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NEW PHRYGIAN <Ε>ΔΙΚΕΣ, GREEK ΘΙΓΓΑΝΩ (WITH REMARKS ON MILLER'S LAW AND THE TREATMENT OF *D^HS IN PIE)[*]

The paper discusses the New Phrygian aorist form <ε>δικες (or αδικες < *adedikest) and argues against its identification with PIE *deiḱ-, proposed by V. Orel. Since Phrygian δ requires PIE *d^h and Phrygian κ appears to go back to PIE *g / *ǵ, a comparison with Greek θιγγάνω, aor. θιγέ/ό- (along with the Delphic hapax θιγανα), MHG *tîchen*, and perhaps OIr. *·ding* is proposed instead. The Greek verb has sometimes been compared to Ved. *dih-*, Lat. *fingere*, Toch. AB *tsik$^{\bar{a}}$-*, Gk. τεῖχος and derived from PIE *$d^heiǵ^h$- 'build up, work clay, fashion', but apart from the semantic difference, "Miller's Law" (deaspiration after a nasal) will not account for the -γ- in the Greek root, as the paper argues. At the same time, the possibility of deriving NPhr. <ε>δικες from PIE *$d^hiǵ^h$-s- via deaspiration in *-D^hs- cluster is tentatively raised.

Keywords: Bartholomae's Law, deaspiration, Indo-European etymology, Miller's Law, nasal presents, Phrygian language, "Primärberührungseffekt", Proto-Indo-European phonology.

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Новофриг. <ε>δικες, др.-гр. θιγγάνω и некоторые наблюдения над «законом Миллера» и развитием и.-е. *D^hs

Предметом настоящей статьи служит новофригийская форма 3 sg. aor. <ε>δικες (или αδικες < *adedikest), которую В. Э. Орел возвел к и.-е. корню *deiḱ-. Исходя из того, что фриг. δ требует реконструкции и.-е. *d^h, а фриг. κ, судя по всему, восходит к и.-е. *g/*ǵ, эта этимология отвергается и взамен предлагается сопоставление с др.-гр. θιγγάνω 'касаться, трогать', aor. θιγέ/ό- (а также дельфийским гапаксом θιγανα), ср.-верх.-

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нем. *tîchen* и, возможно, др.-ирл. *·ding*. В статье обосновывается невозможность объяснения -γ- в др.-гр. θιγγ- через т. н. «закон Миллера» (*$\acute{g}^h$ > γ в позиции после носового) и сопоставления θιγγάνω с вед. *dih-*, лат. *fingere*, тох. АВ *tsik$^{\bar{a}}$-*, др.-гр. τεῖχος (и.-е. *$d^h e i\underline{g}^h$-* 'строить, лепить'). В качестве альтернативного решения, в статье поднимается вопрос о возможности возведения новофриг. <ε>δικες к и.-е. *$d^h i\underline{g}^h$-s-* с утратой аспирации в группе *-$D^h s$-.

Ключевые слова: деаспирация, закон Бартоломэ, закон Миллера, индоевропейская этимология, назальные презентные основы, праиндоевропейская фонология, "Primärberührungseffekt", фригийский язык.

The first sentence (lines 1–4) of the New Phrygian inscription 40.3 Obrador Cursach (= 31 Haas) reads:

> ΑΣ ΣΕΜΟΥΝ ΚΝΟΥΜΑΝ ΑΔΙΘΡΕΡΑΚ
> ΞΕΥΝΕΟΙ ΔΔΙΚΕΣΕΙΑΝ *vac.*
> ΜΑΝΚΑΝ ΙΑΝ ΕΣΤΑΕΣ ΒΡΑΤΕΡΕ
> ΜΑΙΜΑΡΗΑΝ

The original inscription has not survived and the text is known only from the drawing published by Anderson 1898: 121. The drawing is usually deemed not entirely reliable, prompting a variety of emendations. Most of the words are reasonably well understood, and the sentence can be provisionally translated word-for-word as follows: "in (ας) this (σεμουν) tomb (κνουμαν) Adithrerak[1] (αδιθρερακ — PN) for Xeune (ξευνεοι — PN?[2]) ... stele (μανκαν) that (ιαν) [(s)he] erected (εσταες) for [her/his] brother (βρατερε) as a memorial (μαιμαρηαν)"[3]. A detailed study of this inscription was provided by Neumann 1986.

