: Institute for the Study of Man.
- Jasanoff, J. H. 2008 'Gothic', *The Ancient Languages of Europe*, ed. R. D. Woodard, 189–214. Cambridge, Cambridge University Press.
- Jenkins, D. 1990 'gwalch: Welsh', *Cambridge Medieval Celtic Studies* 19, 55–67.
- Jordán Cólra, C. 2019 *Lengua y Epigrafía Celtibéricas*, Monografías de Filología Griega 29. Zaragoza, Prensas de la Universidad de Zaragoza.
- Jufer, N., & Th. Luginbühl 2001 *Les dieux gaulois: répertoire des noms de divinités celtiques connus par l'épigraphie, les textes antiques et la toponymie*. Paris, Errance.
- Kaul F. 1998 *Ships on Bronzes: A Study in Bronze Age Religion and Iconography*, Publications from the National Museum Studies in Archaeology and History 3.1 & 3.2. Copenhagen.
- Kaul, F. 2003 'The Hjortspring boat and ship iconography of the Bronze Age and Early Pre-Roman Iron Age', *Hjortspring. A pre-roman iron-age warship in context*, ed. O. Crumlin-Pedersen & A. Trakadas, 187–207. Roskilde, Viking Ship Museum.
- Kershaw, K. 2000 *The one-eyed god: Odin and the (Indo-)Germanic Männerbünde*, Journal of Indo-European Studies Monograph Series 36. Washington DC, Institute of the Study of Man.
- Kitson, P. R. 1996 'British and European River-Names', *Transactions of the Philological Society* 94/2, 73–118.
- Klejn, L. S., W. Haak, I. Lazaridis, N. Patterson, D. Reich, K. Kristiansen, K.-G. Sjögren, M. Allentoft, M. Sikora & E. Willerslev 2018 'Discussion: Are the Origins of Indo-European Languages Explained by the Migration of the Yamnaya Culture to the West?' *European Journal of Archaeology* 21 (1), 3–17.
- Koch, J. T. 1980 'The Stone of the Weni-kones', *Bulletin of the Board of Celtic Studies* 29, 87–9.
- Koch, J. T. 1990 'Brân, Brennos: An Instance of Early Gallo-Brittonic History and Mythology', *Cambridge Medieval Celtic Studies* 20, 1–20.
- Koch, J. T. 1991 'Ériu, Alba, and Letha: When was a Language Ancestral to Gaelic First Spoken in Ireland?', *Emania* 9, 17–27.
- Koch, J. T. 1992a 'Gallo-Brittonic *Tasc(i)ouanos* "Badger-slayer" and the Reflex of Indo-European *g^wh', *Journal of Celtic Linguistics* 1, 101–18.
- Koch, J. T. 1992b 'Gallo-Brittonic vs. Insular Celtic: The Inter-relationships of the Celtic Languages Reconsidered', *Bretagne et pays celtiques — langues, histoire, civilisation: Mélanges offerts à la mémoire de Léon Fleuriot*, ed. Gw. Le Menn & J.-Y. Le Moing, 471–95. Saint-Brieuc and Rennes, Skol/Presses Universitaires de Rennes.
- Koch, J. T. 1992c 'Further to tongu do dia toinges mo thuath ["Mi a dyngaf dynged it"]', &c., *Études Celtiques* 29, 249–61.
- Koch, J. T. 1995 'The Conversion of Ireland and the Emergence of the Old Irish Language, AD 367–637', *Emania* 13, 39–50.
- Koch, J. T. 1997 *The Gododdin of Aneirin: Text and Context from Dark-Age North Britain*. Cardiff, University of Wales Press.
- Koch, J. T. 2006 'Rhiannon', *Celtic Culture: A Historical Encyclopedia*, ed. J. T. Koch, vol 4, 1499–1500. Santa Barbara, ABC-Clío.
- Koch, J. T. 2011 *Tartessian 2: The Inscription of Mesas do Castelinho, ro and the Verbal Complex, Preliminaries to Historical Phonology*. Aberystwyth, University of Wales Centre for Advanced Welsh and Celtic Studies.
- Koch, J. T. 2013a 'Out of the Flow and Ebb of the European Bronze Age. Heroes, Tartessos, and Celtic', *Celtic from the West 2. Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications 16, ed. J. T. Koch & B. Cunliffe, 101–46. Oxford, Oxbow Books.
- Koch, J. T. 2013b *Tartessian. Celtic in the South-west at the Dawn of History*, Celtic Studies Publications 13. Aberystwyth, Celtic Studies Publications.
- Koch, J. T. 2013c 'Prologue. Ha C1a ≠ PC (The Earliest Hallstatt Iron Age cannot equal Proto-Celtic)', *Celtic from the West 2. Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications 16, ed. J. T. Koch & B. Cunliffe, 1–16. Oxford, Oxbow Books.
- Koch, J. T. 2014 'Once again, Herodotus, the Κελτοί, the source of the Danube, and the Pillars of Hercules', ed. C. Gosden, S. Crawford, & K. Ulmschneider, *Celtic Art in Europe: Making Connections. Essays in Honour of Vincent Megaw on his 80th birthday*, 6–18. Oxford, Oxbow Books.
- Koch, J. T. 2016 'Phoenicians in the West and Break-up of the Atlantic Bronze Age', *Celtic from the West 3. Atlantic Europe in the Metal Ages. Questions of shared language*, Celtic Studies Publications 19, ed. J. T. Koch, B. Cunliffe, C. D. Gibson & K. Cleary, 431–76. Oxford, Oxbow Books.
- Koch, J. T. 2019a 'Rock art and Celto-Germanic vocabulary: Shared iconography and words as reflections of Bronze Age contact', *Adoranten* 2018. 1–16.
- Koch, J. T. 2019b *Common Ground and Progress on the Celtic of the South-western (S.W.) Inscriptions*. Aberystwyth, Centre for Advanced Welsh and Celtic Studies. ebook: <https://www.wales.ac.uk/Resources/Documents/Centre/2019/Koch-Celtic-of-the-SW-inscriptions-2019.pdf>
- Koch J. T. 2019c 'Celtic from the West meets linguistics and genetics', *Exploring Celtic Origins: New ways forward in archaeology, linguistics, and genetics*, Celtic Studies Publications 22, ed. B. Cunliffe & J. T. Koch, 19–37. Oxford, Oxbow Books.
- Koch, J. T., with R. Karl, A. Minard & S. Ó Faoláin 2007 *An Atlas for Celtic Studies. Archaeology and Names in Ancient Europe and Early Medieval Ireland, Britain, and Brittany*. Celtic Studies Publications 12. Oxford, Oxbow Books.
- Koch, J. T., & F. Fernández Palacios 2017 'Some epigraphic comparanda bearing on the "pan-Celtic god" Lugus', *Celtic Religions in the Roman Period: Personal, local, and global*, Celtic Studies Publications 20, ed. R. Haeussler & A. King, 37–56. Aberystwyth, Celtic Studies Publications.

- Koch, J. T., with F. Fernández Palacios 2019 'A case of identity theft? Archaeogenetics, Beaker People, and Celtic origins', *Exploring Celtic Origins: New ways forward in archaeology, linguistics, and genetics*, Celtic Studies Publications 22, ed. B. Cunliffe & J. T. Koch, 38–79. Oxford, Oxbow Books.
- Kohl, P. 2007 *The Making of Bronze Age Eurasia*. Cambridge, Cambridge University Press.
- Kortlandt, F. H. H. 2007 *Italo-Celtic Origins and Prehistoric Development of the Irish Language*, Leiden Studies in Indo-European Vol. 14. Rodopi.
- Kortlandt, F. H. H. 2018 'The Expansion of Indo-European Languages', *The Journal of Indo-European Studies* 46, 219–31.
- Koryakova L. & A. Epimakhov 2007 *The Urals and Western Siberia in the Bronze and Iron Ages*. Cambridge, Cambridge University Press.
- Kossinna, G. 1936 *Ursprung und Verbreitung der Germanen in vor- und frühgeschichtlicher Zeit*. 3rd edn. Leipzig.
- Krahe, H. 1954 *Sprache und Vorzeit*. Heidelberg, Quelle & Meyer.
- Krahe, H. 1962 *Die Struktur der alteuropäischen Hydronymie*. Wiesbaden: Steiner.
- Krahe, H. 1964 *Unsere ältesten Flußnamen*. Wiesbaden, Otto Harrassowitz.
- Kristiansen, K. & P. Suchowska-Ducke 2015 'Connected histories. The dynamics of Bronze Age interaction and trade 1500–1100 BC', *Proceedings of Prehistoric Society* 81, 361–82.
- Kristiansen, K. 2017 'When language meets archaeology. From Proto-Indo-European to Proto-Germanic in northern Europe', *Usque ad radices. Indo-European studies in honour of Birgit Anette Olsen*, ed. B. S. S. Hansen, A. Hyllested, A. R. Jørgensen, G. Kroonen, J. H. Larsson, B. Nielsen Whitehead, T. Olander & T. M. Søbørg, 427–38. Copenhagen, Museum Tusculanum Press.
- Kristiansen, K. 2018 'Warfare and the political economy. Bronze Age Europe 1500–1100 BC', *Warfare in Bronze Age Society*, ed. C. Horn & K. Kristiansen, 23–46. Cambridge, Cambridge University Press.
- Kristiansen, K., M. E. Allentoft, K. M. Frei, R. Iversen, N. N. Johannsen, G. Kroonen, Ł. Pospieszny, T. D. Price, S. Rasmussen, K.-G. Sjögren, M. Sikora & E. Willerslev 2017 'Re-theorising mobility and the formation of culture and language among the Corded Ware Culture in Europe', *Antiquity* 91 (356), 334–47. doi:10.15184/aqy.2017.17.
- Kristiansen, K., & T. Larsson 2005 *The Rise of the Bronze Age. Travels, Transmissions, and Transformations*. Cambridge, Cambridge University Press.
- Kroonen, G. 2013 *Etymological Dictionary of Proto-Germanic*, Leiden Indo-European Etymological Dictionary Series 11. Leiden/Boston, Brill.
- Kroonen, G. 2020 'Babel entre Europa y Asia. El indoeuropeo y la cuestión de la paleontología lingüística', *Desperta Ferro—Arqueología e Historia* 33 (Indoeuropeos. Migraciones, lenguas y genes). Madrid, Desperta Ferro Edición.
- Kroonen, G., G. Barjamovic, & M. Peyrot 2018 'Linguistic supplement to Damgaard et al. 2018: Early Indo-European languages, Anatolian, Tocharian and Indo-Iranian'.
- Kuz'mina, E. E. 2007 *The Origin of the Indo-Iranians*, ed. J. P. Mallory, Leiden Indo-European Etymological Dictionary Series 3. Leiden/Boston, Brill.
- Lamberg-Karlovsky, C. C. 2005 'Archaeology and language: the case of the Bronze Age Indo-Iranians', *The Indo-Aryan Controversy: Evidence and inference in Indian history*, ed. E. F. Bryant & L. L. Patton, 142–77. London, Routledge.
- Lambert, P.-Y. 1994 *La langue gauloise*, Collection des Hesperides. Paris, Editions Errance.
- Lazaridis, I. 2018 'The evolutionary history of human populations in Europe', *Current Opinion in Genetics & Development* 53, December 2018, 21–7.
- Lazaridis, I., A. Mittnik, N. Patterson, S. Mallick, N. Rohland, S. Pfrengle, A. Furtwängler, A. Peltzer, C. Posth, A. Vasilakis, P. McGeorge, E. Konsolaki-Yannopoulou, G. Korres, H. Martlew, M. Michalodimitrakis, M. Özşait, N. Özşait, A. Papathanasiou, M. Richards, S. A. Roodenberg, Y. Tzedakis, R. Arnott, D. M. Fernandes, J. R. Hughey, D. M. Lotakis, P. A. Navas, Y. Maniatis, J. A. Stamatoyannopoulos, K. Stewardson, P. Stockhammer, R. Pinhasi, D. Reich, J. Krause, G. Stamatoyannopoulos 2017 'Genetic origins of the Minoans and Mycenaeans', *Nature* 548. doi.org/10.1038/nature23310.
- Lejeune, M. 1972 'Celtibère et lépontique', *Homenaje a Antonio Tovar ofrecidos por sus discípulos, colegas y amigos*, 265–71. Madrid, Gredos.
- Linderholm, A., G. M. Kiliç, A. Szczepanek, P. Włodarczak, P. Jarosz, Z. Belka, J. Dopieralska, K. Werens, J. Górski, M. Mazurek, M. Hozer, M. Rybicka, M. Ostrowski, J. Bagińska, W. Koman, R. Rodríguez-Varela, J. Storå, A. Götherström, M. Krzewińska 2020 'Corded Ware cultural complexity uncovered using genomic and isotopic analysis from southeastern Poland', *Scientific Reports* | (2020) 10:6885 | https://doi.org/10.1038/s41598-020-63138-w
- Ling, J. 2012 'War canoes or social units. Human representations in rock art ships', *European Journal of Archaeology* 15 (3), 465–85.
- Ling, J. 2019 'Review: Brian Hayden. The Power of Ritual in Prehistory: Secret Societies and Origins of Social Complexity (Cambridge: Cambridge University Press, 2018)', *European Journal of Archaeology* 22 (4), 599–603.
- Ling, J., P. Cornell, & K. Kristiansen 2017 'Bronze Economy and Mode of Production. The role of Comparative Advantages in Temperate Europe During the Bronze Age', *Modes of Production in Archaeology* ed. R. M. Rosenswig & J. J. Cunningham, 207–30. Gainesville, University of Florida Press.
- Ling, J., T. Earle, & K. Kristiansen 2018 'Maritime Mode of Production. Raiding and Trading in Seafaring Chiefdoms', *Current Anthropology* 59 (5), 488–524.
- Ling, J., E. Hjärthner-Holdar, L. Grandin, K. Billström & P.-O. Persson 2013 'Moving metals or indigenous mining? Provenancing Scandinavian Bronze Age artefacts by lead isotopes and trace elements', *Journal of Archaeological Science* 40 (1), 291–304.
- Ling, J., E. Hjärthner-Holdar, L. Grandin, Z. Stos-Gale, K. Kristiansen, A. L. Melheim, G. Artioli, I. Angelini, R. Krause, & C. Canovaro 2019 'Moving metals IV. Swords, metal sources and trade networks in Bronze Age Europe', *Journal of Archaeological Science: Reports* 26, 101837. doi:10.1016/j.jasrep.2019.05.002.
- Ling, J., & J. T. Koch 2018 'A sea beyond Europe to the north and west', *Giving the Past a Future. Essays in Archaeology and Rock Art Studies in Honour of Dr. Phil. h.c. Gerhard Miltreu*, ed. J. Dodd & E. Meijer, 96–111. Oxford, Archaeopress.

