

Daniel Kölligan

Murmur, heat and bonds – on some words of magic and healing

Abstract: The paper argues that a) Germanic **tauf/bra-* (Germ. *Zauber*, etc.) is related to a root PIE **deup-* ‘beat; make a hollow sound, resound’ found in Greek δοῦπος ‘thud’, etc., b) Greek φάρμακον goes back to the root PIE **g^{wh}er-* ‘heat’ (Gk. θερμός, etc.) implying healing by fomentation, and c) Armenian *hiwand* ‘sick’, borrowed from Iranian, to PIE **sh₂ei-* ‘bind’ relying on the notion of disease as a supernatural bond.

Keywords: magic, spell, healing, disease, lexicon, etymology

1 “Etymologie schwankend”

Within the lexical field of ‘magic’ and ‘disease/(magic) healing’ a number of words in various ancient Indo-European languages still defy convincing etymological explanations. In what follows an attempt is made for three of them, discussing the concepts of magic as incantation, of healing as fomentation and of disease as a supernatural bond.

2 Murmured magic: Germ. *Zauber*

One of the Germanic lexemes meaning ‘magic’ may be reconstructed as **taubra/taufra-* based on OHG *zoubar* ‘magic act/tool/spell’,¹ MDutch *töver*, ON *taufr/tqfr* (n. pl), *taufrar* (m. pl.), *taufrir* (f. pl.) ‘magic tool’² and probably OE *teáfor* ‘tiver, red hematite’.³ It is frequently assumed that the latter meaning is the original one and that this matter was used as a replacement of blood for the coloring of

1 Cf. for Gmc. **t/* (Swiss) Alemannic forms such as *Zoufer* (Gressoney) and the denominal verb *zoufrun*, Uri *zöifere*, Vispeterminen *zoifru*, cf. *Schweiz. Id.* XVII 110.

2 Cf. Baetke 2008: 671: *tqfr* (= *taufr*) n. pl. “Zauberei; Geräte, Gegenstände, die zum Zaubern verwendet werden; *tqfra-maðr* m. ‚Zauberer, Hexenmeister‘, *tqfra* ‚zaubern, hexen‘.”

3 Cf. BT: 972: *teáfor* “a pigment, material used for colouring, tiver (red ochre for marking sheep (Suffolk); a material used for making a salve.”

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runes.⁴ The further origin of the word is then regarded as unclear.⁵ However, one cannot exclude that the semantic development went the other way round, cf. the different concrete meaning in Old Norse and the similar change in NE *bead* ‘small ball in a rosary’⁶ < ‘prayer’ (Germ. *Ge-bet*).⁷ One may also think of Lat. *fascinum* ‘bewitching, witchcraft’ and NE *charm* ‘incantation’ < French *charme* < Lat. *carmen* (: *canere*, -ō ‘to sing’) both meaning ‘amulet’, as well.⁸

The OHG glosses attest a wide range of meanings for *zoubar*, among them ‘spell’, ‘song’ and ‘prophecy’, cf. Sievers & Steinmeyer 1969:

- (1) 3.412⁷³ *incantationem zouber*;
⁷⁴*incantatores zouberære*
 2.109⁷¹ *diuinationes zoupar*
 2. 457⁶¹ *Thessala [carmina] zovpar*⁹

Loewenthal (1916: 285–286) probably started from these meanings in his hypothesis deriving **tauf/bra-* from a PIE form **doupro-* ‘drum beat’ connected with Slov. *dupati* ‘to beat something hollow’.¹⁰ He thought of shamanic drums used by Laplanders or Finns that became known to Germanic tribes, whence ‘drum beat’ came

4 Cf. already Grimm (1875–1878: 863), who pointed out OE *reād teáfor* ‘red t.’ and concluded that *teáfor* itself may have meant simply ‘color’ (“Die beifügung des adj. *reád teáfor* (rubrica) liefse vermuten, dafs *teáfor* allgemein zeichenfarbe war, deren man sich beim einritzen der buchstaben bediente, und so könnte es rune, geheime zauberschrift, folglich zauber aussagen?”) More recently, cf. Wesche 1940: 5; Poruciuc 1990; Essler 2017: 162–169 (undecided between a basic meaning ‘tool for protection’ and ‘color’).

5 No proposal in Falk & Torp 1909: 151; de Vries (1977: 583) seeks a connection with ON *tafn* ‘sacrifice’ (OHG *zebar*) and ON *tjóðr* ‘fetters for animal feet’ assuming a basic root **de(!)/*dey-*; also impossible Orel 2003: 402 (derivation from **tawjanan* [Goth. *taujan* ‘do’]); not treated in Bjorvand & Lindeman 2000; EDPG.

6 OED: s.v. “A small perforated ball or other body, a series of which (formerly called ‘a pair of beads’) threaded upon a string, forms the rosary or paternoster, used for keeping count of the number of prayers said.”

7 Cf. de Vries (1977: 583 s.v.): “Die bed. ‘rote farbe’ von ae. *teafor* hat man mit dem brauch, die runen rot zu bemalen verbinden wollen (Arntz, Handb. der Runenkunde 286), aber dann lässt sich diese bed. aus der zaubermagie erklären, nicht umgekehrt.”

8 Lat. *fascinum* denotes an amulet in the form of a penis hung around boys’ necks to protect them against the evil eye, cf. Varro *LL* 7. 97.

9 Cf. also Wells & Starck 1990: 768: *fascinum*, *praestigium*, *maleficium*. Wesche (1940: 13) points out that there are no compounds like **zoubarliod* or °*sang* attested in OHG. His conclusion that such forms were unnecessary (“man hat also ein solches Kompositum nicht unbedingt nötig”) is of course an invalid argumentum ex silentio.

10 Cf. Pleteršnik & Wolf 1895: s.v. “*dúpati*, *dúpam*, -*pljem*, vb. impf. 1) auf etwas Hohles schlagen, Z.; – 2) dumpf rauschen, C.”; Berneker 1924: 1.238.

to mean ‘magic’.¹¹ This idea has generally been dismissed as improbable in the ensuing literature, as there does not seem to be evidence for Germanic tribes using such devices.¹² However, if one can take data from Slavic,¹³ Baltic (Latv. *dupētiēs* ‘make a hollow sound’; cf. ME: 1, 518). Greek (δοῦπος ‘heavy sound, thud’, δουπέω) and Anatolian (CLuw. *dūpi/ai-* ‘to strike’, *dupiḫalli-* ‘club’, cf. Starke 1990: 313 n. 1093, 47; HLuw. *tupi-* ‘to incise, beat’)¹⁴ as sufficient for the reconstruction of a root **deyp-*,¹⁵ a protoform **doupro-* meaning ‘boom, roar’ referring to the vocal sounds produced during an incantation may be possible; the polysemy ‘beat, strike’/‘make a hollow sound, hum’ probably arose by metonymy due to the implication “If you beat something, it makes a sound.”¹⁶ Furthermore, the use of a verb to refer both to sounds produced by the human voice and by natural phenomena such as sea and wind seems unremarkable; cf. e.g. Gk. βέβρυχα, βρυχάομαι said of the roaring waves and of the moaning of a fatally wounded warrior in Homer:

- (2) κείτο τανυσθείς / βεβρυχώς
‘He lay outstretched, *moaning* aloud.’ Il. 13.393
- (3) βέβρυχεν μέγα κύμα
‘The mighty wave *roars*.’¹⁷ Il. 17.264

Other examples, which could probably be multiplied, are Lat. *strepō*, used, among other things, for instruments (4), rivers (5) and the human voice (6), *murmurō* denoting human moaning (7), magic muttering (8) and the sound of the sea (9), and *fremō* said of the wind (10) and human voices (11):

11 “Durch die Schamanentrommel des Lappen oder des Finnen, die der Germane ehemals, etwa wenn sein Vieh krank war, gewiss auch in Anspruch genommen hat, mag aus dem ‘Trommelschlag’ der ‘Zauber’ geworden sein.”

12 E.g. de Vries 1977: 583: “sachlich und sprachlich vollkommen unbefriedigend,” Wesche (1940: 5 fn. 3): “Die Schamanentrommel ist bei den Germanen, soviel ich sehe, unbekannt; wir hören nirgends etwas von altem germ. Trommelzauber.”

13 Cf. also Serb. *dūpiti* ‘mit Getöse schlagen’, bulg. *dūp’b* ‘gebe einem Roß die Sporen’ (Berneker 1924: 1, 238).

14 Cf. Hawkins 2000: 502 on **273-pi-ti /tupiti/* ‘beats → incises, writes’.

15 With Siebs’s law one might connect **(s)teyp-* ‘to beat’ (Lat. *stupēre*, Gk. τύπτω, etc., cf. LIV²: 602f.); cf. Siebs (1904: 294): “lautet die wurzel mit idg. media an, so beginnt die parallele s-form mit idg. s + entsprechender tenuis; lautet die wurzel mit idg. media aspirata an, so beginnt die parallele s-form mit idg. s + tenuis oder tenuis aspirata.”

16 The restriction of the Anatolian data to the presumably earlier meaning ‘beat’ (→ ‘write’) may be another instance of semantic archaisms retained in this branch as e.g. in **seh₁-* ‘to press in’ vs ‘to sow’ elsewhere (cf. LIV²: 517).

17 Note also the gloss in Hesychius βρύχεται· μαινεται, i.e. ‘howls like a madman’, which might be related to inspirational frenzy.