The sequence ΔΔΙΚΕΣΕΙΑΝ, left untranslated above, must contain a verbal form. The initial delta[4] is usually read as alpha and the sequence is resolved either as αδικεσει αν or as αδικες with a

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[1] Possibly Αδιθρερας (with a remarkable -θ-, untypical for Phrygian), either with an emendation of the word-final kappa on the drawing (Neumann 1986: 82) or with an assimilation of the final consonant to the following velar (Orel 1997: 332).

[2] For Ξευν- as a PN see Obrador Cursach 2020: 314; a possible etymology (< *ksenu-) was proposed by Orel 1996: 18–19. For Hämmig 2019: 289 n. 7 ξευνε / ξευνεοι is not a personal name but an element used in funerary formulae ultimately identical with Gk. ξεῖνε 'o stranger'. Kowal 1984: 182 makes Ξευνε nom.sg. and the subject of the sentence and analyzes οι as an anaphoric dat.sg. pronoun, which seems syntactically difficult.

[3] See also Obrador Cursach 2020: 572 with further bibliography.

[4] For the delta see Calder 1913: 214 who was able to examine the stone.

pronominal object ειαν 'this' or, possibly, εσαν, construed with the following acc. sg. μανκαν (fem.)[5]. But *contra* Haas 1951: 13 and 1966: 103 there is little reason to read Greek ἀδίκησει 'will harm, wrong' in the inscription: such an expression might be expected in a familiar protasis "whoever harms this stele / tomb..." (= NPhryg. ιος κακουν δακ- / βερ-), but there is no indefinite pronoun in the sentence (and no lacuna in the beginning to accommodate it), Adithrerak being the likely subject, and there is no imprecative apodosis "let him be condemned", "let Bas not give bread to him", "let him suffer the curse of Zeus", *vel sim.* The syntax and meaning of the inscription cannot accommodate Greek ἀδίκησει.

The segmentation αδικες ειαν should therefore be preferred. It is possible to assume a form αδ(δ)ικες with a prefix *ad-*/αδ- and a simplification of the geminate (cf. αδδακετ / αδακετ), but the final *-s* strongly suggests an *-es*-aorist form in which an augment would be expected (cf. *edaes* / εδαες 'put', εσταες 'erected', (*en-*)*eparkes* / (εν-)επαρκες 'inscribed', (πο$σ$)εκανες 'dug'). An augmented and prefixed form **adedikest* > **adedikes* may be posited, with a syncope leading to **αδδικες* > αδικες, but the evidence for such syncope is limited to the rather uncertain Old Phrygian form *a̯bretoy* (B-05), taken from **aberetoy* (= NPhr. αββερετοι < **ad-b^her-*) by Brixhe 2004: 62[6]. Alternatively, Neumann 1986: 82 plausibly conjectured <ε>δικες which was widely accepted in subsequent scholarship. The purpose of this paper is to provide a linguistic interpretation of this New Phrygian form.

Orel (1997: 333, 369, 422) translated <ε>δικες by as 'devoted, dedicated' and derived it from PIE **dei̯ḱ-* 'to show'[7]. This appears semantically attractive, assuming that this root underwent the same semantic development in Phrygian as in Italic[8]. This assumption,

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[5] ε<σ>αν was conjectured by Neumann 1986: 81. On these pronominal forms see Obrador Cursach 2020: 90.

[6] Syncope in αδικες was apparently entertained by Diakonoff & Neroznak (1985: 49 n. 76) who posited **ad-e-d^hēk-e-s-t* '*fecit*' as a possible preform of the Phrygian verb (but **ē* should have given *a* in Phrygian).

[7] This analysis was first advanced, as far as I can tell, in Bayun & Orel 1988: 146, but already Kowal 1984: 182 suggested "*geweiht*? *gestiftet*?", without commenting on the etymology; the same interpretation is followed by Gorbachov 2005: 204.