- Ling, J., Z. Stos-Gale, L. Grandin, K. Billström, E. Hjärthner-Holdar, & P.-O. Persson 2014 'Moving metals II. Provenancing Scandinavian Bronze Age artefacts by lead isotope and elemental analyses', *Journal of Archaeological Science* 41 (1), 106–12.
- Ling, J., & C. Uhnér 2015 'Rock Art and Metal Trade', *Adoranten* 2014, 23–43.
- Lorrio, A. J., & G. Ruiz Zapatero 2005 'The Celts in Iberia: An Overview', *e-Keltoi* 6 http://www4.uwm.edu/celtic/ekeltoi/volumes/vol6/6_4/lorrio_zapatero_6_4.html
- Lorrio, A. J., & J. Velaza 2005 'La primera inscripción celtibérica sobre plomo', *Actas del IX Coloquio = Palaeohispanica* 5, ed. F. Beltrán & J. Velaza, 1031–48.
- Luján Martínez, E. R. 2006 'The Language(s) of the Callaeci', *e-Keltoi* 6: *The Celts in the Iberian Peninsula*, 715–48.
- Luján Martínez, E. R. 2009 'Notas sobre algunas inscripciones paleohispánicas', *Palaeohispanica* 9, 701–9.
- Mac an Bhaird, A. 1980 'Varia II: Tadhg mac Céin and the Badgers', *Ériu* 31, 150–5.
- Mac Cana, P. 1996 *Celtic Mythology*, Library of the World's Myths and Legends. London, Chancellor. First published Feltham, Hamlyn, 1970.
- Mallory, J. P. 1989 *In Search of the Indo-Europeans: Language, Archaeology and Myth*. London, Thames and Hudson.
- Mallory, J. P. 1996 'The Indo-European Homeland Problem: a Matter of Time', *The Indo-Europeanization of Northern Europe: Papers Presented at the International Conference Held at the University of Vilnius, Vilnius, Lithuania, September 1-7, 1994*, ed. K. Jones-Bley & M. E. Huld, 1–22. Washington DC, Institute for the Study of Man.
- Mallory, J. P. 2007 'Indo-European warfare', *War and Sacrifice: Studies in the archaeology of conflict*, ed. T. Pollard & I. Banks, 77–98. Leiden, Brill.
- Mallory, J. P. 2013 'The Indo-Europeanization of Atlantic Europe', *Celtic from the West* 2. *Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications XVI, ed. J. T. Koch & B. Cunliffe, 17–40. Oxford, Oxbow Books.
- Mallory, J. P. 2015. *The problem of Tocharian origins: An archaeological perspective*, Sino-Platonic Papers 259. Philadelphia, University of Pennsylvania. [www.sino-platonic.org]
- Mallory, J. P. 2016 *In Search of the Irish Dreamtime: Archaeology and Early Irish Literature*. London, Thames & Hudson.
- Mallory, J. P. 2019 'Proto-Indo-European, Proto-Uralic and Nostratic: A brief excursus into the comparative study of proto-languages', *Tracing the Indo-Europeans: New evidence from archaeology and historical linguistics*, ed. B. A. Olson, T. Olander, & K. Kristiansen, 35–58. Oxford, Oxbow Books.
- Mallory, J. P., & D. Q. Adams (eds) 1997 *Encyclopedia of Indo-European Culture*. Chicago & London, Fitzroy Dearborn.
- Mallory, J. P. & D. Q. Adams 2006 *The Oxford Introduction to Proto-Indo-European and the Proto-Indo-European World*. Oxford, Oxford University Press.
- Mallory, J. P., & V. H. Mair 2000 *The Tarim Mummies: Ancient China and the mystery of the earliest peoples from the West*. London, Thames & Hudson.
- Malmström, H., M. Thomas, P. Gilbert, M. G. Thomas, M. Brandström, J. Storå, P. Molnar, P. K. Andersen, C. Bendixen, G. Holmlund, A. Götherström & E. Willerslev 2009 'Ancient DNA Reveals Lack of Continuity between Neolithic Hunter-Gatherers and Contemporary Scandinavians', *Current Biology* 19, 1758–1762 doi:10.1016/j.cub.2009.09.017
- Malmström, H., A. Linderholm, P. Skoglund, J. Storå, P. Sjödin, M. Thomas, G. Holmlund, E. Willerslev, M. Jakobsson, K. Lidén & A. Götherström 2014 'Ancient mitochondrial DNA from the northern fringe of the Neolithic farming expansion in Europe sheds light on the dispersion process', *Philosophical Transactions B* 370, 20130373.
- Malmström, H., T. Günther, E. M. Svensson, A. Juras, M. Fraser, A. R. Munters, Ł. Pospieszny, M. Törv, J. Lindström, A. Götherström, J. Storå, & M. Jakobsson 2019 'The genomic ancestry of the Scandinavian Battle Axe Culture people and their relation to the broader Corded Ware horizon', *Proceedings of the Royal Society B* 286: 20191528. <http://dx.doi.org/10.1098/rspb.2019.1528>
- Maran, J. 2004 'Wessex und Mykene. Zur Deutung des Bernsteins in der Schachtgräberzeit Süd griechenlands', *Zwischen Karpaten und Ägais. Neolithikum und Ältere Bronzezeit. Gedenkschrift für Viera Nemejcová-Pavúková*, ed. B. Hänsel & E. Studeníková, 47–65. Rahden, Leidorf.
- Maran, J. 2016 'Bright as the sun. The appropriation of amber objects in Mycenaean Greece', *Mobility, Meaning and the Transformation of Things*, ed. H. P. Hahn & H. Weiss, 147–69. Oxford, Oxbow Books.
- Martiniano, R., L. M. Cassidy, R. Ó Maoldúin, R. McLaughlin, N. M. Silva, L. Manco, D. Fidalgo, T. Pereira, M. J. Coelho, M. Serra, J. Burger, R. Parreira, E. Moran, A. C. Valera, E. Porfirio, R. Boaventura, A. M. Silva & D. G. Bradley 2017 'The population genomics of archaeological transition in west Iberia. Investigation of ancient substructure using imputation and haplotype-based methods', *PLoS Genet* 13(7), e1006852. <https://doi.org/10.1371/journal.pgen.1006852>
- Matasović, R. 2008 'Insular Celtic as a Language Area', *The Celtic Languages in Contact*, ed. H. L. C. Tristram, 93–112. Potsdam University Press, Potsdam.
- Matasović, R. 2009 *Etymological Dictionary of Proto-Celtic*, Leiden Indo-European Etymological Dictionary Series 9. Leiden/Boston, Brill.
- Matasović, R. 2011 *Addenda et corrigenda to Ranko Matasović's Etymological Dictionary of Proto-Celtic* (Brill, Leiden 2009). Zagreb, December 2011.
- Matasović, R. 2014 'Substratum words in Balto-Slavic', *Filologija* 60, 75–102.
- McCone, K. R. 1987 'Hund, Wolf und Krieger bei den Indogermanen', *Studien zum indogermanischen Wortschatz*, ed. W. Meid, 101–54. Innsbruck.
- McCone, K. R. 1996 *Towards a Relative Chronology of Ancient and Medieval Celtic Sound Change*, Maynooth Studies in Celtic Linguistics I. Maynooth, St Patrick's College.
- McCone, K. R. 1999 'OIr. *erbaid* "entrusts", orb "heir" *andorbae* "inheritance", *Studia celtica et indogermanica: Festschrift für Wolfgang Meid zum 70. Geburtstag*, ed. P. Anreiter & E. Jerem, 239–42. Budapest, Archaeolingua.

- McCone, K. R. 2002 'Wolfsbesessenheit, Nacktheit, Einäugigkeit und verwandte Aspekte des altkeltischen Männerbundes', *Gergeltes Ungestüm: Bruderschaften und Jugendbünde bei indogermanischen Völkern*, ed. R. P. Das & G. Meiser, 43–67. Hempen, Bremen.
- McCone, K. R. 2008 *The Celtic Question: Modern Constructs and Ancient Realities*, Myles Dillon Memorial Lecture. Dublin, Dublin Institute for Advanced Studies.
- McGrail, S. 2014 *Early ships and seafaring. European water transport*. Barnsley, Pen & Sword.
- McKinley, J. I., J. Schuster & A. Millard 2013 'Dead Sea Connections. A Bronze Age and Iron Age Ritual Site on the Isle of Thanet', *Celtic from the West 2. Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications XVI, ed. J. T. Koch & B. Cunliffe, 157–183. Oxford, Oxbow Books.
- McKinley, J. I., M. Leivers, J. Schuster, P. Marshall, A. J. Barclay, & N. Stoodley 2014 *Cliffs End Farm, Isle of Thanet, Kent: A mortuary and ritual site of the Bronze Age, Iron Age and Anglo-Saxon period with evidence for long-distance maritime mobility*. Salisbury, Wessex Archaeology.
- McManus, D. 1991 *A Guide to Ogam*. Maynooth Monographs 4. Maynooth, An Sagart.
- Mederos Martín, A. 2008 'Carros micénicos del Heládico Final III en las estelas decoradas del Bronce Final II–IIIA del suroeste de la Península Ibérica', *Contacto cultural entre el Mediterráneo y el Atlántico (siglos XII–VIII a.n.e.)*. La precolonización a debate, ed. S. Celestino, N. Rafael, X.-L. Armada, 437–63. Madrid, Escuela Española de Historia y Arqueología en Roma.
- Mederos Martín, A. 2012 'El origen de las estelas decoradas del suroeste de la Península Ibérica en el Bronce Final II (1325–1150 a.C.)', *Sidereum Ana II. El Guadiana en el Bronce Final*, ed. J. Jiménez Ávila, 417–54. Anejos de Archivo Español de Arqueología 62. Mérida, CSIC.
- Mederos Martín, A. 2017 'The Mycenaean contacts with the Iberian Peninsula during the Late Bronze Age (1625–1150 BC)', *Hesperos. The Aegean Seen from the West*, ed. M. Fotiadis, R. Laffineur, Y. Lolos & A. Vlachopoulos, 25–39. Leuven–Liège, Peeters.
- Meid, W. 1991 *Aspekte der germanischen und keltischen Religion im Zeugnis der Sprache*. Institut für Sprachwissenschaft der Universität Innsbruck.
- Meiser, G. 2002 "'Indogermanische Jugendbünde" oder: Probleme bei der Rekonstruktion sozialer Strukturen', *Gergeltes Ungestüm: Bruderschaften und Jugendbünde bei indogermanischen Völkern*, ed. R. P. Das & G. Meiser, 1–10. Hempen, Bremen.
- Melena, J. L. 1985 'Salama, Jálama y la epigrafía latina del antiguo Corregimiento', *Symbolae L. Mitxelena*, I, ed. J. L. Melena, 475–530. Vitoria.
- Melheim, L., L. Grandin, P.-O. Persson, K. Billström, Z. Stos-Gale, J. Ling & K. Kristiansen 2018 'Moving metals III. Possible origins for copper in Bronze Age Denmark based on lead isotopes and geochemistry', *Journal of Archaeological Science* 96, 85–105.
- Milcent, P.-Y. 2012 *Le temps des élites en Gaule atlantique. Chronologie des mobiliers et rythmes de constitution des dépôts métalliques dans le contexte européen (XIIIe–VIIe av. J.-C.)*. Rennes, Presses Universitaires de Rennes.
- Morandi, A. 2004 *Celtici d'Italia, a cura di Paola Piana Agostini. II. Epigraphi e lingua dei Celti d'Italia*. Roma, Spazio Tre.
- Murillo-Barroso, M. & M. Martín-Torres 2012 'Amber sources and trade in the prehistory of the Iberian Peninsula', *European Journal of Archaeology* 15 (2), 187–216.
- Narasimhan, V. M., N. Patterson, P. Moorjani, I. Lazaridis, M. Lipson, S. Mallick, N. Rohland, R. Bernardos, A. M. Kim, N. Nakatsuka, I. Olalde, A. Coppa, J. P. Mallory, V. Moiseyev, J. Monge, L. M. Olivier, N. Adamski, N. Broomandkhoshbacht, F. Candilio, O. Cheronet, B. J. Cullen, M. Ferry, D. Fernandes, B. Gamarra, D. Gaudio, M. Hajdinjak, É. Harney, T. K. Harper, D. Keating, A. M. Lawson, M. Michel, M. Novak, J. Oppenheimer, N. Rai, K. Sirak, V. Slon, K. Stewardson, Z. Zhang, G. Akhatov, A. N. Bagashev, B. Baitanayev, G. L. Bonora, T. Chikisheva, A. Derevianko, E. Dmitry, K. Douka, N. Dubova, A. Epimakhov, S. Freilich, D. Fuller, A. Goryachev, A. Gromov, B. Hanks, M. Judd, E. Kazizov, A. Khokhlov, E. Kitov, E. Kupriyanova, P. Kuznetsov, D. Luiselli, F. Maksudov, C. Meiklejohn, D. Merrett, R. Micheli, O. Mochalov, Z. Muhammed, S. Mustafokulov, A. Nayak, R. M. Petrovna, D. Pettener, R. Potts, D. Razhev, S. Sarno, K. Sikhymbaeva, S. M. Slepchenko, N. Stepanova, S. Svyatko, S. Vasilyev, M. Vidale, D. Voyakin, A. Yermolayeva, A. Zubova, V. S. Shinde, C. Lalueza-Fox, M. Meyer, D. Anthony, N. Boivin, K. Thangaraj, D. J. Kennett, M. Frachetti, R. Pinhasi, D. Reich 2018 'The Genomic Formation of South and Central Asia', bioRxiv preprint first posted online Mar. 31, 2018; doi: <http://dx.doi.org/10.1101/292581>
- Navascués, J. M.ª de 1966 'Onomástica salmantina de época romana', *Boletín de la Real Academia de la Historia* 158, 181–230 con correcciones en *Boletín de la Real Academia de la Historia* 160, 1967, 7–9.
- Needham, S. 1996 'Chronology and periodisation in the British Bronze Age, Absolute Chronology. Archaeological Europe 2500–500 BC', *Acta Archaeologica* 67, 121–40.
- Needham, S. P. 2016 'The Lost Cultures of the Halberd Bearers. A non-Beaker ideology in later 3rd millennium Atlantic Europe', *Celtic from the West 3. Atlantic Europe in the Metal Ages. Questions of shared language*. Celtic Studies Publications 19, ed. J. T. Koch, B. Cunliffe, C. D. Gibson & K. Cleary, 40–81. Oxford, Oxbow Books.
- Needham, S. & S. Bowman 2005 'Flesh-hooks, Technological Complexity and the Atlantic Bronze Age Feasting Complex', *European Journal of Archaeology* 8 (2), 93–136.
- Nichols, J. 1997 'Modeling ancient population structures and movement in linguistics', *Annual Review of Anthropology* 26, 359–84.
- Nicolaisen, W. F. H. 2008 'On River-names in the Scottish Landscape', *A Commodity of Good Names: Essays in Honour of Margaret Gelling*, ed. O. J. Padel, D. Parsons, 233–8. Donnington, Tyas.
- Nielsen, H. F. 2000 *The early runic language of Scandinavia*. Winter, Heidelberg.
- Nørgaard, H. W., E. Pernicka, & H. Vandkilde 2019 'On the trail of Scandinavia's early metallurgy. Provenance, transfer and mixing', *PloS One* 14 (7), e0219574. DOI: <https://doi.org/10.1371/journal.pone.0219574>
- Ó Baoill, D. 2010 'Irish', *The Celtic Languages*, ed. M. J. Ball & N. Müller, 163–229. London, Routledge. 2nd edn; first published 1993.
- O'Brien, M. A. 1962 *Corpus Genealogiarum Hiberniae*. Dublin, Dublin Institute for Advanced Studies.