- (4) *rauco strepuerunt cornua cantu*
 ‘The horns rang with their hoarse notes.’ Verg. A. 8.2
- (5) *nec fluvii strepunt Hiberna nive turgidi*
 ‘The rivers no longer roar, swollen with winter snow.’ H. C. 4.12.3
- (6) *intra Albanam arcem sententia Messalini strepebat*
 ‘Messalinus’ rasping voice was confined to the Alban citadel.’ Tac. Agr. 45
- (7) *servi murmurant*
 ‘The slaves mutter.’ Plaut. Mil. 744
- (8) *(magia) carminibus murmurata*
 ‘muttered in spells’ Ap. Apol. 47
- (9) *fremitum murmurantis maris*
 ‘the thunder of the roaring sea’ Cic. Tusc. 5.116
- (10) *illi indignantes magno cum murmure montis / circum claustra fremunt*
 ‘They [sc. the winds], to the mountain’s mighty moans, chafe blustering around the barriers.’ Verg. A. 1.55
- (11) *omnes magno circum clamore fremebant*
 ‘With loud lament, all were mourning round him.’ Verg. A. 6.175

In the specific context of magic spells and songs, one might also take into account the imitation of natural sounds during an incantation by the magic expert,¹⁸ which would make the use of a verb denoting such phenomena to describe their vocal counterparts even more likely. Tacitus uses *murmur* to describe the hollow sound of voices produced by Germanic warriors with the help of their shields when preparing for battle:

- (12) *adfectatur praecipue asperitas soni et fractum murmur, obiectis ad os scutis, quo plenior et gravior vox repercussu intumescat.*
 ‘The object they specially seek is a certain volume of hoarseness, a crashing

¹⁸ Cf. Malinowski 1948: 54 (reporting from his field-work in Melanesia): “The study of the texts and formulas of primitive magic reveals that there are three typical elements associated with the belief in magical efficiency. There are, first, the phonetic effects, imitations of natural sounds, such as the whistling of the wind, the growling of thunder, the roar of the sea, the voices of various animals. These sounds symbolize certain phenomena and thus are believed to produce them magically.” Cf. also PGM VII.765-780 “And the first companion of your name [sc. of the goddess Mene] is silence, the second a popping sound, the third groaning, the fourth hissing, the fifth a cry of joy, the sixth moaning, the seventh barking, the eighth bellowing, the ninth neighing, the tenth a musical sound, the eleventh a sounding wind, the twelfth a wind-creating sound, the thirteenth a coercive sound” (Graf 1991: 203).

roar, their shields being brought up to their lips, that the voice may swell to a fuller and deeper note by means of the echo.’ Tacitus *Germania* 3

Hence, *murmur* may denote both a deep, hollow sound and the muttering of a magic spell. This polysemy would seem to match that of **deup-* assumed here to underlie Gmc. **tauf/bra-*.

Tacitus further reports that the Germanic tribes took as divine signs the neighing and snorting of horses, which he describes with *hinnitus* and *fremitus*:

- (13) *proprium gentis equorum quoque praesagia ac monitus experiri. publice aluntur isdem nemoribus ac lucis, candidi et nullo mortali opere contacti; quos pressos sacro curru sacerdos ac rex vel princeps civitatis comitantur hinnitusque ac fremitus observant. nec ulli auspicio maior fides, non solum apud plebem, sed apud proceres; sacerdotes enim ministros deorum, illos conscios putant.*

‘Their special divination is to make trial of the omens and warnings furnished by horses, in addition to other methods. In the same groves and coppices are fed certain white horses, never soiled by mortal use: these are yoked to a sacred chariot and accompanied by the priest and king, or other chief of the state, who then observe *their neighing or snorting*. On no other divination is more reliance placed, not merely by the people but also by their leaders and their priests; for the nobles regard themselves as the servants of the gods, but the horses as their confidants.’ Tacitus *Germania* 10

As seen in the examples above, *fremō* and derivatives also denote human vocal sounds and cooccur with *murmur/-ō*. These data may be taken to show that a root meaning ‘make a hollow sound’ may also be used to refer to magic muttering.

The generalized meaning of **tauf/bra-* ‘murmuring > magic’ has a parallel in forms based on OHG *galan* ‘to sing, bewitch’ (OE *galan*, ON *gala*),¹⁹ OHG *galstar* meaning ‘magic song, spell’, but also ‘magic potion, poison’,²⁰ and its derivatives *galstarara* f. ‘witch’, *galstarari* ‘warlock’, *galstarōn* ‘speak magic spells, *incantare*’, *bigalstarōn* ‘bewitch’.

As for the morphology, Wagner (1998) has pointed out a number of instances of Germanic adjective stems in **-ra-* beside frequently synonymous forms with simple **-a-*, e.g.:

¹⁹ PIE **g^hel-*: OHG *gellan* (EWAhd: 4, 140–141, st. v. III: *gal*, *gulum*, *gigollan*), OE *gí(e)llan* ‘scream’, ON *gjalla* (**g^hel-n/s-*), cf. Arm. *geḡelem* (7th c.+), NBHL: “μελωδέω modular, laudo carmine”; *Hexaemeron*, Nersēs Lambronacⁱ, etc.)

²⁰ Cf. EWAhd: 4, 33: *galstar* glossed as *cantamen*, *carmen*, *incantatio*, *necromantia*, *praestigium*, *veneficium*.

- (14) **haida-* : **haidra-* ‘bright, clear’
 **haisa-* : **haisra-* ‘hoarse’
 **swanka-* : **swankra-* ‘slim, flexible’, etc.²¹

Hence, one might assume that beside **doupro-* (as attested in Greek) Germanic may have had a dublet **doupro-* ‘murmuring, enchanting’.²² The effect of Verner’s law is likely to have been caused by accent retraction due to substantivization (**doupró-* → **dóupro-* ‘magic chant’), after which **taufra-* and **taubra-* became allophonic variants of one lexeme.²³

Two forms that seem to militate against this explanation are the Greek epic epithet of Zeus ἐρί-γδουπος ‘thundering loudly’ beside ἐρί-δουπος²⁴ and the verbal hapax form (*Il.* 11.45) ἐπι δ’ ἐγδούπησαν, which have traditionally and obviously been connected with δουπος and δουπέω. However, since a corresponding root with an initial cluster **gd-* or **dg-* (metathesized in Greek) does not seem to be forthcoming in PIE, one has mostly resorted to the assumption that /gd/ arose secondarily within Greek by analogy to κτύπος ‘crash, noise, thunder’ (→ κτυπέω), cf. also ἐρί-κτυπος (Hes. *Th.* 456, 930, referring to Poseidon).²⁵ Alternatively, one might assume that in the compound ἐρίγδουπος the cluster arose by metathesis of

21 Cf. the data in Heidermanns 1993: 265f. ON *heiðr* : OHG *heitar*; p. 270: OE *hās* : OHD *heisar*; p. 573f.: MHG *swanc* : OE *swancor*. See Wagner 1998: 170, cf. also Vine 2002: 345 on OE *smære* ‘lip’ < **smoirjo-*.

22 Gk. δουπος might be a primary substantive Cóc-*o-* (cf. φέρω → φόρος ‘tribute, payment’, etc.) or reflect a substantivized adjective **douπό-* → **dóupro-*, cf. the pattern τομός ‘cutting, sharp’ : τόμος m. ‘slice, piece (of land, etc.)’, λευκός ‘white’ : λεῦκος [‘name of a white fish’], etc.

23 Cf. further instances of this process in Schaffner 2001: 328–346, e.g. Gmc. **ánxula-* m. ‘sprout, seed’ (ON *áll, óll*) < **h₂énkulo-* vs **angulá-* ‘hook’ (OHG *angul*, OE *ange/ul, ongel*, etc.) < **h₂enkuló-* (Gk. ἀγκύλος ‘crooked, bent’), Gmc. **bársa-* m. ‘perch’ (OHG *bars*) < **b^hórso-* vs **barzá-* ‘upright, stiff’ (OHG *parremo* ‘erectus’, ON *barr* ‘fiery’, *barraxlaðr* ‘with upright shoulders’ < **b^horsó-*, cf. Skt. *bhṛṣṣí-* f. ‘edge, peak’, etc. Alternatively, the pair **-fr-*/*-br-* might be an instance of the variation of voiced and voiceless fricatives/stops preceding approximants and liquids found e.g. in OIcel. *dvena* ‘to diminish’ vs OSwed. *thvīna*, OE *þwīnan* (Gmc. **dwīn-a-/þwīn-a-*), OIcel. *drima* ‘battle’ vs *þrima* ‘id.’, cf. Ginevra 2020: 73–75. With Bahder 1903 one might expect a change of Gmc. **-b-* > OHG *-f-*/*l* as in *scūfla*, MHG *schüvel* ‘shovel’, beside *sciuban* ‘shove, push’, i.e. **zoufra-/zoufar*; in this case, only Gmc. **taubra-* would need to be reconstructed; this is not completely certain, however, since there are exceptions such as *sweval/swebal* ‘sulfur’ (Goth. *swibls**), probably due to the development of the anaptyctic vowel, which could be the case of *zoubar*, too; cf. also Stiles 2017: 891.