[8] On the semantics of PIE **dei̯ḱ-* and its development in the daughter languages see Nikolaev 2023.

however, is not independently motivated and more importantly, there may be a phonological problem with Orel's solution. The development of PIE voiced stops is a much-vexed aspect of Phrygian phonology: while it has always been widely agreed that PIE voiced aspirated stops became voiced stops in Phrygian, the outcome of PIE *d and *g has been debated, and the once popular *Lautverschiebung* theory taking *d, *g to Phrygian t, k was effectively resuscitated by Lubotsky 2004[9]. For PIE *d the transition to Phrygian t is suggested by *tios*, *tie(i)*, *tian* 'Zeus' (< *$d\underset{\frown}{i}e\underaccent{\frown}{u}$-), 3 sg. ipv. οουιτετου 'may he find' (< *$\underaccent{\frown}{u}ei\underaccent{\frown}{d}$-) and the preverb *ti(s)* < *$d(\underaccent{\frown}{u})is$, while *g > k is made likely by Phrygian βεκος 'bread' < *$b^hh_1\hat{g}o$-, *vrekun* 'idol?' < *$\underaccent{\frown}{u}er\acute{g}om$ and *knaik-* 'woman, wife' < *g^wneh_2ik-[10]. PIE *$de\underaccent{\frown}{i}\hat{k}$- is in fact likely to be reflected in NPhr. (-)τετικμενος 'condemned'[11], showing the phonetic development *d > t (for semantics cf. PGmc. *teihan* 'to accuse' and Hitt. *tekri-* 'derogation, condemnation' < *$do/ei\hat{k}-ri$-)[12]. While the unconditioned devoicing of PIE unaspirated voiced dentals and tectals in Phrygian is not universally accepted[13], on the balance, the evidence for devoicing appears strong enough to cast doubt on Orel's derivation of <ε>δικες from PIE *$de\underaccent{\frown}{i}\hat{k}$-. A new solution is called for.

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[9] See also Ligorio & Lubotsky 2013: 185; Ligorio & Lubotsky 2018: 1823–1824; Obrador Cursach 2020: 71–72.

[10] In the past decade new arguments have been advanced in favor of an unconditioned devoicing of PIE unaspirated stops in Phrygian: an Old Phrygian form *petes* 'feet' was identified by Kloekhorst (2015) and analyzed as a reflex of *ped-es*, OPhr. *totin* was plausibly analyzed by Ligorio (2016) as a reflex of *dh_3-ti-* 'gift' (Gk. δόσις), OPhr. *torvetun* was tentatively taken from *doru-* by A. Lubotsky (*apud* Hämmig 2013: 150 n. 52), and unclear OPhr. *tekiset* and *eveteksetiy* were compared to Gk. δέκομαι 'accept', PIE *$de\hat{k}$-* by Tamsü Polat, Polat & Lubotsky (2020: 51); it is important to emphasize that the recent identifications are extremely tentative. For OPhr. *mekas* 'great' (< *$me\acute{g}-h_2$-*) see the discussion in Obrador Cursach 2016 (in the latter case the adjacent laryngeal may have played a role).

[11] As argued by Meister (1909: 318 n. 1), Neumann (1988: 4), and Lubotsky (2004: 235).

[12] See recently Nikolaev (2023).

[13] For a critical rejoinder to Lubotsky 2004 see Matzinger 2006. Gorbachov (2008: 95), Sowa (2008: 28 n. 15) and Woudhuizen (2021: 4–5) are likewise skeptical of the devoicing of PIE voiced stops in Phrygian. Woodhouse (2006, 2009) advocated a conditioned devoicing of PIE unaspirated stops in Phrygian.