- O'Brien, W. 2004 *Ross Island. Mining, Metal and Society in Early Ireland*, Bronze Age Studies 6. Galway, National University of Ireland.
- O'Brien, W. 2016 'Language Shift and Political Context in Bronze Age Ireland: some implications of hillfort chronology', *Celtic from the West 3. Atlantic Europe in the Metal Ages. Questions of shared language*. Celtic Studies Publications 19, ed. J. T. Koch, B. Cunliffe, C. D. Gibson & K. Cleary, 219–46. Oxford, Oxbow Books.
- O'Brien, W. & J. O'Driscoll 2017 *Hillforts, Warfare and Society in Bronze Age Ireland*. Oxford, Archaeopress.
- Odriozola, C. P., A. C. Sousa, R. Mataloto, R. Boaventura, M. Andrade, R. Villalobos García, J. Á. Garrido-Cordero, E. Rodríguez, J. M. Martínez-Blanes, M. Á. Avilés, J. Daura, M. Sanz, J. A. Riquelme 2017 'Amber, beads and social interaction in the Late Prehistory of the Iberian Peninsula. An update', *Archaeological and Anthropological Sciences* 11, 567–95.
- Oettinger, N. 2003 'Neuerungen in Lexikon und Wortbildung des Nordwest-Indogermanischen', *Languages in Prehistoric Europe*, ed. A. Bammesberger & T. Vennemann, 183–93. Winter, Heidelberg.
- Oettinger, N. 2013–2014 'Die Indo-Hittite-Hypothese aus heutiger Sicht', *Münchener Studien zur Sprachwissenschaft* 67(2): 149–76.
- Olalde, I., S. Brace, M. Allentoft, I. Armit, K. Kristiansen, N. Rohland, S. Mallick, T. Booth, A. Szécsényi-Nagy, E. Altena, M. Lipson, I. Lazaridis, N. Patterson, N. Broomandkhoshbacht, Y. Diekmann, Z. Faltyskova, D. Fernandes, M. Ferry, E. Harney, P. de Knijff, M. Michel, A. Mittnik, J. Oppenheimer, K. Stewardson, A. Barclay, K. W. Alt, A. Avilés Fernández, E. Banffy, M. Bernabò-Brea, D. Billon, C. Blasco, C. Bonsall, L. Bonsall, O. E. Craig, G. Cook, B. Cunliffe, A. Denaire, M. Ernée, M. Kuchařík, J. F. Farré, H. Fokkens, M. Gazeen, R. Garrido Pena, M. Haber-Uriarte, P. Lefranc, O. Lemerrier, A. Lefebvre, J. Lomba Maurandi, T. Majó, J. I. McKinley, K. McSweeney, B. G. Mende, A. Modi, G. Kulcsár, V. Kiss, A. Czene, R. Patay, A. Endrődi, K. Köhler, T. Hajdu, J. Cardoso, C. Liesau, M. Parker-Pearson, P. Włodarczak, T. D. Price, P. Prieto, P.-J. Rey, P. Ríos, R. Risch, M. A. Rojo Guerra, A. Schmitt, J. Serrallongue, A. M. Silva, V. Smrcka, L. Vergnaud, J. Zilhão, D. Caramelli, T. Higham, P. W. Stockhammer, V. Heyd, A. Sheridan, K.-G. Sjögren, M. G. Thomas, R. Pinhasi, J. Krause, W. Haak, I. Barnes, C. Lalueza-Fox, & D. Reich 2018 'The Beaker Phenomenon and the Genomic Transformation of Northwest Europe', *bioRxiv* 135962. doi: <https://doi.org/10.1101/135962>.
- Olalde, I., S. Mallick, N. Patterson, N. Rohland, V. Villalba-Mouco, M. Silva, K. Dulias, C. J. Edwards, F. Gandini, M. Pala, P. Soares, M. Ferrando-Bernal, N. Adamski, N. Broomandkhoshbacht, O. Cheronet, B. J. Cullen, D. Fernandes, A. M. Lawson, M. Mah, J. Oppenheimer, K. Stewardson, Z. Zhang, J. M. Jiménez Arenas, I. J. Toro Moyano, D. C. Salazar-García, P. Castanyer, M. Santos, J. Tremoleda, M. Lozano, P. García Borja, J. Fernández-Eraso, J. A. Mujika-Alustiza, C. Barroso, F. J. Bermúdez, E. Viguera Mínguez, J. Burch, N. Coromina, D. Vivó, A. Cebrià, J. M. Fullola, O. García-Puchol, J. I. Morales, F. Xa. Oms, T. Majó, J. M. Vergès, A. Díaz-Carvajal, I. Ollich-Castanyer, F. J. López-Chacero, A. M. Silva, C. Alonso-Fernández, G. Delibes de Castro, J. Jiménez Echevarría, A. Moreno-Márquez, G. P. Berlanga, P. Ramos-García, J. Ramos-Muñoz, E. Vijande Vila, G. Aguilera Arzo, Á. I. Esparza Arroyo, K. T. Lillios, J. Mack, J. Velasco-Vázquez, A. Waterman, L. Benítez de Lugo Enrich, M. Benito Sánchez, B. Agustí, F. Codina, G. de Prado, A. Estalrich, Á. Fernández Flores, C. Finlayson, G. Finlayson, S. Finlayson, F. Giles-Guzmán, A. Rosas, V. Barciela González, G. García Atiénzar, M. S. Hernández Pérez, A. Llanos, Y. Carrión Marco, I. Collado Beneyto, D. López-Serrano, M. Sanz Tormo, A. C. Valera, Concepción Blasco, C. Liesau, P. Ríos, J. Daura, M. J. de Pedro Michó, A. A. Díez-Castillo, R. Flores Fernández, J. Francès Farré, R. Garrido-Pena, V. S. Gonçalves, E. Guerra-Doce, A. M. Herrero-Corral, J. Juan-Cabanilles, D. López-Reyes, S. B. McClure, Marta Merino Pérez, A. O. Foix, M. Sanz Borràs, A. C. Sousa, J. M. Vidal Encinas, D. J. Kennett, M. B. Richards, K. W. Alt, W. Haak, R. Pinhasi, Carles Lalueza-Fox, D. Reich 2019 'The genomic history of the Iberian Peninsula over the past 8000 years', *Science* 363, 1230–34.
- Olander, T. 2019 'The Indo-European Homeland: Introducing the problem', *Tracing the Indo-Europeans: New evidence from archaeology and historical linguistics*, ed. B. A. Olson, T. Olander, & K. Kristiansen, 7–34. Oxford, Oxbow Books.
- Olsen, B. A. 2019 'Aspects of family structure among the Indo-Europeans', *Tracing the Indo-Europeans: New evidence from archaeology and historical linguistics*, ed. B. A. Olsen, T. Olander, & K. Kristiansen, 145–64. Oxford, Oxbow Books.
- Omrak, A., T. Günther, C. Valdiosera, E. M. Svensson, H. Malmström, H. Kiesewetter, W. Aylward, J. Storå, M. Jakobsson, & A. Götherström 2016 'Genomic Evidence Establishes Anatolia as the Source of the European Neolithic Gene Pool', *Current Biology* 26, 270–5. <http://dx.doi.org/10.1016/j.cub.2015.12.019>
- Østmo, E. 2009 'Comment on M. Pilar Prieto Martínez: "Bell Beaker Communities in Thy: The First Bronze Age Society in Denmark". The Northern Connection: Bell Beaker Influences North of Skagerak', *Norwegian Archaeological Review* 42 (1), 86–9.
- Pagel, M. & A. Meade 2006 'Estimating Rates of Lexical Replacement on Phylogenetic Trees of Languages', *Phylogenetic methods and the prehistory of languages*, ed. P. Forster & C. Renfrew, 173–82, Cambridge, McDonald Institute for Archaeological Research.
- Palol, P. de & J. Vilella 1987 *Clunia II. La epigrafía de Clunia* [EAE 150]. Madrid.
- Pare, C. F. E. 2000 'Bronze and the Bronze Age', *Metals Make the World Go Round. Supply and Circulation of Metals in Bronze Age Europe*, ed. C. F. E. Pare, 1–37. Oxford, Oxbow Books.
- Parpola, A. 2015 *The Roots of Hinduism: The Early Aryans and The Indus Civilization*. Oxford, Oxford University Press.
- Parpola, A. & C. Carpelan 2005 'The cultural counterparts to Proto-Indo-European, Proto-Uralic and Proto-Aryan: matching the dispersal and contact patterns in the linguistic and archaeological records', *The Indo-Aryan Controversy: Evidence and inference in Indian history*, ed. E. F. Bryant & L. L. Patton, 107–41. London, Routledge.
- Penhallurick, R. D. 2008 *Tin in Antiquity. Its Mining and Trade throughout the Ancient World with Particular Reference to Cornwall*. Leeds, Maney Publishing.

- Penzl, H. 1988 'The Horn of Gallehus and the subgrouping of the Germanic languages', *Languages and cultures: Studies in honor of Edgar C. Polomé*, ed. M. A. Jazayery & W. Winter, 489–508. Berlin, Walter de Gruyter.
- Pereltsvaig, A. & M. W. Lewis 2015 *The Indo-European Controversy: Facts and Fallacies in Historical Linguistics*. Cambridge, Cambridge University Press.
- Pokorny, J. 2002 *Indogermanisches etymologisches Wörterbuch*. 4th edn. 2 vols. Tübingen, A. Francke.
- Polomé, E. 1994 'Proto-Germanic and the reconstruction of Proto-Indo-European', *NOWELE* 23, 3–40.
- Powell, T. G. E., 1983 *The Celts*. Ancient Peoples and Places. London, Thames & Hudson. First published 1958.
- Prescott, C., A. Sand-Eriksen, & K. I. Austvoll 2018 'The Sea and Bronze Age Transformations' *Water and Power in Past Societies*, ed. E. Holt, 177–98. Albany, State University of New York Press.
- Prósper Pérez, B. M.^a 2002 *Lenguas y religiones prerromanas del occidente de la Península Ibérica*. Salamanca, Ediciones Universidad de Salamanca.
- Prósper Pérez, B. M.^a 2008 'Lusitanian: A Non-Celtic Indo-European Language of Western Hispania', *Celtic and Other Languages in Ancient Europe*, ed. J. L. García Alonso, 53–64. Salamanca, Ediciones Universidad de Salamanca.
- Prósper Pérez, B. M.^a 2016 *The Indo-European Names of Central Hispania: A Study in Continental Celtic and Latin Word Formation*. Innsbrucker Beiträge zur Sprachwissenschaft 152. Innsbruck, Archaeolingua.
- Radivojević, M., B. W. Roberts, J. E. Pernicka, Z. Stos-Gale, M. Martín-Torres, T. Rehren, P. Bray, D. Brandherm, J. Ling, J. Mei, H. Vandkilde, K. Kristiansen, S. Shennan, C. Broodbank, 2018 'The Provenance, Use, and Circulation of Metals in the European Bronze Age: The State of Debate' *Journal of Archaeological Research* 27 (2), 131–85. <https://doi.org/10.1007/s10814-018-9123-9>
- Raulwing, P. 2000 *Horses, Chariots and Indo-Europeans: Foundations and Methods of Chariotry Research from the Viewpoint of Comparative Indo-European Linguistics*, Archaeolinga Series Minor 13. Budapest.
- Raulwing, P. 2009 *The Kikkuli Text. Hittite Training Instructions for Chariot Horses in the Second Half of the 2nd Millennium B.C. and Their Interdisciplinary Context* http://www.lrgaf.org/Peter_Raulwing_The_Kikkuli_Text_MasterFile_Dec_2009.pdf
- Raybould, M. E. & P. Sims-Williams 2007 *The Geography of Celtic Personal Names in the Latin Inscriptions of the Roman Empire*. Aberystwyth, CMCS.
- Reich, D. 2018 *Who We Are and How We Got There*. Oxford, Oxford University Press.
- Renfrew, A. C. 1987 *Archaeology and Language: The Puzzle of Indo-European Origins*. London, Pimlico, 1998. First published, London, Cape.
- Renfrew, A. C. 1990. 'Models of Change in Language and Archaeology', *Transactions of the Philological Society* 87, 103–78.
- Renfrew, A. C. 1999 'Time Depth, Convergence Theory, and Innovation in Proto-Indo-European: "Old Europe" as a PIE Linguistic Area', *Journal of Indo-European Studies* 27, 257–93.
- Renfrew, A. C. 2000 '10,000 or 5000 Years Ago?—Questions of Time Depth', *Time Depth in Historical Linguistics*, 2 vols, ed. C. Renfrew, A. McMahon, L. Trask, vol 2, 413–39. Cambridge, McDonald Institute for Archaeological Research.
- Renfrew, A. C. 2013 'Early Celtic in the West: The Indo-European Context', *Celtic from the West 2: Rethinking the Bronze Age and the Arrival of Indo-European in Atlantic Europe*, Celtic Studies Publications 16, ed. J. T. Koch & B. Cunliffe, 207–217. Oxford, Oxbow Books.
- Reyes, O. 2000 *El conjunto epigráfico de Belorado (Burgos)*. Universidad de Valladolid, Valladolid.
- Ringe, D. 2017 *A linguistic history of English. From Proto-Indo-European to Proto-Germanic*. Oxford, Oxford University Press.
- Ringe, D. 'Annotated list of Celtic loanwords, and possible Celtic loanwords, in Proto-Germanic' (handout) <https://www.ling.upenn.edu/~kroch/courses/lx310/handouts/handouts-09/ringe/celt-loans.pdf> accessed 10 Sept. 2019
- Ringe, D., T. Warnow, A. Taylor, A. Michailov, & L. Levinson 1998 'Computational cladistics and the position of Tocharian', *The Bronze Age and Early Iron Age Peoples of Eastern Central Asia*, ed. V. Mair, vol 1, 391–414. Washington DC, Institute for the Study of Man.
- Ringe, D., T. Warnow & A. Taylor 2002 'Indo-European and Computational Cladistics', *Transactions of the Philological Society* 100 (1), 59–129.
- Ringe, D., & A. Taylor 2014 *The development of Old English*. Oxford, Oxford University Press.
- Rix, H. 2002 *Sabellische Texte: Die Texte des Oskischen, Umbrischen und Südpikenischen*. Heidelberg, Winter.
- Robb, J. 1993 'A Social Prehistory of European Languages', *Antiquity* 67, 747–60.
- Rodrigues, M. de Lurdes 1959–1960 'Inscrições romanas do Museo Machado de Castro', *Humanitas XI e XII da série contínua* (VIII e IX da nova série), 112–32.
- Rodríguez Colmenero, A. 1997 *Aquae Flaviae 2. Fontes epigráficas da Gallaecia meridional interior*. 2nd edn. 1st edn. 1987. Chaves.
- Ruiz-Gálvez, M. 2005 'Representaciones de barcos en el arte rupestre. Piratas y comerciantes en el tránsito de la Edad de Bronce a la Edad del Hierro', *Mayurqa* 30, 307–39.
- Roso de Luna, M. 1904 «Nuevas inscripciones romanas de la región norbense», *Boletín de la Real Academia de la Historia* 44, 113–37.
- Russell, P. 2006 'Irish language', *Celtic Culture: A Historical Encyclopedia*, ed. J. T. Koch, vol 3, 985–93. Santa Barbara, ABC-CLIO.
- Scheungraber, C. 2020 *Altgermanische und altkeltische Theonyme: Die eougraphische Evidenz aus der Kontaktzone*, Innsbrucker Beiträge zur Sprachwissenschaft. Innsbruck.
- Schleicher, A. 1861/1862. *Compendium der vergleichenden Grammatik der indogermanischen Sprachen*. (Kurzer Abriss der indogermanischen Ursprache, des Altindischen, Altiranischen, Altgriechischen, Altitalischen, Altkeltischen, Altslawischen, Litauischen und Altdeutschen.) (2 vols.) Weimar, H. Boehlau; reprinted by Minerva GmbH, Wissenschaftlicher Verlag.
- Schmid, W. P. 1998 'Das baltische Zentrum in der alteuropäischen Hydronymie', *Baltistica* 33(2), 145–53.

- Schmidt, K. H. 1984 'Keltisch und Germanisch', *Das Germanische und die Rekonstruktion der indogermanischen Grundsprache*, ed. J. Untermann & B. Brogyanyi, 113–53. Amsterdam.
- Schmidt, K. H. 1985 'Contribution to the Identification of Lusitanian', *Actas del III Coloquio sobre Lenguas y Culturas Paleohispánicas*, ed. J. de Hoz, 319–41. Salamanca, Universidad de Salamanca.
- Schmidt, K. H. 1986a 'Keltisch-germanische Isoglossen und ihre sprachgeschichtlichen Implikationen', *Germanenprobleme in heutiger Sicht*, ed. H. Beck, 231–47. Berlin.
- Schmidt, K. H. 1986b 'The Celtic Languages in their European Context', *Proc. 7th International Congress of Celtic Studies, Oxford, 10–15 July 1983*, ed. D. Ellis Evans et al., 199–221. Oxford, D. Ellis Evans.
- Schmidt, K. H. 1991 'The Celts and the ethnogenesis of the Germanic people', *Historische Sprachforschung / Historical Linguistics* 104, 129–52.
- Schmidt, K. H. 1996 *Celtic: A Western Indo-European Language?* Innsbruck, Innsbrucker Beiträge zur Sprachwissenschaft.
- Schmidt, K. H. 2012, 'Armenian and Celtic: Towards a New Classification of Early Indo-European Dialects', *Ireland and Armenia: Studies in Language, History and Narrative*, Journal of Indo-European Studies Monograph Series 61, ed. M. Fomin, A. Jivanyan, & S. Mac Mathúna, 51–63. Washington D.C., Institute of the Study of Man.
- Schrader, O. 1883. *Sprachvergleichung und Urgeschichte. Linguistisch-historische Beiträge zur Erforschung des indogermanischen Altertums*. Jena.
- Schrijver, P. 1995 *Studies in British Celtic Historical Phonology*, Leiden Studies in Indo-European 5. Amsterdam, Rodopi.
- Schrijver, P. 1999 'On henbane and early European narcotics', *Zeitschrift für celtische Philologie* 51, 17–45.
- Schrijver, P. 2006 Review of G. Meiser (2003 *Veni Vidi Vici. Die Vorgeschichte der lateinischen Perfektsystems*. München, Beck), *Kratylos* 51, 46–64.
- Schrijver, P. 2014 *Language Contact and the Origins of the Germanic Languages*. New York, Routledge.
- Schrijver, P. 2016 'Sound change: The Italo-Celtic linguistic unity, and the Italian homeland of Celtic', *Celtic from the West 3. Atlantic Europe in the Metal Ages. Questions of shared language*. Celtic Studies Publications 19, ed. J. T. Koch, B. Cunliffe, C. D. Gibson, & K. Cleary, Oxbow Books, Oxford, 489–502.
- Schumacher, S. 2007 'Die Deutschen und die Nachbarstämme: Lexikalische und strukturelle Sprachkontaktphänomene entlang der keltisch-germanischen Übergangszone', *Keltische Forschungen* 2, 167–208.
- Sherratt, S. 2003 'The Mediterranean economy. "Globalisation" at the end of the second millennium BCE', *Symbiosis, symbolism, and the power of the past. Canaan, ancient Israel, and their neighbours from the Late Bronze Age through Roman Palaestina*, ed. W. G. Dever and S. Gitin, 37–62. Winona Lake, Eisenbrauns.
- Sherratt, S. 2009 'The Aegean and the wider world. Some thoughts on a world-system perspective', *Archaic state interaction. The eastern Mediterranean in the Bronze Age*, ed. W. A. Parkinson & M. L. Galaty, 81–107. Santa Fe, School for Advanced Research Press.
- Silva, M., M. Oliveira, D. Vieira, A. Brandão, T. Rito, J. B. Pereira, R. M. Fraser, B. Hudson, F. Gandini, C. Edwards, M. Pala, J. Koch, J. F. Wilson, L. Pereira, M. B. Richards, P. Soares 2017 'A genetic chronology for the Indian Subcontinent points to heavily sex-biased dispersals', *BMC Evolutionary Biology* 17 (88), 1–18. <https://doi.org/10.1186/s12862-017-0936-9>
- Shinde, V., V. M. Narasimhan, N. Rohland, S. Mallick, M. Mah, M. Lipson, N. Nakatsuka, N. Adamski, N. Broomandkhoshbacht, M. Ferry, A. M. Lawson, M. Michel, J. Oppenheimer, K. Stewardson, N. Jadhav, Y. J. Kim, M. Chatterjee, A. Munshi, A. Panyam, P. Waghmare, Y. Yadav, H. Patel, A. Kaushik, K. Thangaraj, M. Meyer, N. Patterson, N. Rai, D. Reich 2019 'An Ancient Harappan Genome Lacks Ancestry from Steppe Pastoralists or Iranian Farmers', *Cell* 179, 729–35 October 17, 2019. <https://doi.org/10.1016/j.cell.2019.08.048>
- Silva, M., M. Pala, C. J. Edwards, J. T. Koch, P. Soares, & M. B. Richards 2019 response to Michael Danino, *Journal of Biosciences* 44, no. 3 (2019), 69: <<https://link.springer.com/article/10.1007%2Fs12038-019-9890-6>>.
- Standish, C. D. 2012 *The source of Irish Chalcolithic and Bronze Age gold: a lead isotope and major element provenance study*. Unpublished PhD thesis. University of Bristol, Bristol.
- Standish, C. D., B. Dhuime, C. J. Hawkesworth & A. W. G. Pike 2015 'A Non-local Source of Irish Chalcolithic and Early Bronze Age Gold', *Proceedings of the Prehistoric Society* 81, 149–77.
- Stang, C. 1972 *Lexikalische Sonderübereinstimmungen zwischen dem Slavischen, Baltischen und Germanischen*. Oslo-Bergen-Tromsø, Universitetsforlaget.
- Stifter, D. 'The Proto-Germanic shift *ā > *ō and early Germanic linguistic contacts' 2009 *Historische Sprachforschung* 122, 268–83.
- Sturluson, Snorri (J. L. Byock, trans.) 2005 *The Prose Edda*. London, Penguin.
- Sturtevant, E. H. (with E. Adelaide Hahn) 1951 *Comparative Grammar of the Hittite Language*. Rev. ed. New Haven, Yale University Press. First edition: 1933.
- Szecsényi-Nagy, A., C. Roth, G. Brandt, C. Rihuete-Herrada, C. Tejedor-Rodríguez, P. Held, Í. García-Martínez-de-Lagrán, H. r Arcusa Magallón, S. Zesch, C. Knipper, E. Bánffy, S. Friederich, H. Meller, P. Bueno Ramírez, R. Barroso Bermejo, R. de Balbín Behrmann, A. M. Herrero-Corral, R. Flores Fernández, C. Alonso Fernández, J. Jiménez Echevarria, L. Rindlisbacher, C. Oliart, Ma-I. Fregeiro, I. Soriano, O. Vicente, R. Micó, V. Lull, J. Soler Díaz, J. A. López Padilla, C. Roca de Togores Muñoz, M. S. Hernández Pérez, F. J. Jover Maestre, J. Lomba Maurandi, A. Avilés Fernández, K. T. Lillios, A. M. Silva, M. Magalhães Ramalho, L. M. Oosterbeek, C. Cunha, A. J. Waterman, J. R. Buxó, A. Martínez, J. Ponce Martínez, M. Hunt Ortiz, J. C. Mejías-García, J. C. Pecero Espín, R. Cruz-Auñón Briones, T. Tomé, E. Carmona Ballesterio, J. L. Cardoso, A. C. Araújo, C. L. von Lettow-Vorbeck, C. Blasco Bosqued, P. Ríos Mendoza, A. Pujante, J. I. Royo-Guillén, M. A. Esquembre Beviá, V. M. Dos Santos Goncalves, R. Parreira, E. Morán Hernández, E. Méndez Izquierdo, J. Vega y Miguel, R. Menduiña García, V. Martínez Calvo, O. López Jiménez, J. Krause, S. L. Pichler, R. Garrido-Pena, M. Kunst, R. Risch, M. A. Rojo-Guerra, W. Haak, & K. W. Alt 2017 'The maternal