24 On compounds in ἐρί- cf. Willi 1999.

25 E.g. IEW: 221: “der in hom. ἐγδούπησαν, ἐρίγδουπος ‘laut donnernd’ (μασιγδουπον...μεγαλόηχον Hes.) zutage tretende ursprüngliche Anlaut γδ- ist vielleicht mit κτύπος ‘Schlag’ neben τύπος parallel oder ihm nachgebildet, so daß über sein Alter keine Sicherheit zu erlangen ist.” Tichy (1983: 97): “-γδουπο- mit γδούπησαν ist wohl als eine in Bedeutung und Anlautskonso-

an earlier *ἐρίδ-γουπος and that after this the form was secondarily associated with ἐρίδουπος.²⁶ The first element could be ἔρις, -ιδος ‘quarrel, dispute’, which might be related to the fact that, in Homer, seven of the eleven instances of ἐρίδουπος occur in the formula ἐρίδουπος πόσις Ἥρης (in contrast to ἐρίδουπος, which is never said of Zeus). The epithet might thus refer to the constant quarrels of the divine couple, but the second member remains unclear.²⁷ In any case, the Greek variants in /gd/ do not seem to be decisive for the reconstruction of PIE *deǵp- and its continuants elsewhere.

Summary: Gmc. *tauf/bra- may be connected with a PIE root *deǵp- ‘beat; resound, make a hollow sound’ found in Anatolian, Slavic, Baltic and Greek. It originally denoted the murmur of the magic expert during an incantation. The Greek forms in °γδ- arose secondarily within the epic language.

3 Healing heat: Gk. φάρμακον

“Dem einfachen Naturmenschen gilt Arznei, Gift und Zaubermittel für Eins.” (Pape 1914: 1256)

3.1 Meaning

The origin of Greek φάρμακον ‘herb, medicine, remedy, poison, incantation’ and φάρμακος ‘sorcerer’, attested since Mycenaean times (PY Un 1314.1 *pa-ma-ko*), is unclear. As in the case of so many other Greek lexemes, EDG: 1554 considers it a Pre-Greek substrate word:

“The original meaning of φάρμακον cannot be established with certainty. The word is clearly Pre-Greek. Fur.: 220 compares φόρβαντα· ἱατρικὰ φάρμακα (H.), φόρβια· φάρμακα, οἱ δὲ

nanz von κτυπέ· ,einen Donnerschlag tun‘ (von Zeus) beeinflusste onomatopoetische Variante zu δοῦπο- mit δούπησ(α)- gebildet worden.”

26 Cf. for the metathesis τίκτω < *titkō and πτόλις, πτόλεμος which may go back to compounds in °t-, cf. Dunkel 1992 and Pinault 2018. Similar compounds with athematic first element are αἰπόλος ‘shepherd’ < *αἰγ-πόλος and χέρ-νιψ ‘water for washing hands’.

27 PIE *preǵ- ‘to prick, sting; vex, trouble’, Lat. *pungere*, -ō, with metathesis from *erid-pougo- as in ἀρτοκόπος ‘baker’ < *°pokʷos (Myc. *a-to-po-ko*), meaning ‘vexed by quarrels (with his wife)’ or ‘vexing (others) by quarreling’?

φόρβα (H.). Note the variations α/ο and μ/β, well-known from Pre-Greek. Foreign origin is already pleaded for by Chantraine (1933: 384) and Schwyzer (1939: 497).”²⁸

However, semantic equivalence and formal similarity alone are not enough to suppose common origin (the *deus/θεός*-fallacy). In this case, there is no compelling reason to connect φέρβω ‘feed’ and its derivatives with φάρμακον. In the same way one might argue that βαίνω and βλώσκω/μολεῖν, both meaning roughly ‘walk’, show the well-known variation /a, o/ and /m, b/ and must hence be considered as deriving from a common Pre-Greek etymon.

The semantic breadth found in φάρμακον makes it difficult to assess what the original meaning might have been.²⁹ As in the semantic shifts seen in Gmc. **taufra*- above, in principle both the development from a concrete meaning such as ‘murmuring’ to a more general ‘magic’ seems possible and a specialization from ‘magic’ to the designation of any tool instrumental in healing or inflicting harm,³⁰ e.g. ‘amulet’, ‘herb’, ‘dye’,³¹ ‘rust’,³² ‘scapegoat’ (Hippon. *frg.* 5–10, Ar. *Ra.* 733, etc., cf. Artelt 1937: 89–90).

In Homer, φάρμακον denotes medicine and poison, used externally (15) or ingested (16), magic potions (17) and other material of unclear definition having magic effects such as bodily transformation (18):

- (15) ἔλκος δ’ ἰητῆρ ἐπιμάσσειται ἢ δ’ ἐπιθήσει
 φάρμαχ’, ἃ κεν παύσῃσι μελαινάων ὀδυνάων.
 ‘But the healer will examine the wound and *lay on it herbs* that will make
 you cease from dark pains.’ Il. 4.190

28 Commented by GEW: 2, 993 as “which, of course, is no solution” (“was natürlich keine Lösung ist”).

29 As GEW: 2, 993 puts it: “Since the original meaning of φάρμακον cannot be determined, the etymologist has ample freedom” (“Da die urspr. Bed. von φάρμακον nicht feststellbar ist, hat der Etymologe einen weiten Spielraum”). Earlier proposals that also start from *φάρμα tried to connect roots of the form **b^her(H)*-, Lith. *burīū*, *būrti* ‘to practice magic, prophecy’ (Osthoff), probably meaning ‘to beat’ originally (“Zauberschlag”), or related to φέρω and Alb. *bar* ‘herb’ (Kretschmer) or **b^her*- meaning ‘cut’ (like Germ. *Heu* ‘hay’ from *hauen* ‘cut’) (Frisk). Cf. also Langholf in LfgGE: 4, 822–824, who compares Gk. ῥιζοτόμος (Hp., Thphr.+) “one who cuts or gathers roots, esp. for purposes of medicine or witchcraft, herbalist” (**lsj**).

30 Cf. Artelt (1937: 40) who supposes that φάρμακον meant “something used for magic purposes, magic product” (“Zaubermittel”) generally, which would include meanings such as ‘medicine’ and ‘poison’.

31 Hdt. 1.98 ἠνθισμένοι [...] φαρμάκοις ‘painted with colors’.

32 As in the story of Telephos, whose wound was healed by the rust of Achilles’ spear that had caused it (Hyg. *fab.* 101), cf. Laser 1983: 88f. fn. 220; 125 (“ὁ τρώσας ἰάσεται”).

- (16) βεβρωκῶς κακὰ φάρμακ’
 ‘(like a serpent) having fed on evil *herbs*’ Il. 22.94
- (17) αὐτίκ’ ἄρ’ εἰς οἶνον βάλε φάρμακον, ἔνθεν ἔπινον,
 νηπενθές τ’ ἄχολόν τε, κακῶν ἐπίληθον ἀπάντων.
 ‘At once she cast into the wine of which they were drinking a *drug* to quiet
 all pain and strife, and bring forgetfulness of every ill.’ Od. 4.220
- (18) ἀμφὶ δέ μιν λύκοι ἦσαν ὀρέστεροι ἠδὲ λέοντες,
 τοὺς αὐτὴ κατέθελξεν, ἐπεὶ κακὰ φάρμακ’ ἔδωκεν.
 ‘And round about it [sc. Circe’s house] were mountain wolves and lions,
 whom Circe herself had bewitched; for she gave them evil *drugs*.’ Od. 10.212

As Langholf in LfgrE: 4, 822–824 stresses, φάρμακον is not used in the meaning ‘incantation, magic spell’ in epic Greek,³³ but Plato uses the derivative φαρμάσσω/-άττω in the sense ‘to enchant, use a spell’ (19) and in the *Nomoi* he divides φαρμακεῖα into two kinds, those harming by physical means and those harming by magic spells (20) (cf. Artelt 1937: 99–100):

- (19) Φαρμάττειν βούλει με, ὦ Σώκρατες, εἰπεῖν τὸν Ἀγάθωνα, ἵνα θορυβηθῶ διὰ τὸ οἶεσθαι τὸ θέατρον προσδοκίαν μεγάλην ἔχειν ὡς εὖ ἐροῦντος ἐμοῦ.
 ‘“You want to *throw a spell* over me, Socrates,” said Agathon, “so that I may be flustered with the consciousness of the high expectations the audience has formed of my discourse.”³⁴ Pl. *Smp.* 194a
- (20) διτταὶ γὰρ δὴ φαρμακεῖαι κατὰ τὸ τῶν ἀνθρώπων οὔσαι γένος ἐπίσχουσι τὴν διάρρησιν. ἦν μὲν γὰρ τὰ νῦν διαρρήδην εἵπομεν, σώμασι σώματα κακουργοῦσά ἐστι κατὰ φύσιν· ἄλλη δὲ ἡ μαγγανείαις τέ τισι καὶ ἐπωδαῖς καὶ καταδέσεισι λεγομέναις πείθει τοὺς μὲν τολμώντας βλάπτειν αὐτοὺς, ὡς <ὄντως> δύνανται τὸ τοιοῦτον, τοὺς δ’ ὡς παντὸς μᾶλλον ὑπὸ τούτων δυναμένων γοητεύειν βλάπτονται.
 ‘A division in our treatment of *poisoning cases* is required by the fact that, following the nature of mankind, they are of two distinct types. The type that we have now expressly mentioned is that in which injury is done to bodies by bodies according to nature’s laws. Distinct from this is the type

³³ “Stets materiell; nie i.S.v. ‘Beschwörungsformel’”. Cf. also Artelt 1937. Differently e.g. Scarborough 1991: 139 with reference to *Od.* 10.391–394 (“the ‘other drug’ (or “spell”, here)”) – Circe restores Odysseus’ companions’ human form –, where, however, ἀλείφω ‘to smear, anoint’ implies a salve (προσάλειψεν ἐκάστῳ φάρμακον ἄλλο).