Since the object of the verb is εσαν / ειαν μανκαν 'this stele', it is tempting to derive the Phrygian form from a verbal root referring to a physical activity such as 'make', 'install' or 'fashion'. Precisely such a root is attested in Germanic, probably in Greek and perhaps in Celtic. In Middle High German we find a strong verb *tîchen* 'to execute, manage, handle, deal with, get started, boost, push'[14], based on which PGmc. *deik̑-* '*schaffen*, *bewerkstelligen*, *ins Werk setzen*' has been plausibly reconstructed[15]. Reflexes of the same root have been sought in OE *dihtan* 'to arrange, to set in order' (< *dihtjan*-) and a few other Germanic forms; however, the descendants of PGmc. *deik̑-* have been thoroughly contaminated with the loanword *dihtjan* from Lat. *dictāre* 'compose' (cf. OHG *tihtōn* 'to compose, to dedicate, to prescribe')[16]. This Proto-Germanic root was compared to Gk. θιγγάνω, aor. θιγέ/ό- 'to touch, handle' as early as W. Wackernagel 1861: 291. On the basis of Greek and Germanic, a root *$d^h eig$-* or *$d^h ei̯g̑$-*, phonologically compatible with NPhr. δικ-[17], can be reconstructed (the possible

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[14] See Benecke, Müller & Zarncke 1854–1866: vol. 3, col. 33b ("setze ins werk, versuche, fördere"); Lexer 1872–1878: vol. 2, col. 1432 ("schaffen, treiben, betreiben, ins werk setzen, fördern").

[15] See Wood 1907: 490–491; Seebold 1970: 152; Kroonen 2013: 95. *EWAhd* 2 col. 641 tentatively suggests that Gmc. *dik*- may be related to PIE *$d^h ei̯g^h$- 'build up, work clay, fashion' (discussed in the main text below) and the *k* could have been imported from the iterative *dikkō- (Kluge's Law) < *dignō- < ᵀᴾ$d^h ig̑$-*neh₂*- (*EWAhd* mistakenly reconstructs *þikkō-). This is not impossible, cf. Gmc. *smak*- 'taste' (MGerm. *Geschmack*) from PIE *$smeg^h$- / *$smag^h$- (cf. Lith. *smagùris* 'sweet tooth', see Fraenkel 1962–1965: 838) which must have got its *-k- from the iterative *smakkō-/i̯a-* 'taste' (MGerm. *schmecken*), see Lühr 1988: 353–4. The iterative *dikkō- is actually attested in North Germanic: Icel. *dika* 'to run', Far. *dika* 'to strike, hit, come at speed', Norw. *dika* 'to run', see Ásgeir Blöndal Magnússon 1989: 113; the single -k- can be due to analogy to the forms in which degemination took place after a long vowel or a diphthong. (I thank Sergio Neri for his advice on the Germanic material).

[16] See Soeteman 1962: 275; de Vries 1992: 115; *EWAhd* 2 col. 641.

[17] For *d^h > Phr. d/δ cf. *$d^h eh_1$- > (αδ)δακετ 'placed'; for *g/g̑ > k/κ see the examples cited above in the main text (βεκος 'bread', *vrekun* 'idol?', *knaik*- 'woman, wife'); *$g^h/g̑^h$ would be expected to give g/γ, cf. γεγρειμεναν 'written' < *$g^h rei̯(H)$-, Gk. χρίω. Note that NPhr. τιδρεγρουν 'inedible, unpalatable' < *$dis-d^h reg^{wh} ro$- (Haas 1966: 67, cf. Gk. τρέφω 'feed, bring up') shows that there was no Grassmann's Law in the prehistory of Phrygian.

meaning of this reconstructed root is discussed further below). However, the Greek cognate requires a digression.