- genetic make-up of the Iberian Peninsula between the Neolithic and the Early Bronze Age', *Scientific Reports* 7(1), 15644. <https://doi.org/10.1038/s41598-017-15480-9>
- Tacitus. Trans. M. Hutton & W. Peterson. Revised by R. M. Ogilvie, E. H. Warmington, & M. Winterbottom 1914 *Agricola. Germania. Dialogue on Oratory*. Loeb Classical Library 35. Cambridge, MA, Harvard University Press.
- Tacitus. Trans. H. Mattingly. Revised by S. A. Handford. 1948 *The Agricola and the Germania*. London, Penguin.
- Talbert, R. J. A., (ed.) 2000 *Barrington Atlas of the Greek and Roman World*. Princeton, Princeton University Press.
- Thier, K. 2011 'Language and Technology: Some Examples from Seafaring (Germanic and Celtic)', *Transactions of the Philological Society* 109, 186–199.
- Thomason, S. G. & T. Kaufman 1988 *Language contact, creolization, and genetic linguistics*. Berkeley, Los Angeles, & London, University of California Press.
- Timberlake, S. 2016 'Copper mining, Prospection, and the Beaker Phenomenon in Wales—the significance of the Banc Tynddol gold disc', *Celtic from the West 3. Atlantic Europe in the Metal Ages. Questions of shared language*. Celtic Studies Publications 19, ed. J. T. Koch, B. Cunliffe, C. D. Gibson & K. Cleary, 111–38. Oxford, Oxbow Books.
- Toner, G. 2000 'Identifying Ptolemy's Irish Places and Tribes', *Ptolemy: Towards a Linguistic Atlas of the Earliest Celtic Place-names of Europe*, ed. D. N. Parsons & P. Sims-Williams, 73–82. Aberystwyth, CMCS.
- Trask, R. L. 2008 *Etymological Dictionary of Basque*. Edited for web publication by Max W. Wheeler. <http://www.sussex.ac.uk>.
- Uckelmann, M. 2012 *Die Schilde der Bronzezeit in Nord-, West- und Zentraleuropa*. Prähistorische Bronzefunde III, 4. Stuttgart, Franz Steiner Verlag.
- Uckelmann, M. 2014 'A Bronze Age ornament network? Tracing the Herzsprung symbol across Europe', *Knowledge Networks and Craft Traditions in the Ancient World: Material Crossovers*, ed. K. Rebay-Salisbury, A. Brysbaert, & L. Fox, 182–98. Abingdon/ New York, Routledge.
- Udolph, J. 2017 'Heimat und Ausbreitung indogermanischer Stämme im Lichte der Namenforschung', *Acta Linguistica Lithuanica* 76, 173–249.
- Untermann, J. with D. S. Wodtko 1997 *Monumenta Linguarum Hispanicarum. Band IV. Die tartessischen, keltiberischen und lusitanischen Inschriften*. Wiesbaden, Reichert.
- Untermann, J. 2000 *Wörterbuch des Oskisch-Umbrischen*. Heidelberg, Winter.
- Valdiosera, C., T. Günther, J. C. Vera-Rodríguez, I. Ureña, E. Iriarte, R. Rodríguez-Varela, L. G. Simões, R. M. Martínez-Sánchez, E. M. Svensson, H. Malmström, L. Rodríguez, J.-M.^a Bermúdez de Castro, E. Carbonell, A. Alday, J. A. Hernández Vera, A. Götherström, J.-M. Carretero, J. L. Arsuaga, C. I. Smith, M. Jakobsson 2018 'Four millennia of Iberian biomolecular prehistory illustrate the impact of prehistoric migrations at the far end of Eurasia', *PNAS* 115 (13) 3428–33, DOI: 10.1073/pnas.1717762115.
- Vallejo Ruiz, J. M.^a 2005 *Antroponimia indígena de la Lusitania romana*. Vitoria/Gasteiz, Anejos de Veleia, Series Minor 23.
- Van Arsdell, R. D. 1989 *Celtic Coinage of Britain*. London, Spink.
- van Coetsem, F. 1994 *The vocalism of the Germanic parent language*. Winter, Heidelberg.
- van de Noort, R. 2006 'Argonauts of the North Sea. A Social Maritime Archaeology for the 2nd Millennium BC', *Proceedings of the Prehistoric Society* 72, 267–87.
- van de Noort, R. 2011 *North Sea archaeologies. A maritime biography, 10,000 BC to AD 1500*. Oxford, Oxford University Press.
- van der Heijden, V. F. 2018 'The shared lexicon of Baltic, Slavic and Germanic', Leiden MA thesis.
- Van der Linden, M. 2007 'What linked the Bell Beakers in third millennium BC Europe?', *Antiquity* 81 (312), 343–52.
- Vandkilde, H. 2013 'Bronze Age voyaging and cosmologies in the making. The helmets from Viksø revisited', *Counterpoint. Essays in archaeology and heritage studies in honour of Professor Kristian Kristiansen*, British Archaeological Reports International Series 2508, ed. S. Bergerbrant & S. Sabatini, 165–77. Oxford, Archaeopress.
- Vandkilde, H. 2014 'Breakthrough of the Nordic Bronze Age. Transcultural Warriorhood and a Carpathian Crossroad in the Sixteenth Century BC', *European Journal of Archaeology* 17 (4), 602–33.
- Vandkilde, H. 2015 'Conflict and War. Archaeology of Weapons and Artifacts', *The International Encyclopedia of Social and Behavioral Sciences* Vol. 4, ed. J. D. Wright, 607–13. Oxford, Elsevier.
- Vandkilde, H. 2016 'Bronzization. The Bronze Age as Pre-Modern Globalization', *Præhistorische Zeitschrift* 91 (1), 103–23.
- Vandkilde, H., T. Otton, & H. Thrane (eds) 2006 *Warfare and Society. Archaeological and Social Anthropological Perspectives*. Aarhus, Aarhus University Press.
- Vasconcellos, J. Leite 1905 *Religiões da Lusitania II*. Lisboa.
- Vasconcellos, J. Leite 1913 *Religiões da Lusitania III*. Lisboa.
- Vennemann, T. 1994 'Linguistic reconstruction in the context of European prehistory', *Transactions of the Philological Society* 92, 215–84.
- Villar Liébana, F., & B. M. a Prósper 2005 *Vascos, celtas e indoeuropeos. Genes y Lenguas*. Salamanca, Ediciones Universidad de Salamanca.
- Wallace, R. 2008 'Venetic', *The Ancient Languages of Europe*, ed. R. D. Woodard, 124–40. Cambridge, Cambridge University Press.
- Watkins, C. W. 1966 'Italo-Celtic revisited', *Ancient Indo-European dialects*, ed. H. Birnbaum & J. Puhvel, 29–50. Berkeley & Los Angeles, California University Press.
- Watkins, C. W. 1987 'Questions linguistiques de poétique, de mythologie et de prédroit en indo-européen', *Lalies* 5, 3–29.
- Watkins, C. W. 1995 *How to Kill a Dragon. Aspects of Indo-European Poetics*. Oxford and New York, Oxford University Press.
- Watkins, C. W. 1997 'The Indo-European Background of Vedic Poetics', *Inside the Texts, Beyond the Texts*, ed. M. Witzel & M. Greene, 245–56. Cambridge, Harvard University Press.

- Weiss, M. 2012 'Italo-Celtica: linguistic and cultural points of contact between Italic and Celtic', *Proceedings of the 23rd Annual UCLA Indo-European Conference*, ed. S. W. Jamison, H. C. Melchert, & B. Vine, 151–73. Brmen, Hempen.
- Welinder, S. 1978 'The Acculturation of the Pitted Ware Culture in Eastern Sweden', *Meddelande från Lunds Universitets Historiska Museum* 1977–78, 98–110.
- Wicker, N. L. & H. Williams 2012 'Bracteates and Runes' (Review article of *Die Goldbrakteaten der Völkerwanderungszeit — Auswertung und Neufunde*, Ergänzungsbände zum Reallexikon der Germanischen Altertumskunde 40, ed. W. Heizmann & M. Axboe. Berlin & New York, Walter de Gruyter, 2011), *Futharl: International Journal of Runic Studies* 3, 151–213.
- Wickler, S. J. 2019 'Early Boats in Scandinavia. New Evidence from Early Iron Age Bog Finds in Arctic Norway', *Journal of Maritime Archaeology* 14 (2), 183–204. doi: 10.1007/s11457-019-09232-1
- Williams, R. A., & C. Le Carlier de Veslud 2019 'Boom and bust in Bronze Age Britain. Major copper production from the Great Orme mine and European trade, c. 1600–1400 BC', *Antiquity* 93 (371), 1178–96. <https://doi.org/10.15184/aqy.2019.130>
- Witzel, M. 2003 *Linguistic Evidence for Cultural Exchange in Prehistoric Western Central Asia*, Sino-Platonic Papers 129. Philadelphia, Department of Asian and Middle Eastern Languages, University of Pennsylvania.
- Witzel, M. 2019 'Early "Aryans" and their neighbors outside and inside India', *Journal of Biosciences* 44, 58.
- Wodtko, D. S. 2000 *Monumenta Linguarum Hispanicarum 5.1, Wörterbuch der keltiberischen Inschriften*, ed. J. Untermann. Wiesbaden, Ludwig Reichert.
- Wodtko, D. S. 2003 *An Outline of Celtiberian Grammar*, Freiburg. <http://www.freidok.uni-freiburg.de/volltexte/747/>
- Wodtko, D. S. 2009 'Language Contact in Lusitania', *International Journal of Diachronic Linguistics and Linguistic Reconstruction* 6, 2009, 1–48.
- Wodtko, D. S. 2010 'The Problem of Lusitanian', *Celtic from the West. Alternative Perspectives from Archaeology, Genetics, Language, and Literature*, ed. B. Cunliffe & J. T. Koch, 335–67. Oxford, Oxbow Books.
- Zimmer, S. 2004 'Review of Das, R. P., & G. Meiser (eds) *Geregeltes Ungestüm: Bruderschaften und Jugendbünde bei indogermanischen Völkern*. Hempen, Bremen', *Journal of Indo-European Studies* 32, 207–16.

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-Baltic
 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
 PrelC = Pre-Italo-Celtic
 PS = Proto-Slavic
 ScG = Scottish Gaelic

**ā* > **ō* in Germanic 40
 ***aban**- CG 148
 ***abanko**- PC 148
 Abashevo culture 49–52
 accent shift, Germanic 40
 ADDER, SNAKE, VIPER 150
 advergence 22
 ***a/el(i)sno**- PBS 153
 AEMA Project 82
Aesir 139
 Afanasievo culture 25, 30, 51, 79
 ***āg**- ~ ***ag**- FEAR CG 69
 ***agan** ~ ***agaz** ~ ***agiz**- ~ ***ōgana**- PG 92
 ***agh**- ~ ***āgh**- CG 92
 ***aghlo**- WOUND, INJURE CG 69, 98
 ***agipō**- PG 134
 ***agjō**- PG 102
 ***agla**- ~ ***aglijana** PG 98
 ***aglo**- ‘wound, affliction’ PC 98
 ***āg-V**- PC 92
 ***ahsula**- PG 12, 105
 ***ah*ō**- ‘river’ PG 87
 ***aipaz** PG 137
 ***ak**- ~ ***āk**- ICG 102
 ***ākri**- PI 103
 ***aks(i)l**- ~ ***aksj**- AXLE CG 69, 105
 ***ak*ā**- ICG 87
 ***ak*ā**- PC 87
 ***akwā**- PI 87
 ***akyā**- ~ ***aku**- ~ ***āk(s)**- SHARP EDGE
 ICG 70
 ***akyā**- ~ ***aku**- PI 103
 ***Ala-fader** PG 139
 ***albut**- PG 154
 ALDER ***al(i)sno**- ANW 73, 153
 ***aldra**- PG 114
Alfödr ON 139
 ***al(i)sno**- ANW 153
 ***aliso**-, ***alisano**- PC 153
 ***aliz**- PG 153
 ***alja-markiz** PG 112
 ***alla**- ‘all’ PG 139
 ALL-FATHER, GREAT-FATHER (DIVINE
 EPITHET) ***Olo-patēr** CG 72, 76, 139
 ***almaz** ~ ***elmaz** PG 154
 ***alsno**- PI 153
alteuropäisch river-names 53, 74

***altrawo**- ‘nurturer, person acting as a
 parent’ PC 114
 ***altro**- CG 114
 ***alyo-morgi**- ~ ***mrogi**- FOREIGNER CG 69,
 112
 ***alyo-mrogi**- PC 112
 ***ambahta**- ‘servant, representative’ PG 80,
 114
 ***ambaxto** ~ ***ambaxtā**- ‘representative,
 vassal’ PC 47, 80, 114
AMBATVS, AMBATA HC names 115–17
 ***amben**- PC 134
 ***amrīm**- PC 108
 ***amslā** PG 150
 Anatolian archaisms 28
 Anatolian branch 15
 Ancient Celtic languages 20
 Andronovo horizon 52
 ANGELICA 153
 ***ang*en**- CGBS 134
 ***ank*an**- PG 134
 ***an-teki**- PC 118
 ***apan**- PG 148
 ***arbija** PG 113
 ARABLE LAND, PLOUGHED FIELD 66, 134
 ***arbjān**- ‘heir’ PG 112
 archaeogenetics revolution 9
ArcoBriga HC 100
 ***arh*ō**- ‘arrow’ PG 99
 ***ark*o**- ‘bow (and arrow)’ PC 99
 ***ark*o**- BOW AND ARROW ICG 70, 99
 Armi, ancient country in Near East 28
 ARMY, TRIBE 103
ARQVO- ~ **ARCO**- ~ **ARQVIO**- names PH
 99–101
 ***arut**- > ***rutu**- ‘ORE’ ICG 48
 ***arut**- PG 110
 Atlantic Bronze Age 45, 80
 ***aura**- PG 148
 AXE 89
 AXLE 12, 105
 ***axsilā** PC 12, 105