³⁴ Cf. also φαρμακεύω in *Hdt.* 7.114 *Φαρμακεύσαντες* δὲ ταῦτα ἐς τὸν ποταμὸν καὶ ἄλλα πολλὰ πρὸς τούτοις ‘*Having used these enchantments* and many other besides on the river [Strymon] after a sacrifice of white horses with auspicious omens, cf. also Artelt 1937: 48.

which, *by means of sorceries and incantations and spells* (as they are called), not only convinces those who attempt to cause injury that they really can do so, but convinces also their victims that they certainly are being injured by those who possess the power of bewitchment.’ Pl. *Nom.* 932e–933a

3.2 Derivation

Forms in -ακος/-ν can be thematized stems in -ακ, cf. φύλαξ ‘guardian’ → φύλακος (Il. 24.566), hence φάρμακος/-ν may derive from *φάρμαξ, which in turn can be a derivative of a stem in -μα, cf. ἔρμα → ἔρμαξ, both meaning ‘cairn, heap of stones’, κλίνω ‘to lean, incline’, κλίμα (Plb.+) ‘inclination’ → κλίμαξ (Od.+) ‘ladder’ (*‘leaning thing’).³⁵ If so, the base form *φάρμα may go back to *g^{wh}γmη and be related to θερμός ‘warm, hot’ with full-grade of the root also presupposed by θερμαίνω derived from *θέρμα < *g^{wh}er-mη. Accordingly, θερμός is likely to go back to *g^{wh}ermnós with loss of the second nasal due to the “*asno*-rule”.³⁶ These derivatives seem to presuppose a proterokinetic paradigm nom. *g^{wh}ér-mη, gen. *g^{wh}γ-mén-s, and *φάρμα, presupposed by its derivative φάρμακον, would be a secondary form with the zero-grade of the root generalized from the weak cases and with the productive suffix form -μα.³⁷ Alternatively, and parallel to θέρμη ‘heat’ (Hp.+), but again based on the zero-grade allomorph of the root, a collective/feminine *g^{wh}γmnéh₂ ‘heat; hot stuff’ would have resulted in *φαρμά, from

³⁵ /i/ instead of /ei/ in κλίμαξ probably from κλίνω, similarly Hellenistic κλίμα with /i/ for earlier *klejma, cf. Schwyzler 1939: 523, see also fn. 39.

³⁶ Cf. e.g. Byrd 2015: 20: Av. *asman*- ‘heaven’, gen. *asnō* < **asmnás*. Cf. also beside κευθμῶν κευθμός ‘hiding place’ < **mnó*-.

³⁷ On μα-forms cf. Chantraine 1933: 178–179; Schwyzler 1939: 523; Risch 1974: 49–51 and recently Gunkel 2011 who discusses the rise of the more recent pattern of the type χύμα (Arist.+) besides older χεῦμα (H.+), i.e. derivation from the weak stem allomorph if this ends in a short vowel. He interprets this as due to a tendency of trochaic shortening /preference for L(ight).L(ight) syllables at word end (H.L > L.L). Under this interpretation *φάρμα would not fit the phonological pattern, as the stem ends in a consonant, but it fits the derivational pattern, as it derives from the weak stem allomorph of *g^{wh}er/g^{wh}γ-. It might thus belong to an earlier phase of the change of the derivational pattern: i) derivation from the weak stem allomorph; ii) derivation from the weak stem allomorph restricted to cases ending in a short vowel. An example for (i) could be Homeric ἄλλομαι ‘jump’ (cf. Lat. *saliō* < *s₁-iē/o-, PIE *sel-/sal-/sh₂l-): ἄλ-μα (Od. 8.103 περιγιγνόμεθα ἄλλων ἄλμασιν, 128 ἄλματι προφερέστατος ἦεν), but probably the root generalized the form /hal/ even before this development. Other instances are attested late, e.g. φθάρμα ‘corruption’ (LXX, cf. φθειρω). If the pattern emerged, when /r, l/ still functioned as syllable nuclei (/r̥, l̥/), *g^{wh}γmη would fit the type χύμα in both respects, but, as argued by Gunkel, it became productive much later.

which *φάρμαξ → φάρμακον could have been derived.³⁸ The variant φαρμαῖός ‘scapegoat’ (Hippon., Call.) beside φαρμαῖός (A.) may be a remnant of *φαρμαῖξ. The verb φαρμάσσω ‘treat, heal, put a spell on’ (v. *supra*) is directly derivable from the supposed stem *φαρμαῖκ-, i.e. *φαρμαῖκε/ο-, not from the thematic stem φαρμακο- (cf. φαρμακόω, Pi. P. 4.221 φαρμακώσαισ’). In the *Odyssey* it is used once in the meaning ‘to temper’ with reference to the treatment of metal.³⁹ Within the hypothesis stated above, the verb meaning ‘provide with heat’ may have developed into ‘provide with the right temperature; temper’, which could either mean ‘cool’, as in the case of hot metal, or ‘heat, warm’ in the case of a sick person:

- (21) ὥς δ’ ὅτ’ ἀνήρ χαλκεὺς πέλεκυν μέγαν ἠὲ σκέπαρνον
εἶν ὕδατι ψυχρῷ βάπτει μεγάλα ἰάχοντα / φαρμάσσων
‘And as when a smith dips a great axe or an adze in cold water to temper it
and it makes a great hissing ...’ (Murray/Dimock)⁴⁰ 9.391

3.3 Similar cases

For the connection between ‘heat’ and ‘healing’ presumed here to underlie *φάρμα and its derivatives one may compare two possible parallel cases in Greek (a–b) itself and two more in Germanic (c) and Latin (d):

- a. Gk. ἀλθαίνω, -ομαι ‘to cure; to become whole and sound’ (Il. 5.417 ἄλθετο χεῖρ ‘The hand was healed’) and corresponding glosses in Hesychius and the *Etymologicum Magnum* explaining the related forms ἄλθος and ἄλθα, etc., as meaning ‘heat’, ‘drug’, etc., cf.

³⁸ With oxytone accent as in *k^wk^wléh₂ ‘(set of) wheels’ (→ Gk. κύκλα), φῶλή ‘tribe, troop’, etc., cf. Dieu 2016: 534–536. For the derivational relations between stems in -ā and -āκ/āk- cf. Kölligan 2016.

³⁹ Heubeck & Hoekstra (1990: 34) assume a meaning ‘treat with a φάρμακον’, which in this case would be water “to temper the metal”. Laser (1983: 124 fn. 329) thinks of a connection between the meanings ‘drug’ and ‘dye’ and ‘plunge, put into water’ as in βάπτω, but φαρμάσσω does not mean ‘dye’ here.

⁴⁰ The concept of healing as the provision of the right amount of a substance is usually understood to underlie Lat. *medicus*, cf. OIr. *midithir* ‘measures, judges’, Goth. *mitan* ‘to measure, consider’, etc. Cf. fundamentally Benveniste 1945, who defines the meaning of PIE *med- as “prendre avec autorité et réflexion des mesures d’ordre ; appliquer à une situation troublée un plan médité.” The εὐδιανὸν φάρμακον in Pindar is of course not decisive, as it may derive from the general meaning ‘remedy’: P. O. 9.97 ψυχρᾶν [...] εὐδιανὸν φάρμακον αὐρᾶν [...] φέρε “He carried off the *warming remedy* / for chill winds.” (i.e., a woolen cloak).

- (22) ἄλλα· θερμασία ἢ θεραπεία.
 ἀλθεύς· ἰατρός.
 ἀλθαίνει· αὖξει, θεραπεύει, ὑγιαίνει· φάρμακον γὰρ ἄλθος. Hesych.
- (23) ἄλθος· φάρμακον. (EM 63.11; EM: 170)

The gloss θερμασία ‘warmth, heat’ is questioned by EDG: 67,⁴¹ but the term is regular in technical texts (Hp., Arist.) and elsewhere (Epicur., LXX, etc.), and fits the explanation of *φάρμα proposed here, i.e. ἄλθος/α ~ θερμασία ~ φάρμακον.⁴²

- b. Gk. *ιαίνω/-ομαι* ‘make/get warm, delight’ (*Od.* 10.359 *ιαίνεται δ’ ὕδωρ* ‘The water was heated’; *h.Cer.* 435 *κραδίην καὶ θυμόν ἰαίνειν* ‘to cheer up heart and mind’) is related with the group of *ἰάομαι* ‘to heal’, *ἰητήρ/ἰατρός* ‘physician’, etc. As argued in detail by García Ramón (1986), one may reconstruct a root **h₁eṛs[h₂]*- ‘to impel, strengthen’ also reflected e.g. in Ved. *iṣ* ‘strength’, *iṣṇāti* ‘impels, sends’ (cf. LIV²: 234). Gk. *ἰάομαι* may go back to an athematic reduplicated present **ἰαῖαμι* < **h₁i-h₁ish₂-*, while *ιαίνω* continues **h₁is[h₂]ḡie/o-* and corresponds to Ved. *iṣanyati* ‘impels, stimulates’.⁴³
- c. Germ. *bāhen*, OHG *bāen* ‘to warm, to heal with fomentation’⁴⁴
- d. Lat. *fomentum* ‘warm application, (warm) lotion, etc.’ (: *foveō* ‘to warm’) apparently imply the same idea, e.g. in Horace

- (24) *At si condoluit temptatum frigore corpus
 aut alius casus lecto te adfixit, habes qui
 adsideat, fomenta paret, medicum roget, ut te / suscitet*
 ‘But if your body is seized with a chill and racked with pain, or some other mishap has pinned you to your bed, have you some one to sit by you, to get lotions ready, to call in the doctor so as to raise you up.’ S. 1.80

The cognitive basis for this connection is probably the perceivable equivalence between on the one hand body motion, body heat, being alive and well, and on the other the lack thereof implying sickness or death: a dead body is cold and does not

⁴¹ “θερμασία is less clear (is it a false reading?)”.