Bactria–Margiana Archaeological Complex
 (BMAC) 52
 BADGER ***takso**- CG 73, 150
 ***badwā** ‘battle’ PG 90

***bāg**- PC 91
 ***bairo**- or ***baiza**- PG 147
 ***balgiz** PG 131
 Baltic amber 10, 68
 Balto-Slavic unified language 30
 Balto-Slavic/Indo-Iranian continuum 15, 37
 ***banjō**- ‘wound’ PG 98
 ***bardos** ‘poet’ PC 34
 ***bariz** ~ ***barza**- ‘barley’ PG 136
 ***basyo**- ? PC 147
 BATTLE 55, 90
 Battle Axe Culture 21
 BATTLE, FIGHTING, VIOLENCE 90–91
 BATTLE-WOLF > HERO ***katu-wļk*o**- ~ ***katu**-
 wolk*o- CG 72, 91
 ***bautan** PG 103
 Beaker genomic evidence 14
 Beaker period in Ireland 18
 Beaker phenomenon 17, 30, 48–49, 79, 81,
 124
 Beakerization 49
 BEAN ***bhabh**- Germanic/Italic/Balto-Slavic 33
 BEARD ***bhardhā**- Germanic/Italic/Balto-
 Slavic 33
 BEARD 145
 BEE ***bhei**- ANW 66, 73, 153
 ***bēg**- PG 91
 ***belisā** PC 154
 ***belunōn**- ~ ***bulmōn**- PG 154
 BENEFIT, PRIZE (?) 109
 ***bind**- ~ ***bñd**- CG 156
 ***bind**- ~ ***bñd**- POINT CG 69
 ***bind-nā**- ~ ***band-no**- PC 156
 ***berga**- PG 127
 ***bermon**- PG 157
 ***berwāti** PC 157
 BE SILENT ***takē**- < **thk-eH*- Italo-Germanic
 32
 BE STILL, BE QUIET 138
 ***beyatlo**- ~ ***beyali**- PC 89
 ***bhar**- ANW 136
 ***bhasyo**- CG 147
vbheg- ‘break’ PIE 91
 ***bhēgh**- ~ ***bhōgh**- BATTLE, FIGHTING,
 VIOLENCE CG 69, 91
 ***bhéHlus**, ***bhHluós** ICG 156
 ***bhei**- ~ ***bhi**- ~ ***bhoi**- ANW 153
vbheih- ‘strike’ PIE 89

***bhei(a)tlo-** ~ ***bhei(a)l-** AXE CG 69, 89
*v***bhel-** ‘henbane’ NW 154
*v***bhelgh-** PIE 131
 ***bhélōn**, ***bhlínós** ANW 154
*v***bhergh-** PIE 127
 ***bhermVn-** ICG 157
 ***bheud-** STRIKE (IN BATTLE) ICG 70, 103
 ***bhlag-** (?) STRIKE ANW 72, 104
 ***bhled-** ~ ***bhleid-** ~ ***bhlēd-** ANW 139
*v***bhleH₃-** PIE 151
 ***bhlō-** ICG 151
 ***bhodhwo-** BATTLE, FIGHTING, VIOLENCE
 CG 56, 69, 90
 ***bhoikos** PIC 153
 ***bholgh-** LEATHER BAG, BELLOWES CG 70, 131
 ***bhoudi-** ~ ***bhudi-** BOOTY, PROFIT CG 69,
 108
 ***bhrag-** ~ ***bhrēg-** ICG 152
 ***bhrest-** BATTLE, FIGHTING, VIOLENCE CG
 69, 91
*v***bhreu-** ‘boil’ PIE 157
 ***bhreus-** ~ ***bhrus-** CGBS 147
 ***bhreus-** WOUND, INJURE CG 69, 98
 ***bhr̥gh-** ‘height, hill’ PIE 12
 ***bhrgh-** FORTIFIED SETTLEMENT, HILLFORT
 CG 70, 127
*b***hr̥gh-** PIE 55
 ***Bhrghntes** HIGH ONES CG 70, 79, 129
 ***bhrozdo-** ~ ***bhr̥zdo-** GOAD CG 69, 93
 ***bhrusn-** CG 145
 ***bhruto-** ~ ***bhrutu-** CG 154
 ***bibud-** ‘guilty’ PC 103
 bi-horned helmets 10
 ***bikela-** PS 153
 ***bikos** PC 153
 ***biōn-** PG 153
 ***bisti-** PC 146
 ***bit-** PB 153
 ***bipla-** ‘axe’ PG 89
 BLACKBIRD ***mesl-** ~ ***amsl-** ICG 73, 150
 ***blagā** PC 104
 BLAME 111
 ***blātu-** PC 151
 ***blawo-** PC 156
 BLEAT (?) ***bhled-** ~ ***bhlēd-** ANW 73, 139
 ***bled-** PC 139
 ***blējan-** ~ ***blēatjan-** PG 139
 ***blēwa-** PG 156

***bliwa-** ‘lead’ PG 110
 ***blōan-** PG 151
 ***blōmō-** PG 151
 BLOOM, FLOURISH, FLOWER 151
 BLOW, BREATHE 151
 BLUISH, PLUM-COLOURED 154
 BOAR 147
 BOATLOAD ***pluk-**, ***pulk-** (?) CG 83
 ***bodwo-** PC 90
 Boii 19–20, 97
 BOILED > PASSIONATE 154
Boiohaemum ‘Bohemia, i.e. ‘homeland of the
 Boii’ 19, 35, 97, 121
Boiorix 19
 ***bolgo-** PC 131
 ***borman-** PC 157
 ***boudāko-** ~ ***boudākā-** PC 108
 ***boudi-** PC 108
 BOW AND ARROW ***ark^wo-** ICG 73–4, 99
 ***brāk-** Celtic 160
 ***brazda-** PG 93
 BREAK ***bhr̥g-n-** Italo-Germanic 33
 breakup of Italo-Celtic 66
 BREAST 66, 145
 BREAST, CHEST, ABDOMEN 147
 ***bregno-/ā-** PC 152
 ***brēkjan-** PG 152
 ***brestā**, ***brestiti** PC 91
 ***brestan-** ‘to break, burst’ PG 91
 ***breusta-** PG 147
 ***brig-**, place-names with 127–9
 ***brigā** ~ ***bri̯xs** ‘hill, hillfort’ PC 12, 127, 129
 ***Brigantes** ~ ***Brigantioi** PC 79, 129
Brigit ‘dea poetarum’ MI 129
 ***brōkiz** PG 160
 ***bro̯pom** ~ ***bru̯pa** PG 154
 ***brous-** ~ ***brus-** PC 147
 BROWN, DARK 151
 ***brozdo-** PC 93
 ***brunjōn-** PG 145
 ***brūs-** PG 98
 ***brusnā** ~ ***brusnyo-** PC 145
 ***brusyo-** ‘injures, breaks’ PC 98
 ***brutu-** PC 154
 ***bruзда-** PG 93
 BUD ***bhr̥d-n-** Italo-Germanic 33
 ***budman-** ~ ***buttman-** PG 155
 ***burg-** ‘hillfort’ plural ***burgiz** PG 127

Burgundians, ***Burgunpaz** PG 79, 129
 ***buti-** PG 108
 BUTTER 66, 134
 BUTTOCKS, THIGH, HIP 146

Cader Idris 127
 CALL, SHOUT, SPEAK OUT 139
 cannabis 39
 CAT 159
Cath Maige Tuired 140
 Caucasian Hunter-Gatherer (CHG) ancestry 21
 Celtiberian language 45, 75
 CELTIVS PH names 95
 Celto-Germanic/Balto-Slavic (CGBS)
 vocabulary 9
 Central IE 24
centum languages 30
 Ceredigion copper mines 10
 CG words absent from Italic 67
 CG+ vocabulary 9
 CGBS words 66
 chariot 52, 77
 chariot package 10, 68
 chiefdoms of the Bronze Age 77
 CHOOSE, TRY 119
 Christianization 76
 Cimbri 19–20, 34, 94, 160
 Cimbric language 19
 Cliffs End site, Kent 110
 CLOVER ***smeryon-** ~ ***semar-** CG 73, 148
 CLUB, CUDGEL, STAFF, STICK ***lurg-** CG 73, 91
 COAL, CHARCOAL 108
 COEMA ~ QVEMA PH names 122–3
 COLOUR NAME (NOT BLACK, WHITE, OR
 RED) 156
 contact with non-Indo-European languages 21
 Continental Celtic languages 75
 convergence of contiguous dialects 26
 Corded Ware ceramic traditions 51
 Corded Ware Complex/Culture(s) (CWC) 30,
 37, 79, 81
 Core Indo-European 24
 Cornish tin 68
 CORPSE, DEAD BODY ***kol-** ~ ***kl-** CG 92
 CORRECT, RIGHT, JUST 111
 COUNTING, NUMBER 108
cú glas ‘wolf’ OI 97

CUDGEL 74
 CURLY HAIR 147
 CUTTING WEAPON AND/OR TOOL (?) 92
 CWC-Beaker contacts 49
 CWC-derived cultures 52

 Dagdae OI 139
 Danube Roman frontier 35
 DANUBE, UPPER DANUBE 160
 ***da(p)na** PC 120
 ***dalka-** PG 126
 ***Dānowyos** PC 160
 ***dānu-** PC 120
 ***dapno-** ~ **dapnā-** ICG 119
 ***dapno-** ~ **dapnā-** SACRIFICE, OFFERING ICG
 70
 ***dapno-** PI 119
 DARK 148, 155
 dating by linguistic criteria 54
 ***dawnā** PC 119
 DEATH ***sterbh-** CGBS 145
 DEBT, OBLIGATION 121
 **deiws* ‘god (of the shining sky)’ PIE 34
*v***delg-** ‘hold’ PC 121
 ***delgo-** ‘hold, contain’ PC 126
 ***delgos** PC 126
 Delphi, Celtic attack on 97–8
 ***dem-** PC 148
 ***dergo-** PC 155
 ***derka-** PG 155
 ***derwo-** ‘oak, certain’ PC 123
 ***deupa-** PG 155
 DEVICE THAT LEANS AGAINST SOMETHING
 UPRIGHT, LEANTO 133
 **dhéghm̥*, genitive **dhghmós* ‘earth, land’
 PIE 124
 ***dhelgo-** ~ ***dholgo-** DRESS PIN, BROOCH CG
 69, 126
 ***dhem(H)-** CG 148
 ***dhergh-** CGBS 153
 ***dhergo-** CG 155
 ***dheubhnó-** ~ ***dhubhnó-** ~ ***dhubhni-** CG 155
 ***dheus-** ICG 151
 ***dhgh(e)m-** ~ ***dhghom-** ANW 123
 ***dhlg-** ~ ***dhlg̥h-** CGBS 121
 ***dthroughós** ‘comrade, companion’ NW 96
 ***dthroughós** CG 142

- *dhru(n)gh- CG 95
 *dhru(n)gh- TROOP CG 69
 *dhrub- ~ *dhrüb- CG 84
 *dhubhu- CGBS 155
 *dhūnos FORTIFIED SETTLEMENT, HILLFORT CG 70
 *dhwes- CGBS 144
 dialects and languages 22–3
 DIGIT, FINGER, TOE, BRANCH 146
 *dimma- PG 148
 DISCUSSION 136
 *dlig-e/o- PC 121
 *doklo- CG 146
 *doklo- PC 146
 Dôn, Children of 124
 *Dōnawjaz PG 160
vdōru ‘tree, wood, oak’ PIE 87, 123
 DOUGH *tais- CGBS 66
 *drauga- PG 142
 Dravidian 22
 Dravidian speakers 52
 *dreg- PC 154
 DREGS *dhraghi- Germanic/Italic/Balto-Slavic 33
 DRESS PIN, BROOCH CG 67
 *DrewentiH₂- ‘Running [river]’ PIE 53
 *drewu- ~ *derwo- CGBS 123
 DROPLET, DRIP 84
 *drougo- PC 142
 *drouso- ~ *drusd- CG 119
 *druhtiz ‘warband’ PG 95
 *druk- CG 87
 *drungos PC 96
 *drup(p)an- PG 84
 *drūto- CG 113
 *drūto- PC 113
 *dru-wides ‘druids’ PC 123
 *druyto- PC 87
 *drūytu- PC 84
 *druzd- ~ *drust- PC 119
 *dubni- ~ *dubno- PC 155
 *dulga- ‘debt’ PG 121
 *dunno- ~ *dunnā- PC 151
 -*dūno*- place-names 130–31
 *dūnos ~ *dūnom PC 47, 130
 *dūnos CG 130
 *duska- PG 151
 DWARFLIKE CREATURE, WATER CREATURE 148
- *dwas- PG 144
 *dwosyos PC 144
- *ē in Germanic 40
 *ē > *ī in Celtic 37
 early loanwords between related dialects 14
 EARTH, CLAY, MUD 148
 Eastern European Hunter-Gatherer (EHG)
 ancestry 21, 28–9
 *eh*a-rīdaz PG 105
 *ek*o-rēdo- PC 105
 *ek*o-reidho- HORSE+RIDE CG 69
 *el- ‘swan’ ANW 154
 *elhja- ‘evil’ PG 140
 *elko- ~ *elkā- ~ *elkyo- ~ *olko- ~ *olkā- CG 140
 *elko- ~ *elkā- ~ *olko- ~ *olkā- PC 140
 ELM *elimo- ~ *olmo- ~ *limo- ~ *leimo- ANW 73, 154
 *elōr SWAN PI 154
 *elV- SWAN PC 154
 *ēma- PG 70, 109
 *ēmo- ~ *omyom < *omó- RED METAL CG 70, 109
 *ēmo- ~ *omyom CG 70, 109
 ENCLOSED FIELD *kaghyo- CG 73, 126
 ENCLOSURE *katr- ~ *kētr- CG 73, 127
 ENCLOSURE, ENCLOSED SETTLEMENT, HILLFORT *dūno- CG 47, 130
Eochu Ollathair OI 139
 *ešeti- PBS? 134
 European Middle Neolithic (EMN) ancestry 51
 EVIL 140
 EXTREMITIES OF A LIVING THING 148
- *fāðer PG 49
 *faiha-, *faiga- PG 93
 *faigō- PG 134
 FAMOUS, GREAT 137
 *fanja- PG 88
 *fars, *faros PI 136
 *faþma- PG 133
 Fatyanovo culture 51
 FEAR 92
 *fel-e/ik- PI 154
 FELLOW TRAVELLER, COMRADE, PARTNER 92
- FENCE 66
 *fer(a)mentom PI 157
 *fergunja- PG 143
 *ferh*a- PG 152
 FEVER 144
 FIGHTING 55
 *fin(n)ōn- PG 148
 first-language transmission 14
 *fisan- PG 151
 FISH *peisko- ~ *pisko- ICG 87
 *fiskaz PG 87
 *flagro- PI 104
 *flārūz > *flōruz PG 127
 flange-hilted swords 77
 *flauja- PG 83
 *flāwo- PI 156
 FLESH, MEAT *kar- Italo-Germanic 33
 *flē(ye/o-) PI 139
 *flītana- PG 95
 FLOOR *plōro- CG 127
 *flōs- PI 151
 *flukka(n)- ‘flock’ PG 83–4
 FOAM, FROTH 157
 FOE 93
 *foikos PI 153
 FOREIGNER *alyo-morgi- ~ *alyo-mrogi- CG 72, 112
 FORK *ghabhlo- ~ *ghabhlā- CG 73, 127
 FORTIFIED SETTLEMENT, HILLFORT 77, 127
 *fragro- PI 152
 FRAMEWORK, FENCE, WICKER STRUCTURE 159
 FREE 112
 FREEZE, FROST 151
 FRESH WATER 85, 87
 *freusan- ~ *fraus- ~ *fruz- PG 151
 FRIEND, RELATIVE 112
 *frija- ‘free’ PG 112
 *frijand- ~ *frijōnd- PG 118
 Fröslunda Herzprung shields 11
 *fruto- PI 154
 *fulka ‘troop, tribe’ PG 84
 *furh- PG 133
 FURROW 133
 *fuswo/ā- ~ *fusko/ā- PI 151
 *fūt- PI 103
- *gabalō- PG 127
 *gablo- ~ *gablā- PC 127
Gaesorix 19, 94
 *gaisom ‘spear’ PC 94
 *gaistaz PG 142
 *Gaiza-rik- PG 94
 *gaizaz ‘spear, tip’ PG 94
 *gal- ANW 139
 Gallo-Brythonic-Goidelic 45
 Gallo-Insular proto-language 45
 *galsa- PBS 139
 *galwo- ‘call’ PC 139
 *gan(dh)-no- CG 133
 *gandno- PC 133
 *ga-sinþja- ‘retinue’ PG 92
 *gastiz PG 123
 Gaulish language 45, 75
 *gazdaz ‘goad’ PG 101
 *gazdi ‘rod’ PG 101
 *gazdo- ~ *gazdā-, *gasto- ~ *gastā- PC 101
 Germanic, primary dialect division 37
 Germanic/Balto-Slavic/Indo-Iranian continuum 15, 27, 49–50
 *gdonos ‘of the earth’ PC 124
 *gdonyos ‘human being’ PC 123–4
 *gelwa- ~ *gulu- ANW 158
 *gelwo- PC 158
 *gēslo- ‘hostage’ PC 112
 *ghabhlo- ~ *ghabhlā- CG 127
 *ghabhlo- ~ *ghabhlā- FORK CG 70
 *ghaiso- ‘spear’ CG 12
 *ghaisó- SPEAR CG 69, 94
 *Ghaiso-rīg- < *-rēg- CG 94
 *ghazdhos- ~ *ghazdhā- GOAD, POKER ICG 70, 101
 *gheislo- HOSTAGE CG 67, 69, 112
Vghel- ‘shine’ PIE 149
VghelH₃- PIE 158
 *ghleiwo- CG 149
 *ghoistos CG 142
 *ghostis GUEST ANW 34, 70, 123
 *ghren- ~ *ghran- CG 145
Vghrendh- ‘grind’ PIE 86
 *ghreuno- ~ *ghreuwā- CG 86
 *ginso- PC 149
 *gisla- PG 112
 *gisnó- CG 149
 *glāuo- PC 108

- *gleina-** ~ ***glina-** CGBS 135
***glēwo-/ā-** ‘clear liquid’ PC 149
***glina-** PC 135
***gliwa-** PG 149
 GOAD ***bhrozdo-** ~ ***bhrzdo-** CG 74, 93
 GOAD, POKER ***ghazdho-** ~ ***ghazdhā-** ICG 73, 101
 Goidelic/Gallo-Brythonic 80
***goisto-** PC 142
 GOOD, DESIRABLE 155
***gostis** PC 123
 Gothic language 75
 Gothic Bible 35
***goulo-** PC 108
 GRAIN ***bhar-** ANW 73, 136
***grando-** ~ ***grendo-** ‘beard’ PC 145
***granō-** PG 145
***grāwā** ‘gravel, pebbles’ PC 86
 GREASE, FAT, MARROW, ANOINT 148
 Great Orme copper mine 10
 GREAT WATERWAY, RHINE 84
 GREAT/FAMOUS IN BATTLE ***Katu-mōros** ~ ***Katu-mēros** CG 72, 93
 GREAT/FAMOUS IN VICTORY ***Seghi-mēros** ~ ***Segho-mōros** CG 72, 93
 Greater Bronze Age 9
 Greco-Armenian 24, 50
***greuna-** ~ ***gruwwa(n)-** PG 86
 GREY 155
 Grimm 1 sound change 36, 37, 39–44, 54, 65, 76, 80, 156, 159–60
 Grimm 2 sound change 37, 38, 43–4, 47, 65, 76, 156, 159–60
 Grimm’s Law 38–9, 146
 GUEST ***ghostis** ANW 34, 70, 123
***griyano-** ‘sea gravel, sand’ PC 86
***gulo-** ~ ***geulo-** ~ ***glōwo-** CG 108
***gumō** ‘human being’ PG 123
***gustu-** ICG 119
***gustu-** PC 119
***gustu-** Pl 119
***g^w > *b** Pre-Celtic 47
***g^welti-** PC 149
***g^weni-** ‘wound’ PC 98
***g^whelti-** CG 149
***g^when-** ~ ***g^whon-** WOUND, INJURE CG 69, 98
vg^when- ‘kill’ PIE 98
***g^wistis** CG 146
- *habanō-** ‘harbour, shelter for boats’ PG 85
**H_oeyes-* or **ayes* ‘copper, metal’ PIE 18
***hafta-** PG 119
***hagjō-** PG 126
***hagran-** PG 132
***haiha-** PG 140
***hail-** PG 140
***hailaz** PG 140
***haima-** < ***koimo-** ‘HOMESTEAD’ PG 35, 121
 HAIR, STRAND OF HAIR 146
***hairaz** PG 155
***haiṣi-** PG 149
 Hallstatt Iron Age 17
***halsaz** PG 147
***haltā-** ‘lame, limping’ PG 98
 HAMMER OF THE THUNDER GOD = LIGHTNING 76, 143
***hangistaz** ~ ***hanhistaz** ‘horse’ PG 105
***hap-** PG 123
 Harappan (Indus Valley) Civilization 52
 HARBOUR, SHELTER FOR VESSELS 85
***hargu-** PG 142
***harjanaz** PG 93
***harjaz** PG 103
***harpōn-** PG 136
 HARROW 134
***hasla-** PG 154
***hataz** ~ ***hatiz-** PG 102
***hapu-** ‘battle’ PG 90
***Hapu-mēraz** PG 93
***hapuwulfaz** PG 91
 HATRED ***kad-** ICG 102
***ha(u)bida** ~ ***ha(u)beda** ~ ***ha(u)buda** PG 147
 HAZEL ***kós(V)los** ANW 73, 154
 HEAD 147
 HEALER, PHYSICIAN, LEECH 144
 HEALING PLANT 145
 HEAP, MOUND, PILE, RICK ***krouko-** CG 73, 155
***hēōr-** PG 127
VH₂egh- ‘upset, distress’ PIE 92
**H₁ēH₁-mon-* ~ **H₁oH₁-mó-* ‘red, raw’ PIE 109
 HEIR 112
VH₂ek- ‘sharp, pointed’ PIE 103
**H₁ēkwos* ‘horse’ PIE 56, 105
***helan** PG 157
 HELMET OF TIN-BRONZE (?) 102
- HEMP ROPE 159
 hemp/cannabis 39
 HENBANE 154
VH₃eng^w- PIE 134
 HERD (OF CATTLE), SERIES 135
***herdō-** PG 135
VH₁erH₁- ‘row’ PIE 85
 Herzprung shields 11
VH₁esH₁- ‘blood’ PIE 108
 Hesperia project 82
 HIDE, CONCEAL 156–7
 HIGH ONES, GROUP NAME RELATED TO ‘HILLFORT’ 129
***hildja-** PG 95
 Hildr Högni’s daughter 95
 Hildr the valkyrie 95
 HILLFORT 55
 hillforts 77
Himbersysel 19
Himmerland 19
***hinnō-** PG 149
 Hispano-Celtic 45, 80
 historical-comparative method 25
 Hittite genomes 27
 Hittites 28
***hlaḫan-** ~ ***hlōḫ-** ‘to burden, load down’ PG 85
***hleī-** PG 146
***hleīpra-** PG 133
***hlēwa-** ~ ***hlewa-** ~ ***hlēja-** PG 158
***hlīb-** PG 94
VH₂ner- ‘man, hero, be strong’ PIE 94
***hnītana-** PG 98
***hnut-z** PG 152
***hōdoz** ~ ***hattu-** PG 102
 HOLLY ***kuleno-** ~ ***kolino-** CG 73, 148
 HOLY ***weik-** ~ ***wik-** Italo-Germanic 33
 Homeric epics 55
 HOMESTEAD 66, 121
***hōraz** ‘lover’ PG 125
***hōrōn-** ‘lover’ PG 125
 HORSE ***markos** CG 73
 HORSE 105
 horse and chariot package 79
 HORSE+RIDE ***ekwo-reidho-** CG 72–3, 105
 HOSTAGE 77, 112
***hrakjan-** PG 98
***hrappa-** PG 156
- *hratt/dōn-** PG 158
√(H)reHdh- ‘perform successfully’ PIE 138
√(H)reidh-e- ‘roll’ PIE 107
√Hareī(H₁)- ‘count out’ PIE 108
√H₃reyH- ‘flow’ PIE 84
***hrīdra-** PG 134
***hrispon-** PG 147
***hrīḫan-** ~ ***hrittān-** PG 144
***hrōfa-** ‘roof’ PG 135
***hrūgō-** PG 155
***hrukka-** PG 159
***hulba-** ~ ***hulisa**
***hulda-** PG 92
***hulena-** PG 148
 HUMAN BEING < EARTHLING 123
***hurdiz** PG 159
***hwannō-** PG 153
- *xastā-** Pl 102
***xeliwo-** Pl 158
***xemō,** accusative **xemonm̃** ‘human being, man’ Pl 124
***xostis** Pl 123
- Iberian Iron Age 80
 Iberian language 22
 ICG words 66
 Indo-European dialect continuum 16
 Indo-Hittite 28
 Indo-Iranian loanwords in the Uralic languages 52
 Indo-Iranian unified language 30
 INHERITANCE 113
 INNUMERABLE, COUNTLESS ***ṇ-rīm-** CG 72, 108
 Insular Celtic 26
 INTENTION, DESIRE 113
 IRON ***isarno-** ~ ***isarno-** CG 73–4, 108
 Iron Age 108
***isarna-** ~ ***izarna-** PG 108
***isarno-** ~ ***isarno-** IRON CG 18
***isarno-** PC 108
 “Iotep (Lower) Danube” Gk 160
 Italic languages 9, 20
 Italo-Celtic 26, 67
 Italo-Celtic commonality 31–2