⁴² In the edition of Schmidt (1867) θερμασία is conjectured to belong to the entry ἀλέα· *θέρμη vgAS θάλλος, while in Latte (1953) the entry is given as above.

⁴³ Cf. already Brugmann 1906: 3, 199; Schwyzer 1939: 681; Chantraine 2013: 342: “*ἰάτο* (M 2) cf. *ιαίνω*.” This connection has frequently been disputed, e.g. by Benveniste (1945: 6 fn. 1), cf. the review in van Brock 1961: 255–258.

⁴⁴ Cf. EWAhd: 1, 425 ‘bāhen, wärmen, mit Umschlägen heilen, *fovere, placare*’; LIV²: 67: **b^heh₂-* (only Germanic). Related to this is Gmc. **baþa-* ‘(*hot) bath’ (quasi **b^hþ₁to-*), ON *bað*, OHG *bad*, etc., cf. EWAhd: 1, 423–424.

move, and a sick and weakened body's mobility is impaired.⁴⁵ Hence, one form of healing consists in putting motion and heat back into the sick body, and terms meaning 'impel, cause to move', 'make warm' and 'strengthen' may come to mean 'heal'.⁴⁶ The Vedic data are clear in this respect (cf. García Ramón 1986: 501), cf. *iṣ-* 'strengthening, refreshment, drink', derived from this *eṣá-* 'quick, powerful' (RV 2.34.11 *vīṣṇor eṣáśya* 'of e. Vishnu'), and *iṣṛti-* 'healing' (25) < 're-animation', °*karṭr* 'healer' (26), cf.

(25) ^a *iṣṛtir nāma vo mātā-*

^b *-átho yūyám stha niṣṛtīh*

^d *yád āmáyati níṣ ḱrtha*

'Eure Mutter heißt *Heilmachung*, und ihr seid die Heilungen. [...] Was schmerzt, das heilet ihr.' (Geldner);

'Your mother is the 'Restorer' by name, and you all are 'Expellers.' [...] You expel what causes affliction' (JB) RV 10.97.9

(26) ^a *iṣkartāram āniṣṛtaṁ sáhaskṛtaṁ*

'den *Heilenden*, der keiner Heilung bedarf, den Krafterzeugten' (Geldner);
'*the one who sets right* but needs no setting right, made by might" (sc. Indra we invoke) (JB). RV 8.99.8

Accordingly, disease may be conceptualized as coldness, which is what the author of the following curse tablet from 3rd c. AD Athens wishes to inflict upon the victim – ex. (27) –, including the victim's "disappearance", i.e. death, ex. (28) (cf. Versnel 1998: 235 quoting Elderkin 1937):

(27) παραδίδωμί σοι Φιλοστράταν ... ἵνα αὐτῆς **καταψύξης** πᾶν αὐτῆς τὸ πνεῦμα τὴν ζοὴν τὴν δύναμιν τὴν ἰσχὺν τὸ σῶμα τὰ μέλη τὰ νεῦρα τὰ οὔστα ...

45 Cf. also Gmc. **k^wik^wa-* 'alive' and NE *quick* '(alive;)(moving) fast'. For the semantic link between 'weak' and 'sick, ill' cf. Lat. *infirmus* 'weak' > Span. *enfermo* 'sick, ill', Gk. ἀσθενής 'weak, sick'.

46 García Ramón (1986: 500–501): "terapéutica mediante fomentos", doubtful Chantraine (DELG²: 452 s.v. ἰαίνω): "le mouvement revient lorsque l'on est réchauffé, réconforté?" and DELG: 453 s.v. ἰάομαι: "on pourrait soutenir qu'un verbe signifiant 'réchauffer' serait susceptible de s'orienter vers le sens de 'soigner', si l'on songe a des thérapeutiques du genre de la fomentation, etc.", Ramat (1962: 11): "il curare è un ridar nuova forza, nuovo calore, è un porre in movimento". The meaning of *ἰάνθη* in *Il.* 15.102f. is ambiguous: οὐδὲ μέτωπον ἐπ' ὄφρουσι κυανέησιν / *ἰάνθη* "She laughed with her lips, but her forehead above her dark brows *relaxed not*." (Murray/Wyatt), "Sie aber lachte – Mit den Lippen, doch *nicht wurde* die Stirn über den Brauen, den schwarzen, / *Erwärmt*." (Schadewaldt). Latacz (1966: 220–221) assumes a meaning 'to move, become lively' here, from which 'to warm' and 'to regain strength' would be derived, describing the extension of organs like the θυμός when heating up. But one may also take this unique use as a metaphor based on the meaning 'melt' (said of warm wax), cf. Janko & Hainsworth (1999: 239): "She does not relax her μέτωπον ... The metaphor is from wax which softens when warmed."

‘I hand over to you Philostrata ... in order that you may *chill* everything hers, her spirit, life, power, strength, body, limbs, sinews, bones ...’

- (28) [κα]τάψυξον ἐπὶ ἀφανισμῷ
 ‘Chill her until she disappears.’⁴⁷ 21/2

Coldness, disease and death are also closely linked in Old Norse myth, where Niflheim in the north is the origin of coldness and all evils, cf. e.g.

- (29) *vándir menn fara til Heljar ok þaðan í Niflhel, þat er niðr í inn níunda heim.*
 [...] *Svá sem kalt stóð af Niflheimi ok allir hlutir grimmir* [...]
 ‘Wicked men go to Hel and on to Niflhel; that is down in the ninth world.
 [...] Just as from Niflheim there arose *coldness* and all things grim [...].’
Gylfaginning 3–4

Also rationalizing medical teaching both in Greece and in Iran in antiquity operates with the idea of disease as a perturbation of the balance of heat and cold in the body.⁴⁸

⁴⁷ Fear of cold is already expressed in the *Odyssey*, cf. 5.466–469 εἰ μὲν κ’ ἐν ποταμῷ δυσκηδέα νύκτα φυλάσσω, / μή μ’ ἄμυδις στίβη τε κακὴ καὶ θήλυς ἔέρση / ἐξ ὀλιγηπτελῆς δαμάση κεκαφηότα θυμόν· / αὔρη δ’ ἐκ ποταμοῦ ψυχρὴ πνέει ἠῶθι πρό. “If here in the river bed I keep watch throughout the weary night, I fear that together the bitter frost and the fresh dew may overcome in my feebleness my gasping spirit; and the breeze from the river blows cold in the early morning,” cf. Laser 1983: 72.

⁴⁸ Cf. for Greece Craik 2018: both in pre-Socratic medicine and in the *Corpus Hippocraticum* “health is commonly seen as a balance of opposing principles; thus, excessive cold or excessive heat may upset the balance of the body.” Cf. e.g. Empedocles *frg.* 85 [D.-K.] Ἐμπεδοκλῆς τὸν μὲν ὕπνον κατὰ ψύξιν (v.l. καταψύξει) τοῦ ἐν τῷ αἵματι θερμοῦ σύμμετρον (v.l. συμμέτρῳ) γίνεσθαι, κατὰ δὲ παντελῆ θάνατον. Ἐμπεδοκλῆς τὸν θάνατον γεγενῆσθαι διαχωρισμὸν τοῦ πυρώδους, ἐξ ὧν ἡ σύγκρισις τῷ ἀνθρώπῳ συνεστάθη [...]. ὕπνον δὲ γίνεσθαι διαχωρισμὸν τοῦ πυρώδους “Empedocles: sleep occurs by a moderate cooling of the heat in the blood, death by a complete one. Empedocles: death occurred as the separation of the fiery element from the ones out of which the mixture is composed for the human being [...]; and sleep occurs as the separation of the fiery element” (cf. Krug 1993: 25, also Artelt 1937: 93). Matching the etymology proposed here, in the *Corpus Hippocraticum* φάρμακα in the sense of ‘purgative’ are frequently described as inducing heat, cf. Artelt 1937: 76, 81, 85, and are not to be administered in the case of fever and during the heat of the “dog star” Sirius, which was believed to cause fever, in order to avoid excessive heat, e.g. *Loc. in hom.* 33 Πυρεταίνοντι κεφαλὴν μὴ κάθαρε, ὡς μὴ μαίνηται· θερμαίνουσι γὰρ τὰ τὴν κεφαλὴν καθαίροντα φάρμακα· πρὸς δὲ τὸ ἀπὸ τοῦ πυρετοῦ θερμὸν τὸ ἀπὸ τοῦ φαρμάκου προσελθὸν μανίην ποιεῖ “In a patient with fever do not clean the head, lest he become delirious, for medications that clean the head warm, and when the heat coming from the medication is added to that coming from the fever, it produces delirium.” For Iran, cf. Emmerick 1993: 91 quoting from the *Dēnkard* [ed. Madan 165.7–8]: “The totality of health is one thing: the mean; the totality of illness is two things: excess (MP *frehbūd*) and deficiency (MP *abēbūd*),” Gignoux 2001: 123–124;

Summary: Gk. φάρμακον may derive from a *men*-stem built to PIE **g^{wh}er-* ‘heat’ from which also θερμός ‘warm, hot’ may be derived. It originally denoted means for healing by fomentation and later any tool for healing or harming.

4 Binding disease: Armenian հիւանդ *hiwand*

4.1 *hiwand* and PIE **sh₂ei-*

Armenian *hiwand* ‘sick, ill’ translates Gk. ἄσθενής, ἄσθενῶν in the Armenian translation of the Gospels, cf.