Italo-Celtic proto-language 30–31

Italo-Celtic, breakup 48

Italo-Celtic/Germanic (ICG) vocabulary 9

Italo-Celto/Germanic/Balto-Slavic (ANW) 9

Italo-Germanic vocabulary 32–3

*jehan- PG 138

*jehti- PG 138

JOKER, FOOL 113

JUNIPER, RUSHES, REED *yoini- ICG 73, 152

*kad- HATRED ICG 71

*kādo- PC 102

*kādo/i- PI 102

*kaghyo- ENCLOSED FIELD CG 70

*kagyo- ‘pen, enclosure’ PC 126

*kaiko- ‘blind in one eye’ PC 140

*kaikos CG 140

*kaikos ONE-EYED, BLIND IN ONE EYE CG 69

*kail- OMEN, FORESIGHT CG 70, 140

*kailo- ‘omen’ PC 140

*kaito- CG 149

*kaito- PC 149

*kalē- PI 158

*kalzōjan- ‘PG 139

*kankistos ~ *kanksikā HORSE CG 69, 105

*kannō PG 133

*kanxsikā- PC 105

*kapono- HARBOUR, SHELTER FOR VESSELS
CG 70, 85

*kapto- PI 119

*kaptós ~ *kaptā- MADE CAPTIVE, BOUND,
SLAVE ICG 67, 71, 119

*kápu- ICG 147

*ka(p)uko- PC 147

*kaput PI 147

*kar- CG 142

*kar- names in Hispano-Celtic 125

*kar- STONE RITUAL SITE CG 69

Karagash genome 30

*karbanto- PC 136

*karnom PC 142

*kāro- ‘dear’ PI 125

*kāros < *keH₂-ro- ~ *kar-o- ANW 125

*karrikā- PC 142

*kat- ~ *katt- CG? 159

*katr- ~ *kētr- ENNCLOSURE CG 69, 127

*katrik- PC 127

*katsti- ~ *kāt- HELMET OF TIN-BRONZE (?)
ICG 71

*katsti- PC 102

*kat-ti- ~ *kāt- ICG 102

*kattōn- ~ *kattuz, *katazan- PG 159

*kattos PC 159

*katu- BATTLE, FIGHTING, VIOLENCE CG 56,
69, 90

*katu- ‘battle’ PC 90

*Katu-māros PC 93

*Katu-mōros ~ *Katu-mēros CG 93

*katu-wl̥kʷo- ~ *katu-wolkʷo- BATTLE-WOLF
CG 69

*katu-wl̥kʷo- ~ *katu-wolkʷo- CG 91

*katuwolkos PC 91

*kawno- < *ka(p)ono- PC 85

*kaxto- PC 119

√keH₂- ‘love’ PIE 125

√keH₂d- PIE 102

√kei- ‘lie down’ PIE 122

*keiro- ~ *koiro- GREY CG 155

√kel- ‘cover’ PIE 157

*kele- PC 157

*kéle/o- ~ *klé- ICG 157

*kele/o- PI 157

√kelH₂- ‘strike’ PIE 95

*kelne/o- PI 95

*kelto- ~ *keltyo- PC 95

*kelto- ~ *keltyo- STRIKE (IN BATTLE) CG 69,
95

*kenno- CG 149

*kenno- PC 149

*kerdhā ~ *kordh- CGBS 135

*kēro- PC 155

Kikuli, horse-training manual of 109

KING OF THE PEOPLE *Teuto-rīg- CG 47, 72,
113

KING, LEADER 47, 77, 113

KINGDOM, REIGN, REALM 47, 77, 114

*kizna- PG 149

*kladiyos ‘striking/cutting implement’ PC 103

*klēbo- PC 94

√kleH₂- ‘spread out flat’ NW 85

√kleH₂u- ‘close’ PIE 85

*kleibho- SHIELD (?) OF WICKER CG 69, 94

*kleitrā- PI 133

*kleitro/ā- ~ *klitro- ICG 133

*kleut- ~ *klat- LOAD, CARRY A LOAD CG
69, 85

*klēwo- ~ *klewo- ~ *klēyo- ~ *kl̥tó- ~ *kl̥-
ANW 158

√kley- PIE 133

*kley- ~ *kli- CG 146

*klīnjan- ~ *klinan- PG 135

*klitō- ~ *kliyaro- PC 158

*klitro- PC 133

*kliyā PC 146

*klout- Brythonic 85

*knew- ~ *knu- ICG 152

*knit- WOUND, INJURE CG 69, 98

*knitā- PC 98

KNOT, KNOTWORK, NET 88

*know- PC 152

*knuk-s PI 152

*kobom CGBS 123

*kobom PC 123

*koim- PBS 122

*koimo- CGBS 121

*koimo- PC 121

*kol- ~ *kl̥- CORPSE, DEAD BODY CG 69

*kolani- ‘dead body’ PC 192

*koldo- WOUND, INJURE CG 69, 98, 144

*koldo- PC 98

*kolino- PC 148

*kolso- PC 147

*kólsos ICG 147

*kolsos PI 147

*kolʔ- ‘beat’ PBS 95

*kolʔtó ‘striking instrument’ PBS 95

*kom-altiya PC 114

*kom-altiyos PC 114

*kom-altro- PC 114

*kor(V)t- ~ *kr̥(V)t- ANW ? 159

*korb- ANW 136

*korbo- ‘chariot’ PC 136

*kordos ~ *krodos PC 135

*koret- PC 159

*korH₂-to- PreBS 159

*korkró- CG 132

*korkyo- PC 1325

*koryo- PC 103

*koryonos MILITARY COMMANDER CG 69,
93

*koryonos PC 93

*kóryos ARMY, DETACHMENT, TRIBE CGBS
34, 71, 103, 135

*kós(V)los ANW 154

*koslo- PC 154

*kosolo ~ *kosulo- PI 154

*koxo- PI 126

*krā(p)o- PC 135

*krakyā- PC 142

*krāti- PI 159

*kre(n)g- ~ *krog- CG 98

*kre(n)g- ~ *krog- WOUND, INJURE CG 69

*kreidhro- ~ *kreitro- SIEVE, STRAINER ICG
71, 134

*kreipro- PI 134

*krenxtu- PC 98

*kret- CGBS 158

*krētrom PC 134

*krH₂-ti- PreIC 159

*kribi- PC 156

*krisp- ICG 147

*krispo- PI 147

*krīt- ~ *krit- CG 144

*krito- PC 144

*krittā PC 159

*krixso- ~ *krixsā- PC 147

*krob(h)- ~ *kr̥b(h)- SWIFT CG 69, 156

*krōpos CGBS 135

*krotā- PC 158

*krouko- CG 155

*krouko- PC 155

*krumba- ~ *krumpa- ‘crooked, bent’ PG 160

*krumbo- ‘round, curved’ PC 160

*kula- ~ *kulan- PG 108

*kuleno- ~ *kolino- CG 148

Kurgan Hypothesis 13

*kustu- PG 119

*kʷerkʷ-u/o- PI 152

*kʷeryxtu- PC 152

*kʷistiz PG 146

*kʷóndhr/n- ANW 153

LAG, linguistics–archaeology–genetics 9

*lahana- ‘to reproach’ PG 111

*laiwad ~ *alaud CG 148

*laiwaz-PG 148

*landā PC 153

*lantro- PC 157

- LARK 148
 La Tène Iron Age 17–18, 36, 96
 ***lapa-** ~ ***latta-** PG 132
 Latin loanwords in Germanic 36
 ***lauda-** PG 109
 ***lauhatjana-** PG 152
 ***launa-** ‘reward, recompense’ PG 109
 LEAD (metal) ***plobhdo-** ICG 47, 73–4, 109–10
 ***lēagis** PC 144
 LEATHER 47, 131
 LEATHER BAG, BELLOWS 131, 135
 LEFT, LEFT-HAND 146
 LEGGING, TROUSER 160
 ***lēgi-** CG 144
 ***lēkijaz** PG 144
 ***lēmo-** ~ ***līmo-** PC 154
 ***lendh-** ~ ***lndh-** OPEN LAND CGBS 153
 ***lento-** ~ ***lnt-** ICG 157
 ***lento-** PI 157
 Lepontic language 45
 LEPROSY ***truts-** CG 73, 145
 ***lepra-** PG 47, 131
 ***leuba-** ‘dear, beloved’ PG 125
vleubh- PIE 124
 ***leubh-** ~ ***lubh-** ANW 124
 ***leugho-** ~ ***lugho-** ‘OATH’ CG 13, 69, 137
 ***leugo-** PG 137
 ***leuo-** ~ ***lū-s-** CG 148
vlewH- PIE 149
 LIGHTNING 76, 152
 ***lindom** ~ ***lindu-** ~ ***lindhom** ~ ***lindhu-** CG 85
 ***lindom** ‘drinkable water’ PC 85
 Linear B 26
 LINEAR LANDSCAPE FEATURE 148
 lingua franca 12, 20, 22, 23
 linguistic palaeontology 13–14, 77, 79
 ***linpa-** PG 157
 ***liwo-** PC 154
 LOAD, CARRY A LOAD 85
 LONG 156
 long-distance exchange 67
 ***lok-** CG 111
 ***lorgā** or ***lurgā** PC 91
 ***lou-** ~ ***lu-** ICG 109
 ***louk-** ~ ***luka** ‘value, worth’ PC 109
 ***louk-** ICG 152
 ***loukant-** PC 152
- LOUSE 148–9
LOVCETIVS Oscan AB 152
 LOVE, DESIRE 66, 124–5
 ***lowo-** PC 148
 LOYAL, TRUSTWORTHY 123
 ***loxtus** PC 111
 ***lubhi-** ~ ***loubhos** HEALING PLANT CG 145
 ***lubi-** ‘love, desire’ PC 124
 ***lubi-** PC ‘herb’ 145
 ***lubja** ~ ***laubaz** PG 145
lucht I ScG 68
 LUCK 123
Lugius 19
 Lugus, god 19
 ***lugyom** ‘oath, swearing’ PC 137
 ***luklom** ‘material gain, profit’ PI 109
 ***lurg-** CLUB, CUDGEL, STAFF, STICK CG 69, 91–2
 ***lurkaz?** PG 91
 ***lūs-** PG 149
 Lusitanian language 82
 ***lust-** SPEAR CG 69, 94
 ***lusta** PC 94
 ***luβē-** PI 124
LVB- PH names 124
- MADE CAPTIVE, BOUND, SLAVE 119
 ***magan-** ‘stomach’ PG 135
 ***maghus** SON, YOUTH 67, 70, 118–19 CG
 MAGIC, SORCERY 77, 144
 ***magus** PC 118
 ***maguz** ‘son, boy’ PG 118
 ***makīnā** ‘bellows’ PC 135
 ***makos** ‘son’ PC 119
 MALEVOLENT FEMALE SPIRIT 144
 ***managai** PG 157
 MANE 106
 ***mankan-** ‘mane, upper part of a horse’s neck’ PG 106
 MANY ***menek-** ~ ***monek-** CGBS 73, 157
 ***mara** MALEVOLENT FEMALE SPIRIT PG 144
 ***marhaz** ‘horse, steed’ PG 105
 ***mari** ‘lake, sea’ PG 88
 ***mari-** ‘sea, lake’ PI 89
 Maritime Mode of Production 12, 55, 77
 ***markākos** PC 105
 ***marko-** HORSE CG 69
- ***markos** ‘horse, steed’ PC 56, 105
 ***māro-** ‘great’ PC 66, 137
 MAST ***mazd-** ~ ***mazdyo-** ~ ***mazdlos** ICG 55, 73–4, 88
 ***masta-** ‘post, mast’ PG 88
 ***mawī-** PG 118
 Maykop sites 29
 ***mazdlos** PI 88
 ***mazdo-** ~ ***mazdyo-** ~ ***mazdlo-** MAST ICG 71, 88
 ***mazdyo-** ~ ***mazdlo-** PC 88
 ***mbhaktos** ~ ***mbhaktā** PERSON ACTING ON BEHALF OF A LEADER CG 67, 69, 114
 ***mein-** ~ ***moin-** CG 113
 ***meldh-** HAMMER OF THE THUNDER GOD CGBS 71, 76, 143–4
 Meldios, god 76
 ***meldo-** PC 143
 ***meldunjaz** PG 143
 ***menek-** ~ ***monek-** MANY CGBS 157
 ***menekki-** PC 157
 ***mēni-** PC 111
 ***mēnom** PC 113
 ***mēr-** ~ ***mōros** ~ ***mōrā-** FAMOUS, GREAT CG 69, 137
 mercenaries 78
 ***mēri-** ‘famous’ PG 66, 137
 ***mesal(k)ā** PC 150
 ***mesalā** PI 150
 ***mesl-** ~ ***amsl-** ICG 150
 METALLURGY 111
 ***met-e/o-** ~ ***mēto-** REAPING, MOWING ICG 134
 ***met-e/o-** ‘reap’ PC 134
 ***met-e/o-** ‘to reap, harvest’ PI 134
 ***metelā** ‘band of reapers’ PC 134
 ***mēpa-** ~ ***māpa-** PG 134
 Middle Dnieper culture 51
 Middle Welsh 75
 Middle Welsh literature 76
 ***mild-n-** ~ ***meld-n-** PBS 144
 MILITARY COMMANDER 93
 Mitanni Indic 30, 40
Mjöllnir (Thor’s hammer) 76, 143–4
 Modron < Mātronā, the divine mother 118
 ***mokon-** ~ ***mokinā-** CGBS 135
 ***mongāko-** ~ ***mongākā-** PC 106
 ***mongo-** ~ ***mongā-** MANE CG 70, 106
- ***mongo-** ~ ***mongā-** PC 106
 ***mora** CGBS 144
 ***morā** PC 144
vmorǵ- ‘frontier’ PIE 112
 ***mori-** ‘sea’ PC 88
 ***mori-** ANW 88
Morimarus 19, 89
 ***morjo-** PBS 89
 MOUND, EARTHWORK 131
 MOVE LIKE A SNAKE, SLINK 153
 MOVE QUICKLY, STIR ONESELF, JUMP 157
Mucke ‘mother sow’ German 35
 ***mūg-** CG 156
 ***mūg-** PC 156
 ***mūk-** PG 156
 mutual intelligibility 20, 23, 25, 27, 37, 48–9, 78, 80
 Mycenaean Greek 13, 27
- ***nadra-** PG 150
 ***nant-** BATTLE, FIGHTING, VIOLENCE CG 70, 91
 ***nanþjana** ‘to dare, strive, be bold’ PG 91
 ***nanti-** PC 91
 ***nasko-** PC 88
 ***nasso-** ~ ***nōdo-** PI 88
 ***natja-** ~ ***nōtā-** PG 88
 ***natr-** ~ ***nētr-** ADDER, SNAKE ICG 150
 ***natrik-** PC 150
 ***natrik-** PI 150
 NATURALLY OVERGROWN LAND 149
 NECK 147
 ***nēdrōn-** PG 150
 Negau B helmet 34–5, 103
vneHd- ‘knot, bind’ PIE 88
 ***nemet-** SACRED GROVE, SANCTUARY CG 70, 141
 ***nemetom** PC 141
 ***nemiþa-** PG 141
 ***nert-** STRENGTH, FORCE, VALOUR CG 70, 94
 ***nerþu-** PG 94
Nerthus ‘terra mater’ 94
 ***nerto-** ‘strength’ PC 94
 ***nīt-** BATTLE, FIGHTING, VIOLENCE CG 70, 91
 ***nīpa-** PG 91

***nītu-** ~ ***nītyo-** PC 91

Njprðr, father of Freyr 94

***nōd-** ~ ***nad-** KNOT, KNOTWORK, NET ICG 88

non-Indo-European substratum words 72–4
Nordic Bronze Age and Atlantic Bronze Age, contacts 16

Nordic Bronze Age, linguistic implications 38
Nordic Bronze–Iron Transition 80

Noreia, battle 34, 160

***ñ-rīm-** CG 108

North-west Indo-European (NW) 9

Nuclear Indo-European 24, 29

NURTURER, PERSON ACTING AS A PARENT (?) 114

NUT ***knu-** ICG 73, 152

NW Indo-European subset 16

***ō** > ***ā** in Germanic 40

OAK, TREE 152

oars or paddles 85

oath taking 77

OATH, TO BIND BY OATH 68, 77, 137

OATS, BROMUS 132

Oceania, peopling of 25

Óðinn 139–40

Ogamic Primitive Irish 75

***oitos** OATH, TO BIND BY OATH CG 13, 70, 137

***oitos** ‘oath’ PC 137

***oketā** also ***okā** PC 134

***oketā**- HARROW ICG 134

***oketā** PI 134

Old and Middle Irish, CG words in 36, 75–6

Old English 75–6

Old European or *alteuropäisch* river-names 53

Old Frisian 75

Old High German 75–6

Old Norse 75–6

Old Saxon 75

***olmos** PI 154

***Olo-(p)atīr** PC 139

***Olo-patēr** ALL-FATHER, GREAT-FATHER CG 70, 76, 139

***olyo-** PC 139

OMEN, FORESIGHT 140

***omó-** PC 109

***omyom** PC 109

ONE-EYED, BLIND IN ONE EYE ***káikos** CG 73, 140

OPEN LAND ***lendh-** ~ **lndh-** CGBS 153

***orbho-** HEIR CG 70, 112

***orbhym** INHERITANCE CG 70, 113

***orbiyo-** ‘inheritance’ PC 113

***orbo-** ~ ***orbyos** ~ ***orbyā** PC 112

ORE, METAL OXIDE ***raud-** ~ ***arud** ~ ***rutu-** ICG 47, 73–4, 110

***orfo-** PI 112

Ossa-Morena massif 11

OVERCOME IN BATTLE, CONQUER ***uper-weik-** ~ ***uper-wik-** CG 72, 94

**p*, Indo-European, in Lusitanian 82

Palaeo-Basque language 22

Palaeohispanic comparanda 82

PALE GREEN, YELLOW 158

***(p)atamī-** ~ ***(p)atimā-** PC 133

PATH, ROAD, WAY, PASSAGE 132

PEOPLE, TRIBE 125

***papa-** ‘path’ PG 36

vpeik- ‘paint, mark’ PIE 87

***pen-** ~ ***pñ-** ~ ***ponyo** CGBS 88

***(p)eno-** ~ ***(p)anā-** PC 88

***perkʷo-** ICG 152

***perkʷunos** THUNDER, THUNDER GOD CGBS 71, 143

***(P)erkunyā** PC 143

PERSON ACTING ON BEHALF OF A SUPERIOR 38, 47, 114

***(p)ěsko-** PC 87

vpetH- ‘spread’ PIE 133

Phoenician expansion 67

**pH₂tér* PIE 39

phylogenetic linguistic dating 37, 48

Phylogenetic tree models 31

vpiḱ- PIE 93

PINE 149

***pinn-** CG 148

***(p)innā-** PC 148

***pint-** PG 156

***piski-** PI 87

Pitted Ware Culture (PWC) 81

PLANT SEED 66

***(p)lāro-** PC 127

PLEASANT TASTE 160

PLEASANT, FAIR 118

***(p)lēdo-** PC 95

***pleid-** STRIVE, SUCCEED CG 95

***pletrom** LEATHER CG 131

***(p)letrom** or ***letrom** PC 131

vpleuk- ‘float, swim, sail’ PIE 83–4

vplew- PIE 84

***plobdho-** ICG 109

***plobdho-** ICG 47

***plobdho-** LEAD (metal) ICG 71

***(p)loudyo-** PC 109

***pluk-** TROOP CG 70, 83

***(p)luxtu-** PC 83–4

***plumbo-** < ***plumdho-** PI 109

POETRY, STORYTELLING 137

***(p)oiko-** PC 93

***poiko-** FOE CG 70, 93

POINT ***bend-** ~ ***bñd-** CG 73, 156

POLISH, SHARPEN, WHET 108

***polkā** CGBS 134

***(p)olkā** PC 134

Pontic–Caspian Steppe 10, 21–2, 25–8, 49, 51, 55, 76

***porkā** ~ ***prkā-** ~ ***prko-** FURROW ICG 133

***porkā** PI 133

PORTABLE WOODEN FRAMEWORK ***korb-** ANW 73, 136

Post-Albanian Indo-European 50

Post-Anatolian branches 31

Post-Anatolian Indo-European 21, 24, 29, 48–9

post-Beaker Early Bronze Age 67

Post-Italo-Celtic Indo-European 24, 27

Post-Italo-Celtic Indo-European 27

Post-Roman Migration Period 23

Post-Tocharian Indo-European 22–4, 48–9

***pot(a)mo-** CG 133

Pre- languages 36–7

Pre-Celtic 27

Pre-Celtic sound shifts 45

Pre-Celtic, dating 46

Pre-Germanic 27

Pre-Germanic linguistic changes 38

Pre-Germanic, dating 46

Pre-Germanic, location 38

Pre-Germanic, realignment towards Italo-Celtic 38

Pre-Germanic/Balto-Slavic/Indo-Iranian continuum 26

Pre-Tocharian=Afanasievo 30

***preus-** ICG 151

vpreus- PIE 151

***(p)reuso-** PC 151

**prīH₂ós* PIE 67, 112

***(p)rikā** PC 133

***prīyānt-** RELATIVE, FRIEND CG 67, 118

***(p)riyant-** PC 118

***(p)riyo-** PC 112

***priyo-** ~ ***prīyā-** FREE CG 67, 70, 112

***(p)riyotūt-** ? PC 112

PROSPER, FORTUNE 140

Proto- languages 36–7

Proto-Anatolian 29

Proto-Balto-Slavic/Indo-Iranian continuum 24, 54

Proto-Celtic 80

Proto-Celtic, breakup 47

Proto-Celtic, dating 46

Proto-Germanic, dating 37, 46

Proto-Germanic/Balto-Slavic/Indo-Iranian 24

Proto-Greco-Armenian 31

Proto-Indo-European lexemes 14–16, 50

Proto-Indo-Iranian 27, 51, 79

Proto-Italic 48, 79

Proto-Italo-Celtic 48, 79

proto-languages as mirages 26

***pruswo-**, ***pruswinā** PI 151

R1a Y chromosomes 49

rādi- PC 138

***raina-** PG 148

Rakhigarhi genome 52

***rāmyom** ~ ***rāmā** ‘oar, paddle’ PC 85

***raḡa-** PG 107

***raud-** ~ ***arud** ~ ***rutu-** ORE, METAL OXIDE ICG 71, 110

***raud-** ~ ***rūd-** PI 110

RAW Project 10, 12, 16, 55, 67, 82

***rāyeti** ‘rows’ PC 85

REACH TO, ENTREAT (?) 138

REAPING, MOWING 134

re-carving of rock art 13

***rēde-** PC 106

***rēdeti** PC 107

RED METAL, METAL THE COLOUR OF RAW MEAT 109
 *rēg-s PI 113
 *rehtaz PG 111
 *rehtuz PG 111
 *reidh- RIDE CG 70–71, 106
 *reinos GREAT WATERWAY, RHINE CG 70, 84
 *rektus LAW, JUSTICE CG 70, 111
 RELATIVE, FRIEND < ONE WHO LOVES 118
 *rēnos PC 84
 *reto- ‘series’ PC 106
 *rextus PC 111
Rg-Veda 55
 Rhiannon 118
 Richborough/Rutupias 110
 *ridan- ‘to ride a horse or vehicle; to move, swing, rock’ PG 106
 RIDE (A HORSE OR HORSE-DRAWN VEHICLE) 106
 *rīg- (< *rēg-) KING, LEADER CG 70, 113
-rige or *-raige* Irish group names 114
 *rīgŷā < *rēgŷā < *rēgŷa KINGDOM, REIGN, REALM CG 70, 114
 *rīgŷom ~ *rīgŷā PC 47, 114
 *rīk- ‘ruler, king’ PG 47, 113
 *rīkija ‘kingdom’ PG 80
 *rīkija PG 80, 114
 *rīma- COUNTING, NUMBER CG 108
 *rīma- PC 108
 *rīma- PG 108
 *Rīnaz ‘Rhine’ PG 84
 *-rīxs names in Hispano-Celtic 45
 *rīxs PC 113
 *rō- CG 85
 *rōan- ‘to row’ PG 85
 ROD, STAFF, LONG SLENDER PIECE OF WOOD *(s)lat(t)- CG 73, 132
 *rōdhi- CG 138
 *rōdjana- PG 138
 *roino- CG 148
 *roino- PC 148
 Roman Period in Britain 76
 ROOF 132
 ROOFED OUTBUILDING 66, 135
 *rotā PI 107
 *rotos ~ *rotā WHEEL ANW 72, 107
 *rotos PC 107
 ROUND, CURVED 160

ROW (verb) 85
 *ruk- ~ *ruk- ~ *roukk- CG? 159
RUKI linguistic innovation 24
 *rukaz PG? 159
Rūmoneis Gothic ‘Romans’ 40
 *rūn- SECRET KNOWLEDGE CG 13, 70, 137
 *rūnā ‘PC 137
 runes in the older futhark 75
 *rūnō- PG 137
 RUSH 149
 *rutu- PC 110
 Rutupias 110
 SACRED GROVE, SANCTUARY 141
 SACRIFICE, OFFERING, RITUAL MEAL 119
 *sahaza- ~ *sagja- PG 149
 *sai- WOUND, INJURE CG 70, 98
 *saida- PG 144
 SAIL (noun) *sighlo- CG 55, 73–4, 86
 *sairaz PG 98
 *sai-tu- PC 98
 *sal- CGBS 157
 *salā, *salāko- ~ *salākā- PC 157
 *salwa- PG 157
 SAND AND/OR GRAVEL BY OR BENEATH A BODY OF WATER 86
 Sanskrit *comparanda*, significance 15
satam languages 30
satam linguistic innovation 24
 SCOOP, PORE *aus- Italo-Germanic 33
 *se- ~ *seg- ~ *sē- ANW 136
 SEA, LAKE 88
 ‘sea peoples’ 68
 seafaring warriors 67
 *sēana- PG 136
 SEAT, CHAIR 134
 second language learned by adults 14
 SECRET, SECRET KNOWLEDGE *rūn- CG 68, 73, 77, 137
vsed- ‘sit down, set’ PIE 119, 134
 SEDGE *sek-s- CG 149
 *sedlā- PI 134
 *sedlo- ~ *setlo- ICG 134
 *sedlo- PC 134
 *segaz ~ *sigiz- ‘victory’ PG 131
 *seget- PI 136