- (30) ***hiwand*** *ēi*, *ew tesek’ zis*
 ἡσθένησα καὶ ἐπεσκέψασθέ με
 ‘I was sick and you visited me.’ Mt 25.36
- (31) *Ew darjan andrēn patgamawork’ n i town, ew gtin zcaṛayn hiwand* bžškeal:
 καὶ ὑποστρέψαντες εἰς τὸν οἶκον οἱ πεμφθέντες εὗρον τὸν δοῦλον ἄσθενοῦν-
 τα ὑγιαίνοντα.
 ‘Then the men who had been sent returned to the house and found the sick
 servant well.’ Lk 7.10

It is borrowed from Middle Iranian **hī/ēwand*, cf. ManMP *xyndg* [xī/ēndag] ‘ill, sick’ (cf. Salemann 1908; Boyce 1977: 101), ManParth *hyndag*, from an earlier form [xī/ēwandag], comparable in formation to MP *zyndk* [zindag] ‘alive’ from earlier *zywndk* [ziwandak] (cf. Olsen 1999: 303 fn. 229; MacKenzie 1971: 99). The further origin of this form is unclear, Olsen (1999: 303) proposes a derivation from PIE **seh₂i-* ‘drag behind, be slow and weak’ as given in IEW: 889ff. which corresponds to LIV²: 518: **seh₂(i)-* ‘let go’ (Ved. *áva syáti* ‘lets loose, unharnesses’, Lat. *sinō*, *-ere* ‘allow’, *sērus* ‘late, slow’, Gmc. **sīpu-* ‘late’ [Goth. *seipus*], etc.). While a semantic shift from ‘slow’ to ‘weak, sick’ is possible, no derivatives of this root actually show this meaning.

Alternatively, one may consider a derivation from PIE **sh₂ei-* ‘to bind’ (Hitt. *išhiya-* ‘to bind’, Ved. *sináti*, etc., cf. LIV²: 544), as proposed by Yakubovich 2009: 270–271. Formally, an adjective in **-uent-* seems the most likely option, i.e. (a) **sh₂i-uent-* and with metathesis **sih₂uent-* ‘having a binding, bound’ > Iran. **hīwand-*, or (b) from a noun **sh₂ei-o-* ‘binding/state of being bound’ → **sh₂eio-uent-* > Iran.

Gignoux 2012 (health as the right measure, MP *paymān*). For PIE, cf. Benveniste 1945 on **med-* ‘provide the right measure’.

**haiuand-* > Parth. **heward-*, with regular pretonic vowel reduction of /ē/ in Arm. *hiwand* as e.g. in *gēs* ‘hair’ (cf. MP *gys* ‘locks’, Av. *gāsa-*): *gisak* ‘lock of hair’, etc. In case (a), one would have to assume a late borrowing after the syncope of pretonic /i/ in Armenian, for which there are no further indications in contrast to clearly late forms such as *vrēžxndrowt’iwn* ‘(seeking) revenge’ (Elišē), a nominalization of the phrase *vrēžxndrem* ‘to seek revenge’, with no reduction of /ē/ to /i/. Finally, (c) in light of Lat. *saevus* ‘raging, wild’ < **seh₂iyo-* or **sh₂ei-yo-*, one could assume a proto-form **sh₂ei-yent-* > Iran. **haiuand-*, cf. other pairs with the suffixes *-yo- beside *-yent- like Gk. ἰλα(φ)ος : ἰλ(λ)ά(φ)εις ‘propitious’ (Alc. *frag.* 58.19 ἰλλάντι θύμῳ), Skt. *keśavá-* ‘with long hair’ (AV+): *kéśavant-* ‘id.’ (RV 10.105.5).⁴⁹ Other derivatives from this root show meanings belonging to the semantic range of ‘sickness’, too, cf. OHG *sēr* ‘pain; wounded, sore’ < Gmc. **saira-* and OIr. *saeth* ‘trouble, hardship, distress, tribulation (both physical and mental); disease, illness’ (cf. Marstrander 1913–1980: s.v.) < **seh₂itu-* (cf. Janda 2000: 118), which is frequently glossed as *galar* ‘sickness, disease’, cf. Hitt. *kallar-* (adj.) ‘inauspicious, unpropitious, baleful, enormous’ (EDHIL: 429: **ḡ^[h]olHro-*), Lith. *žalà* ‘damage, wound’ (ALEW: 1286–1287), ON *galli* ‘damage, error’ (EDPG: 165).

4.2 Concepts of disease in various IE traditions

As argued at length by Janda (2000: 119–138), in many ancient traditions and probably also in Proto-Indo-European, sickness could be imagined as caused by a binding spell (Lat. *defixio*, *defigo* ‘to fasten, bind down’, ex. (32), Gk. καταδεσμός, κατάδεσις, cf. ex. (20)) or by the attack of and possession by a god or evil spirit (33) (NB χράω ‘attack, assail, fall upon’), cf.

- (32) *num mea Thessalico languent deuota ueneno
corpora? num misero carmen et herba nocent?
sagaue poenicea defixit nomina cera?*

‘Was my body listless under the *spell* of Thessalian drugs? Was I the wretched victim of charms and herbs, or did a witch *curse* my name upon a red wax image?’
Ov. *Am.* 3.7.27–29

- (33) ὡς δ’ ὄτ’ ἄν ἀσπάσιος βίोटος παίδεσσι φανήη
πατρός, ὃς ἐν νούσῳ κείται κρατέρ’ ἄλγεα πάσχων,
δηρὸν τηκόμενος, στυγερόν δέ οἱ ἔχραε δαίμων,
ἀσπάσιον δ’ ἄρα τόν γε θεοὶ κακότητος ἔλυσαν

⁴⁹ For deverbal *-yo- cf. Skt. *pakvá-* ‘cooked’, denominal e.g. in Skt. *arṇavá-* ‘rich in water, flood’: *árṇa-* ‘flood’ (AiG: 2.2, 866ff.).

‘And in the same way as when most welcome to his children appears the life of a father who lies in sickness, bearing strong pains, long wasting away, and *some cruel god assails him*, but then to their joy the gods free him from his woe ...’⁵⁰ Od. 5.394–397

This implies that healing consists in freeing, literally untying (λύω), from disease, as described in the preceding example (θεοὶ κακότητος ἔλυσαν), in Pindar’s description of Asclepius (34), and in invocations to Soma and Rudra in the Rigveda when asked to bring remedies and to untie the sin bound to a body (35) (further material in Versnel 1998):

- (34) τοὺς μὲν ὦν, ὅσσοι μόλον αὐτοφύτων
 ἔλκέων ξυνάονες, ἢ πολιῶ χαλκῶ μέλη τετρωμένοι
 ἢ χερμάδι τηλεβόλω,
 ἢ θερινῶ πυρὶ περθόμενοι δέμας ἢ
 χειμῶνι, **λύσαις** ἄλλον ἄλλοίων ἀχέων
 ἔξαγεν, τοὺς μὲν μαλακαῖς ἐπαιδαῖς ἀμφέπων,
 τοὺς δὲ προσανέα πί-
 νοντας, ἢ γυίοις περάπτων πάντοθεν
 φάρμακα, τοὺς δὲ τομαῖς ἔστασεν ὀρθούς.

‘Now all who came to him afflicted with natural sores or with limbs wounded by gray bronze or by a far-flung stone, or with bodies wracked by summer fever or winter chill, he *relieved* of their various ills and restored them; some he tended with calming incantations, while others drank soothing potions, or he applied remedies to all parts of their bodies; still others he raised up with surgery.’⁵¹ Pyth. 3.47–54

- (35) *sómārudrā yuvām etāny asmé*
vīśvā tanūśu bheṣajāni dhattam
āva syatam muñcātām yān no āsti

⁵⁰ Cf. also Laser 1983: 62–64: disease may be imagined as a demon itself or as sent by a demon or god, as at the beginning of the *Iliad*, when Apollo sends a plague (λοιμός) into the Greek camp, or in the myth of Pandora’s box (Hes. *Op.* 90ff.). Λοιμός ‘plague’ and λιμός ‘hunger’ are probably related to λιάσθη ‘swerved, glided away’ (*Il.* 15.520, *Od.* 4.838), PIE *leiǵh₂- (LIV²: 406) ‘to cease, disappear’, i.e. *lih₂mǵh₂ → lih₂mnó-/loiǵh₂mnó- (with “Saussure effect”), cf. the discussion of θερμός in 3. For the meaning cf. OE *linnan* in *lunnon sáwlum* ‘they parted from their souls = they died’, *ealdre linnan* ‘to die’, OHG *bilinnan* (T 81.4 *bilan ther uuint* ‘cessavit ventus’), Ved. (AB+) *liyate* ‘disappears’ (AB 2.14 *preva vai reto liyate preva vapā liyate* ‘Seed disappears as it were, the omentum disappears as it were’ [Keith]). Hence ‘disappear, go away’ → ‘waste away, languish’.

⁵¹ Cf. Kotansky 1991: 108. On the possible Indo-European background of this tripartite concept of healing methods cf. Benveniste 1945, who compares Vd 7.44 with the Pindaric passage (surgery: τομή ~ Av. *karata*- ‘knife’, plants: φάρμακα ~ Av. *urvara*-, incantation: ἐπαιδιή ~ *maqθra*-).

tanúšu baddhám kytám éno asmát

‘O Soma and Rudra, place all these healing remedies on us, in our bodies. Unhitch, release the outrage committed (by us,) which is bound onto our bodies—(release it) from us.’ (JB) RV 6.74.3

In Armenian, among the terms meaning ‘sick’ there are *axtažet*, literally ‘struck by disease’, from Iranian **axta/i-* ‘disease’ and **jata-* ‘struck’ (PIE **g^{wh}en-*),⁵² *diwahar* (NT: 11×) and *aysahar* (Mk 5.16) both ‘struck/possessed by a demon’ (*dew/ay*s + *harkanem*, aor. *ehar* ‘strike’).⁵³ Beside this, popular Jewish belief as reflected in the Gospels views being sick as being ‘bound’ by a demon, cf. the bent woman in Luke 13.11–16: in this instance, healing literally consists in “setting straight”, raising her up, and her former condition is explained (v. 16) as due to being bound by a demon (cf. also Klein 2006: 476–481):

- (36) ¹¹καὶ ἰδοὺ γυνὴ πνεῦμα ἔχουσα ἀσθενείας ἔτη δέκα ὀκτώ, καὶ ἦν συγκύπτουσα καὶ μὴ δυναμένη ἀνακύψαι εἰς τὸ παντελές. ¹²ἰδὼν δὲ αὐτὴν ὁ Ἰησοῦς προσεφώνησεν καὶ εἶπεν αὐτῇ, Γύναι, ἀπολέλυσαι τῆς ἀσθενείας σου, ¹³καὶ ἐπέθηκεν αὐτῇ τὰς χεῖρας· καὶ παραχρῆμα ἀνωρθώθη, καὶ ἐδόξαζεν τὸν θεόν. ... ¹⁶ταύτην δὲ θυγατέρα Ἀβραάμ οὖσαν, ἣν ἔδωκεν ὁ Σατανᾶς ἰδοὺ δέκα καὶ ὀκτώ ἔτη, οὐκ ἔδει λυθῆναι ἀπὸ τοῦ δεσμοῦ τούτου τῇ ἡμέρᾳ τοῦ σαββάτου;

¹¹And a woman was there who had been *crippled by a spirit* for eighteen years. She was bent over and could not straighten up at all. ¹²When Jesus saw her, he called her forward and said to her, “Woman, you are set free from your infirmity.” ¹³Then he put his hands on her, and immediately she *straightened up* and praised God. ... ¹⁶Then should not this woman, a daughter of Abraham, *whom Satan has kept bound* for eighteen long years, *be set free* on the Sabbath day *from what bound her?*’

52 E.g. Lk 9.2 *bžškel zaxtažēts* “ἰᾶσθαι τοὺς ἀσθενεῖς”, 1 Cor 11.30 *hiwand ew axtažet* “ἀσθενεῖς καὶ ἄρρωστοί”.

53 The etymology of *ays* is unclear, cf. the discussion in EDAIL: 59–61 (*inter alia*, PIE **h₂enh₁-* ‘breathe’ and **h₂ensu-(i)o-* [Skt. *ásura-* ‘lord, god’, Av. *ahura-*, Gmc. **ansu-*, etc.] have been proposed.) A phonologically unproblematic form would be **h₂eik₁-o-* or reduplicated **h₂e-h₂eik₁-o-* (like **k^he-k^hl[h₂]-o-* ‘wheel’) from PIE **h₂eik₁-* ‘to hit, wound, pierce’, i.e. ‘hitting, striking (demon)’, Lat. *icō, -ere* < **h₂i-h₂eik₁-e/o-* (LIV²: 259, Gk. αἰχμή ‘(point of a) spear’, Lith. *iėšmas* ‘spit’), cf. Lat. *ictus* as divine sign in Cic. *Div.* 1.98 *cum in Capitolio ictus Centaurus e caelo est* “when lightning struck the statue of the Centaur on the Capitoline hill” and the verbal noun *ictus, -ūs* meaning also ‘attack’ and ‘danger’. A similar relationship can be seen in Ved. *amī* ‘seize, attack’ and *ámivā-* ‘disease’, cf. Emmerick 1993: 85: “*tám abhy àmīti Várunaḥ* ‘Varuṇa attacks him’ is parallel to *tam Várūṇo gṛhṇāti* ‘Varuṇa seizes him.’ and one who is *abhyānta-* ‘attacked’ or *Várūṇa-gṛhīta-* ‘seized by Varuṇa’ is diseased.”

The Armenian translation faithfully copies these concepts, translating πνεῦμα ἁσθενείας as *ays hiwandowt'ean* 'demon of disease' and δέω 'bind' and λύω 'loosen' as *kapem* and *arjakem* respectively:⁵⁴

- (37) ¹¹*Ew aha kin mi` zor ownēr ays hiwandowt'ean ams owt'owtasn. ew ēr karkameal, ew oč` karēr amenewin i ver hayel:* ¹²*Ew tesimal zna Yisowsi, koč'eac` ar ink'n` ew asē c'na. kin dow arjakeal es i hiwandowt'enē k'owmmē:* ¹³*Ew ed i veray nora jejn. ew aržamayn owłlec'aw, ew p'arawor aīnēr zAs-towac: ...* ¹⁶*Isk ays` dowstr Abrahamow ēr` zor kapeac` satanay` ahawasik owt'owtasn am, oč` aržan ēr arjakel i kapanac` anti i šabat'ow:*⁵⁵

This belief, however, was apparently common in ancient Armenia, too, as the discussion in Eznik shows, who argues against the popular conviction that magicians (*kaxardk'*, cf. Av. *kax'arəda-* 'sorcerer') are able to cast out demons or, at least, to bind a demon so as to make a person possessed by it or to prevent this:

- (38) *hanel č'karen, bayc` andēn kapel mart'en, zi hanapaz xeld ənd anjn hogwoy mardoyn dewn linic'i: ... §107 Ew ard k'an andēn kapel kaxardac'n zdewn` orpēs asenn, ew xeld ənd anjn mišt ogwoy mardoyn aīnel ...*

'They acknowledge that [the sorcerers] cannot cast them [i.e., the demons] out, but they claim that they are able to *bind* them, so that the *demon* becomes the permanent *bond* of freedom of the human soul. ... So instead of immediately *binding* the devil, as the magicians say, and to put the freedom of the human soul in fetters ...' (cf. also Russell 1987: 437–480)

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The tenacity of this and similar beliefs can be gauged by the report given in Abeghian 1899 about spells current in 19th c. Armenia serving to magically bind the wolf as an avatar of demons.⁵⁶ The relevant charms are called *gaylakapi alōt'k'* 'prayers of wolf-binding', e.g. (Abeghian 1899: 115–116):

⁵⁴ Cf. for the literal meaning of *arjakem* Mt 16.19 *zor miangam kapesc'es yerκρι, elic'i kapeal yerkins. ew zor arjakesc'es yerκρι, elic'i arjakeal yerkins*: 'Whatever you *bind* on earth will be bound in heaven, and whatever you *loose* on earth will be loosed in heaven.'

⁵⁵ Cf. also Bauer 1958: s.v. δέω with more material such as Acts 20.22 καὶ νῦν ἰδοῦ δεδεμένος ἐγὼ τῷ πνεύματι πορεύομαι εἰς Ἱερουσαλήμ, τὰ ἐν αὐτῇ συναπτήσοντά μοι μὴ εἰδώς 'And now, *compelled* [lit. *bound*] by the Spirit, I am going to Jerusalem, not knowing what will happen to me there. '; A.R. 4.880 μιν ἀμηχανίη δῆσεν φρένας 'Despair *bound* his mind'; cf. also Mk 7.35 (Jesus heals a deaf and mute man:) *lowcan kapank' lezowi nora ew xawsēr owłil ἔλυθη ὁ δεσμὸς τῆς γλώσσης αὐτοῦ καὶ ἐλάλει ὀρθῶς* 'His tongue was *loosened* and he began to speak plainly.'

⁵⁶ Abeghian 1899: 114: "Der Wolf tritt als ein Dämon auf und wird den menschengestaltigen bösen Geistern gleichgesetzt."

- (39) “The Mother of God is on the mountains,
 In her arms is the son of God,
 On her heart is the pillar of light,
 There are three nails in her hand.
 One shall penetrate the heart of evil Satan,
 The other the mouth of the wolf, the predator,
 Who roams at night;
 The third is for the evil spirits,
 Running around on my head.
I have bound the wolf on the mountain,
(I have bound) Satan to the immovable stone.
 I have nailed down the whole gang.”

According to Abeghian *loc. cit.* such charms were usually said thrice and accompanied by symbolic acts such as tying a spoon with a cord to a pillar in the house or making seven knots in shoelaces, putting them between the teeth of a comb for wool and an axe above it in order to magically bind the wolf’s mouth. Also the concept of being ‘struck by a demon’ (Cl.Arm. *diwahar, aysahar, v. supra*) remained alive: as long as a dead person was not buried, the angel of death, the *groł* (lit. ‘the writer’ [sc. of each person’s sins]), roamed the village and could kick or strike the inhabitants with disease. The sick were accordingly called *hreštakakox* or *grołi zarkac* ‘kicked/struck by the angel’ (Abeghian 1899: 12).

The Iranian background of these attitudes towards disease and death in Armenian folklore is seen both in ritual practice and the lexicon, e.g. in the custom of ritually binding the dead body in order to prevent it from moving, found both in ancient Iran (40) and modern Armenia (41):⁵⁷

- (40) (The dead body is to be brought to a high place, i.e. the tower of silence):
aētaða. hē. aēte. mazdaiiasna.
aētəm. iristəm. nīdarəzaiən.
hauuaēibiia. pāðaēibiia.
xvaēpaθiīāca. varsa.
 ‘There the worshippers of Mazdā shall *bind* it, the corpse, at its own feet
 and its own hair.’ Vd 6.46

⁵⁷ For the Indo-Iranian background cf. Emmerick 1993: 91: “Disease [...] was regarded in the Indo-Iranian period as being the manifestation of a supernatural entity, whose seizure of the person constitutes the notion of disease. The disease could be cured by the application of the appropriate verbal charms,” Gignoux 2012: “just as in Vedic India, Mantric medicine is the most important one, and sickness is the result of the act of supernatural forces, particularly those of demons.” For PIE cf. Benveniste 1945.