*Seghi-mēros ~ *Segho-mōros FAMOUS/ GREAT IN VICTORY CG 70, 93
 *segho-dūno- STRONG/VICTORIOUS FORTIFIED SETTLEMENT CG 70, 131
 *Segimēraz PG 93
 *segja- PG 149
 *segla- ‘sail, canvas’ PG 86
Sego- names 131
 *sego-dūno- PC 131
 *Segomāros PC 93
 *segyo- PC 136
vsēH-i- ‘to bind’ PIE 144
vsēk- PIE 149
 *sekyā- CG 149
 *sekyā- PC 149
 *selba(n)- ‘self’ PG 120
 *selbho- ~ *selwo- SELF ICG 120
 SELF 120
 *selfo- PI 120
 *selwo- PC 120
 *sem- CG 149
 *semarā- PC 148
 *semeḃa- ~ *semeḃō- PG 149
 *semin- PC 149
 *sentiyo- ‘fellow traveller’ PC 92
 *sentiyo- FELLOW TRAVELLER, COMRADE CG 70, 92
 *sento- ~ *sentu- ‘road, path, course’ PC 92
 *sento- CG 132
 *sento-, *sentu- ‘road, path, course’ PC 132
 SERVANT *sloug(h)o- Celtic/Balto-Slavic 34
 SERVANT/REPRESENTATIVE 77
 SETTLEMENT, FARMHOUSE *treb-* ~ *trb- CG 73, 132
 *sēḃla- PG 133
 *sētīlā- CG 133
 *setla- PG 134
 *sētīlā- SIEVE, STRAINER CG 70
 *seug- ~ seuk- ANW 158
 sex bias in steppe ancestry 21
 *seḃskā/i- PC 149
 *sḃoinā- PC 151
 SHAKE *skut- CG 156
 SHARP EDGE 102
 SHIELD (?) OF WICKER 94
 SHIELD 66, 104
 SHINING, CLEAR 149
 SHOULDER 104

SICKNESS *sukto- ~ *sukti- CG 145
 *sīda- PG 156
 SIEVE, STRAINER 133–4
 *sigatūna- PG 131
 *sighlo- SAIL (noun) CG 70, 86
 *siglo- ~ *siglā- PC 86
 *silubra- PG 12, 111
 SILVER *silubra- PG 1, 112
 *silVbr- SILVER CGBS 73–4, 111
 Sintashta culture 27, 51–2, 76, 78–9, 107
 Sintashta genetic type 52
 *sinḃaz ‘way, journey’ PG 132
 *sīro- PC 156
 *sise/o- PI 136
 *sit- ~ *seit- CG 156
 *siti- PC 156
 *sītīlā- PC 133
skaldic verse 55
Skaldskaparmal 144
 *skāḃla- PG 137
 *skāḃslo- PC 142
 *skēdo- PC 104
 *skehan- PG 157
 *skeiḃa- ‘sheath’ PG 104
 *skeito- PC 11
 *skek-e- ~ *skok-eye- CGBS 157
v(s)kel- ‘cut, split apart’ PIE 92
 *skelduz PG 104
 *skeltu- ~ *skeito- ~ *skoito- SHIELD ANW 72, 104
 *skeltus PG 11
 *(s)kerdhyos PB 135
 *sketlo- ‘story, tidings’ PC 137
 *sketlo- ~ *skōtlo- CG 137
 *skēto- PC 104
vskey- ‘cut’ PIE 92
 *skey- ~ *ski- CUTTING WEAPON AND/OR TOOL (?) CG 70
 *ski- CGBS 148
 SKIN, HIDE 149
 *skitan- PG 148
 *ski-yo- ~ *skeyeti PC 147
 *skōhsla- PG 142
 *skoitom PI 104
 *skok-eye- PBS 157
 *skōk-slo- CG 142
v(s)kre(H)i- ‘separate, sift’ PIE 134

*skudjan- PG 156
 *skuldra- ‘shoulder’ PG 104
 *skutu- PC 156
 *slagiz ‘blow, stroke’ PG 95
 *slahana- ‘to slay’ PG 95
 *slaih(w)a- PG 154
 *slak- PC 95
 *slak- STRIKE (IN BATTLE) CG 70, 95
 *(s)lat(t)- CG 132
 *slattā ‘rod, staff, stalk’ PC 132
 *sleimo- ~ *slimo- POLISH, SHARPEN, WHET
 CG 70, 108
 *slenk- CGBS 153
 *slenker- PC 153
 *(s)limo-, *(s)līmo- PC 108
 *slim(o)no- PC 108
 *slīma- ‘polish; slime’ PG 108–9
 SLING, SNARE 94
 *slingan ~ *slinkan- PG 153
 *(s)liwo- PI 154
 *(s)liwo- ~ *(s)loiw- ANW 154
 SMEAR, GLUE, STICK 135
 *(s)mei- ~ *(s)mi- METALLURGY CGBS 71, 111
 SMELL STRONGLY 152
 *smelyon- PC 148
 *smērjōn- PG 148
 *smerto- ~ *smertā- PC 148
 *smeru- CG 148
 *smeru- PC 148
 *(s)meru-lo- PI 148
 *smerwa-, *smerwjan- PG 148
 *smeryon- ~ *semar- CG 148
 *smīpu- ‘smith’ PG 111
 *snad- CGBS 103
 *snad- WOUND CGBS 71
 *snado- PC 103
 *snat- PG 103
 SOFT 157
 *śoim- PBS 122
 *soito- PC 144
 *soito-/ā- CGBS 144
 SON, YOUTH 118
 *souge/o- PI 158
 *soukno- PC 158
 South Asian mitochondrial DNA 52
 South-western ‘Tartessian’ inscriptions 45
 SOW, PLANT SEED, SCATTER 136
 SPEAK 138

SPEAR *sperH- ~ *sprH- Italo-Germanic 33
 SPEAR 94
 SPEAR-KING *Ghaiso-rīg- CG 72, 94
 *spei- ICG 151
 *speis- PI 151
 *splid- ~ *spleid- SPLIT, SPLINTER CG 156
 *(s)pilitsti- PC 156
 *sret- ~ *srt- CG 86
 *srito- PC 86
 Srubnaya culture 96
 *staba- PG 135
 *stabo- PC 135
 STAFF, POST *stabho- ~ *stabhā- CGBS 135
 v(s)tenH₂- ‘thunder’ PIE 143
 v(s)teg- ‘cover’ PIE 132
 vsteH₂- ‘stand’ PIE 135
 *sterbā- PC 145
 *(s)tel- CGBS 138
 steppe genetic ancestry 21, 28, 76, 79
 Steppe Hypothesis 13, 27–8, 49
 *sterban- PG 145
 *stilljan- PG 138
 STONE LANDMARK, STONE MONUMENT
 *kar- CG 73, 142
 *straujana- PG 159
 STREAM, LIQUID IN MOTION 86
 *strēbā- PC 133
 *streibā- CG 133
 STRENGTH, FORCE, VALOUR 94
 *strepan- PG 86
 STREW 159
 STRIKE 66, 95, 103–4
 *stripa- ~ *stripōn- PG 133
 STRIPE 133
 STRIVE, SUCCEED 95
 STRONG/VICTORIOUS FORTIFIED
 SETTLEMENT *Segho-dūno- CG 72, 131
 *stroweye/o- ~ *strēwe/o- CG ? 159
 SUCK 66, 158
 *sūgan- ~ *sūkan- ~ *sukk/gōn- PG 158
 *suhti-, *seukaz- PG 145
 *sukto- ~ *sukti- CG 145
 SUPERNATURAL BEING, PHANTOM, GHOST
 CGBS 142, 144
 *suhto- PC 145
 SWAN (?) *el- ANW 73, 154
 *swanto- ‘PC 155
 *swek- PC 160

*swekk- PG 160
 *swem- CG 87
 *swemo- PC 87
 *swent- ~ *sunt- ~ *swnt- CG 155
 SWIFT 156
 SWIM < MOVE (?) 87
 *swimman- ‘to swim, float’ PG 87
 *swinpa- ~ *sunpa- PG 155
 syllabic nasals, reflexes in Celtic 37, 46
 syllabic resonants, reflexes in Celtic 37
 syllabic resonants, reflexes in Germanic 37–40

 Tacitus’s *Germania* 35
 *tafna- PG 119
 *tagla- PG 146
 *taisto- PC 135
 *takso- BADGER ICG 150
 *tasko- ~ *tazgo- PC 150
 Taranus, god 76
 *tautā- PB 125
 *tego-slugo- ‘household, retinue, family’
 Insular Celtic 34
 *tegu- PC 147
 *teguas, feminine *teg*ī CG 147
 *teke- PC 138
 *teki- ‘beautiful, fair, handsome’ PC 118
 *teki- PLEASANT, FAIR CG 118
 vtek*- ‘flees’ PC 138
 *tekye- CGBS 138
 *telm- CG 94
 *telm- SLING CG 70
 *tenk- ~ *tonk- CG 140
 *teuk- ~ *tuk- CG 146
 *teutā ANW 125
 *teuto-rīg- KING OF THE PEOPLE CG 70, 113
 *teuto-rīk- PG 47
 *bahzu- PG 150
 *paimjan- PG 135
 *baka- PG 132
 *pakkja- ~ *bekka- PG 118
 *pankjan- PG 120
 *banko- PG 120
 *pegjan- PG 138
 *pekuz ~ *pik*ī PG 147
 *belmi- PG 94 *telmi- PC 94
 Theodoric the Great 113
 *peuda- ‘nation, people’ PG 125

*peuha- PG 146
 THICK, FAT 147
 *pinhan- PG 140
 THINK (?) 120
 *piuda-rīk- PG 113
 Thor 143–4
 Þórr ON 76, 143–4
 *prafta- PG 136
 *prakja- PG 91
 THREAD, FATHOM 133
 *pruts- PG 145
 THUNDER, THUNDER GOD 76, 142–3
 *punraz- PG 142
 *purpa- ‘settlement, crowd(?)’ PG 132
 time depth for Proto-Indo-European 14
 tin Bronze 68, 78–9
 Tjurkö bracteate rune 55, 96–7
 Tocharian languages 30
 Tocharian, relationship to Italo-Celtic and
 Germanic 29
 Togail Buidne Da Derga 140, 155
 *togo- ~ *togyā- PC 132
 *togo- ROOF CG 132
 *toliyo-, *toliyeti- PC 138
 *tonaros > *toranos- PC 142
 *ton(a)ros ~ *tṛnos- THUNDER, THUNDER
 GOD CG 70, 142
 *tong- ICG 120
 *tong- PC 140
 Tong- Palaeohispanic names 120–1
 *tongeti ‘swears’ PC 120, 137
 *tong-eye- PI 120
 *tonketom- PC 140
 *toutā ‘people, tribe, territory’ PC 125
 *toutā- ‘town, society’ PI 125
 Touto- names in Ancient Celtic 125–6
 *Touto-rīxs- PC 113
 trader/raiders 49
 *trapto- CG 136
 *trausta- PG 119
 *traxto- (?) PC 136
 *treb- ~ *trb- SETTLEMENT CG 132
 *trebā ‘settlement, home, farm’ PC 132
 tree models of language families 15, 23, 25,
 30
 *treg- BATTLE, FIGHTING, VIOLENCE CG 70,
 91
 *trewwu- PG 123

*treḡso- ~ *treḡsno- PC 91

TROOP 95–6

TROUGH, TUB, WOODEN VESSEL 87

TRUE 126

TRUSTWORTHY, RELIABLE 119

*truga- PG 87

*trussko- PC 145

*trūpa- PG 113

*truts- CG 145

Túath Dé 139

Tudor dynasty 113

*tuknī ~ *tuknā PC 146

*tūna- PG 47

U-notched sheilds 11

*u(p)er-wik- PC 94

*u(p)er-woike PC 94

*u(p)o-gaiso- PC 94

*uber-wih- PG 94

*unrīma- PG 108

*uper-weik- ~ *uper-wik- ‘over’+‘fight’ CG 94

UPPER GARMENT, COAT, MANTLE ? 159

*ūr- ~ *our- CG 148

Urnfield Late Bronze Age 17

*ūro- ~ *ūrā- PC 148

Vasconic 53

Vedic religion 52

Vedic Sanskrit 27, 30

Vercellae, battle 20

Verner’s Law 39, 49

VESSEL, CONTAINER FOR LIQUID 133

Viking Age/Viking period 13, 23, 55, 76

Viking warfare and migration 77

V-notched shields 11

vocabulary related to Bronze Age material culture, social organization, and ideology 68–70

Volcae Tectosages 20, 96–8

VOMIT, DEFECATE (?) 148

*wagna- PG 107

*walhaz ‘foreign warrior’ PG 96

*walḡ- PG 158

warfare and violence, semantic domain 56

WARM 66, 158

warrior and his role 66

warrior’s panoply 77

warriors emulating wolf/dog attributes 96–7

*wāsto- ~ *wāstā- PC 157

*wāsto- ~ *wāstā- PI 157

*wāstos ICG 157

*wāti- PC 140

*wātis GOD-INSPIRED CG 70, 140

*wayo-mēri- ~ *wayo-mōro- CG? 72

*wēdwūts PC 119

√weġh- ‘move’ PIE 107

*weghnos WHEELED VEHICLE CG 70, 107

*wegno-, *wegnyā- PC 107

√weid- ‘see, look, know’ PIE 119

*weidwōts WITNESS CG 119

*weih-, *wigana- ‘to fight’ PG 90

√weik- NW 90

*weik- ~ *wik- BATTLE, FIGHTING, VIOLENCE CG 70, 90

*welk- ~ *wolk- ‘wet’ CGBS 158

*weni- ‘friend’ PG 112

*weni- ‘kindred’ PC 112

*weni- FRIEND, RELATIVE CG 70, 112

*wēra- PG 126

WEREWOLF = WARRIOR OUTSIDE THE TRIBE *wiro-kwō(n) ~ *wiro-wļkʷo- CG 72, 96

*werk- CG? 159

*wēro- ~ *wērā- ANW 126

*wēro- PI 126

*wert- ~ *wort- CG 131

*wert- MOUND, EARTHWORK CG 70

*werpa- ~ *wurpa- PG 131

*werpaz PG 109

*werto- PC 109

*werto- WORTH, PRICE CG 70, 109

*wertyā ~ *wertro- ~ *wereto- PC 132

Wessex–Mycenae connection 68

Western Urnfield 80

WET 158

WETLAND 88

WHEEL 107

WHEELED VEHICLE 107

*widhu-kō(n) WILD DOG, WOLF CG 70, 96

*widhus CG 150

*widuhundaz PG 96

*widukū PC 96

*widus PC 150

*widuz PG 150

*wīga- PG 90

*wik- ‘fight’ PC 90

*wiketi ‘fights’ PC 90

WILD DOG, WOLF *widhu-kō(n) CG 72, 96

WILD, WILDMAN 149

*wilpījaz ‘wild’, *wilpaz PG 149

*wira-wulfaz PG 96

*wīro- ~ *wīrā- PC 126

*wīro-kū PC 96

WITNESS *weidwōts CG 119

wīt-wōps PG 119

*wīro-kwō ~ *wīro-wļkʷo- WEREWOLF CG 70, 96

*wiḡtā PC 90

*wļkʷos ‘wolf’ PIE 97

*wōđaz PG 140

WOLF, PREDATOR = WARRIOR OUTSIDE THE TRIBE 70, 96

*wolko- ~ *wolkā- PREDATOR, WOLF CG 70, 96

*wolko- ‘rain, shower, wash’ PC 158

*wolkos ~ *wolkā- ‘wolf, predator’ > ‘(landless) warrior’ PC 96

WOOD, TREES 150

*worīn- TROOP CG 70, 96

*worīnā- PC 96

WORTH, PRICE, VALUE *werto- CG 109

*wōstaz PG 157

WOUND, HAFTED METAL-TIPPED WEAPON 103

WOUND, INJURE 55, 98

√wreġ- ‘work’ PIE 94

*wunda- PG 98

Yamnaya 13, 21–2, 25, 28, 30, 48, 51, 79, 81

Yamnaya/Afanasievo genetic type 30

*yek- ~ *yok- SPEAK ICG 138

*yek- PC 138

*yekti- SPEAK CG 138

*yex̥ti- PC 138

*yoini- JUNIPER, RUSHES ICG 152

*yoini- PC 152

*yoini- PI 152

*yoko- PI 138