- (41) ‘The toes of a dead person are tied with a thread, probably to prevent him/her from moving freely.’ Abeghian 1899: 12

In the Zoroastrian worldview, it is Angra Mainyu, the spirit opposed to Ahura Mazda, who creates all disease oppressing both humankind and the creator of all good things himself, and the magic spell, the holy *maqθra*, is the best form of healing, cf.

- (42) *āaṭ. maṣm. mairiio. ākasaṭ.*
āaṭ. maṣm. mairiio. frākərənaoṭ.
aṅrō. mainiiuš. pouru.mahrkō.
nauuaca. yaskā.
nauuaitišca
nauuaca. sata.
nauuaca. hazanra.
nauuasēšca. baēuuqn.
āaṭ. maṣm. tūm. bišaziioiš.
maqθrō. spəntō.
yō. aš.xvarəṇā.

‘Then the ruffian looked at me; the ruffian Angra Mainyu, the deadly, wrought against me nine diseases, and ninety, and nine hundred, and nine thousand, and nine times ten thousand diseases. So *may you heal me*, you most glorious *Manthra Spenta!*’ (After J. Darmesteter) V 22.2

Hence all disease is originally due to the evil spirit,⁵⁸ and one way of expressing this concept is that of the ‘binding disease’ as a manifestation of the supernatural cause. This is probably reflected in Av. *bazda-*, attested in the Nīrangastān ch. 56, and continued in Middle Iranian in Khot. *baśdaā-* ‘guilt, sin’:⁵⁹

- (43) *nōiṭ. pasuua.ca. bazda. nōiṭ. irišta. [nōiṭ].*
an.azdiia. ratu.friš.
a.basta. a.irišta. azdiia. pairišta.ṅhara. ratu.friš.

‘Neither by dedicating an animal that is *sick* nor by dedicating that which is wounded, nor by dedicating that which is emaciated can a person be in spiritual merit. Only by dedicating that which is not sick, by dedicating

⁵⁸ Cf. also Fichtner 1924: 14: “Der Dämon aber wird als der eigentliche Krankheitsbringer und als die Krankheitsursache einer seelischen oder körperlichen Krankheit angesehen.”

⁵⁹ Cf. Sims-Williams 1989: 256; Leumann 1928: 10 who interpreted Khot. *baśdaā-* ‘guilt, sin’ as ‘being bound’, also Gk. πένθος, πάθος, πάσχω from PIE **b^hend^h-* ‘bind’. Cf. Janda 2000: 126–129, accepted by EDG: 1156. On the semantic development of παθεῖν cf. Dörrie 1956 and Boreham 1971.

that which is not wounded, by dedicating that which is plump and well nourished can one be in spiritual merit.’ (Bulsara 1915: 266)

The corresponding present *bandaiieiti* occurs in V 22.5:⁶⁰

- (44) *uta. tē. azəm. āfrināni*
sīra. dahma. āfriti
friθa. dahma. āfriti
yā. ūnəm. pərənəm. kərənaoiti.
pərənəmcī. vīžāraiiieiti.
*auuantəmci. **bandaiieiti.***
baṅtəmca. drūm. kərənaoiti.

‘And I bless you with beautiful dahma-blessing, with dear dahma-blessing: which fills up what is lacking, which makes overflow what is full, which makes even the non-sick person sick and makes the sick person healthy.’⁶¹

Bartholomae (1904: 926, 952) explains *band-* ‘be sick’ and its participle *bazda-* as an enlargement of *ban-* ‘to be/make sick’.⁶² The assumption is of course *ad hoc*: “root enlargement” is no more than a description of a presumed relationship between two roots without an explanation. If one takes *-d-* to represent the PIE present stem suffix **-d^h-*, one must further assume that it was reinterpreted as part of the root (*ban* → *band*), since it also occurs in the verbal adjective *bazda-*. As this still shows the effect of Bartholomae’s law (**b^hṛd^h-to-* > **b^hadd^ha-* > **bazda-*), the reanalysis must have occurred at a time when the suffix was still aspirated /d^h/, hence in principle still recognizable as such.⁶³ The alternative assumption is to accept polysemy in a root meaning both ‘bind’ and ‘bind magically’, which may imply ‘make sick’, ‘make furious’ (cf. again Lat. *saeuus*), etc.

Summary: Arm. *hiwand* ‘sick, ill’, borrowed from Iranian **hēwand-*, reflects a derivative in **-u₂ent-* based on the root **sh₂eṭ-* ‘to bind’. The root could mean both ‘to bind’ and ‘to be/make sick’ as disease was viewed as being bound by a supernatural power.

⁶⁰ Kellens (1984: 18) proposes to change *bandaiieiti* into **bqaiieiti* because of the meaning, against which Cheung (2007: 4): “not supported by the ppp. *bazda-*.”

⁶¹ After Wolff 1910: 438: ‘Und Ich segne dich mit schöner dahmamäßiger Segnung, mit lieber dahmamäßiger Segnung: die mangelndes voll macht, (die) schon volles überfließen läßt, (die) auch den Nichtkranken krank werden läßt und den Kranken gesund macht.’

⁶² Cf. for this root Cheung 2007: 4 s.v. **ban-* ‘to make ill, afflict’.

⁶³ *Basta-* ‘bound’ and *abasta-* ‘not sick, healthy’ hence must be later formations, cf. the same difference in OAv. *aogəδā* ‘speaks’ vs. YAv. *aoxta* (PIE **h₁eug^h-to-*); cf. Hoffmann & Forssman 2004: 95.

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Abbreviations

AIg	Jacob Wackernagel & Albert Debrunner (1930–1957). <i>Altindische Grammatik</i> . 3 vols. Göttingen: Vandenhoeck & Ruprecht.
ALEW	Wolfgang Hock et al., eds. (2015). <i>Altltauisches etymologisches Wörterbuch</i> . 3 vols. Hamburg: Baar.
BT	T. Northcote Toller, ed. (1898). <i>An Anglo-Saxon Dictionary. Based on the Manuscript Collections of the Late Joseph Bosworth</i> . Oxford: Clarendon.
DELG	Pierre Chantraine (1968–1980). <i>Dictionnaire étymologique de la langue grecque. Histoire des mots</i> . 4 vols. Paris: Klincksieck.
DELG ²	Pierre Chantraine (2009). <i>Dictionnaire étymologique de la langue grecque. Histoire des mots</i> . Nouvelle édition avec supplément. Paris: Klincksieck.
EDAIL	Hrach K. Martirosyan (2010). <i>Etymological Dictionary of the Armenian Inherited Lexicon</i> . Leiden & Boston: Brill.
EDG	Robert S. P. Beekes (2010). <i>Etymological Dictionary of Greek</i> . With the assistance of Lucien van Beek. 2 vols. Leiden & Boston: Brill.
EDHIL	Alwin Kloekhorst (2008). <i>Etymological Dictionary of the Hittite Inherited Lexicon</i> . Leiden & Boston: Brill.
EDPG	Guus Kroonen (2013). <i>Etymological Dictionary of Proto-Germanic</i> . Leiden & Boston: Brill.
EM	Thomas Gaisford, ed. (1848). <i>Etymologicon Magnum seu verius lexicon saepissime vocabulorum origines indagans</i> . Oxonii: Typ. Acad.
EWAhd	Albert L. Lloyd, Otto Springer, Karen K. Purdy & Rosemarie Lühr, eds. (1988–). <i>Etymologisches Wörterbuch des Althochdeutschen</i> . Göttingen & Zürich: Vandenhoeck & Ruprecht.
Geldner	Karl F. Geldner (1951–1957). <i>Der Rig-Veda. Aus dem Sanskrit ins Deutsche übersetzt und mit einem laufenden Kommentar versehen</i> . 4 vols. Cambridge, MA: Harvard University Press.
GEW	Hjalmar Frisk (1960–1972). <i>Griechisches etymologisches Wörterbuch</i> . 3 vols. Heidelberg: Winter.
IEW	Julius Pokorny (1959). <i>Indogermanisches etymologisches Wörterbuch</i> . 2 vols. Bern & München: Francke.
JB	Stephanie W. Jamison & Joel P. Brereton (2014). <i>The Rigveda. The Earliest Religious Poetry of India</i> . 3 vols. Oxford & New York: Oxford University Press.

- LfgrE Bruno Snell et al., eds. (1955–2010). *Lexikon des frühgriechischen Epos*. Göttingen: Vandenhoeck & Ruprecht.
- LIV² Helmut Rix & Martin Kümmel (2001). *Lexikon der indogermanischen Verben*. 2nd ed. Wiesbaden: Dr. Ludwig Reichert Verlag.
- ME Karl Mühlhbach & Jānis Endzelins (1923–1932). *Latviešu valodas vārdnīca. Lettisch-Deutsches Wörterbuch*. 4 vols. Rīga: Izglītības ministrija & Kultūras fonds.
- NBHL Gabriēl Awetik'eān, Xaç'atowr Siwrmēlean & Mkrtič' Awgorean (1979). *Nor bargirk' haykazeān lezowī*. Yerevan: Yerevani Hamalsarani Hratarakč'owt'yown.
- OED *Oxford English Dictionary Online* (2017). URL: <http://www.oed.com> (visited on 01/27/2017).

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