The Greek verb has often – but not universally[18] – been explained as an avatar of PIE *$dʰei̯ǵʰ$- 'build up, work clay, fashion' (Gk. τεῖχος 'wall', Arm. *edēz* 'piled up', Ved. *dih*- 'to anoint, smear, plaster', Luw. *tiššā(i)*- 'to shape, mold; to make ready, prepare'[19], Lat. *fingere* 'to shape, fashion'[20], Toch. B *tsikā̆*- 'to form', etc.). Since the expected outcome of *$dʰigʰ$- would have been *τιχ- with Grassmann's Law, this connection is only possible under the assumption that the plain *g in Gk. θιγ- was imported from the present stem θιγγάνω < *$dʰiṇǵ-ṇne/o$- < *$dʰiṇǵʰ-ṇne/o$-[21], where the voiced stop would be deaspirated after a nasal, cf. *$dʰró-n-bʰ-o$- > θρόμβος 'clot' : *$dʰrebʰ-e/o$- > τρέφω 'thicken, congeal' or *$dʰémbʰ-es$- >> θάμβος 'amazement' : *$dʰṃbʰ-e/o$- > ταφεῖν 'be astonished' (cf. Go. *dumbs* 'mute')[22]. This sound change is, in my opinion, beyond doubt; however, its application to the case of θιγγάνω is problematic for two reasons. First, as Gary Miller had convincingly argued, the deaspiration rule applies only after an accented vowel, which is why its effects are lacking in Gk. ὀμφαλός 'navel' < *$h_3(e)nbʰ-l̥(l)-ó$-, cf. Lat. *umbilicus* 'id.', or ὀμφή 'voice' < *$song^{wh}-éh_2$, cf. Goth. *saggws* 'song'. But if the deaspiration rule applied after Greek verbal forms became recessively accented, the Law of Limitation would not allow the first syllable of the verbal stem to bear accent, since most of its forms would have either been quadrisyllabic (1 pl. *$dʰing^{(h)}ṇnomes$ > θιγγάνομεν, etc.) or have a long vowel in the final syllable (1 sg. *$dʰing^{(h)}ṇnoh_2$ > θιγγάνω, etc.), cf. Gk.

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[18] *LIV²* 141 and Beekes 2010: 549 keep the Greek verb apart from the dossier of *$dʰei̯ǵʰ$-.

[19] The Luwian verb is a denominative based on *$dʰigʰ-seh_2$-, see Rieken 2002: 408–410; Katz 2007: 173–174.

[20] Note that the -g- in Lat. *fingō* is a regular reflex of *$ǵʰ$ after a nasal; *figūra* 'form' and perhaps *figulus* 'potter' have adopted the -g- from the present stem (unless *figulus* goes back to *$dʰigʰ-lo$- with an epenthesis).

[21] The "double nasal" stem is a remodeling of PIE *$dʰi-n(e)-ǵʰ$-, thematized as Latin *fingō*; the root vocalism of Arm. *dizanem* was remodeled after that of the aorist, see Jasanoff 2022: 100–104.

[22] See Szemerényi 1954: 239; Miller 1977; 2010: 234–237; 2014: 23; Hajnal 2005: 196–198; Kümmel 2013: 168–170; Neri 2017: 137 n. 158; Batisti 2022; and the detailed discussion by Batisti (*forthcoming*).

ἑπόμεθα vis-à-vis Ved. *sácāmahe* (accented in subordinate clauses)[23]. It is not impossible that Miller's Law applied before the introduction of the Law of Limitation in Greek: since the rule affects voiced aspirated stops that have not yet been devoiced (*$*Nb^h > Nb$, not $*Nb^h > *Np^h > Np$, etc.), it must be very old. But even so there would not have been an accented -*i*- in the first syllable of the preform of θιγγάνω, under the traditional theory that finite verbal forms were unaccented in most syntactic positions in early Greek as they are in Vedic[24]. It is generally

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[23] For the Law of Limitation see e.g. Dieu 2022: 65–86. Stefan Höfler kindly reminds me that the ipv. θίγγανε could have played the role of a *forme de fondation*.

[24] See e.g. J. Wackernagel 1877; Sihler 1995: 238–9. For a different theory, see Probert 2012 and Hock 2014.

There are accent-conditioned phonological rules in Greek that may be used to determine whether verbal forms in the main clause (that according to Wackernagel's theory were enclitic in the prehistory of Greek) still counted as recessively accented. One potentially diagnostic Proto-Greek phonological rule is the development of accented $*\text{-}\acute{L}h_2\text{-}$ to Gk. -αρ/λα- vis-à-vis unaccented $*\text{-}Lh_2\text{-} > \text{-}ρ/λᾱ\text{-}$ (see Höfler 2016–2017: 184–191, with references). The development of $*d^hrh_2g^h\text{-}ie/o\text{-}$ to ταράσσω 'agitate' (cf. τρᾱχύς 'rough' < $*d^h\mathring{r}h_2g^h\text{-}\acute{u}\text{-}$), $*sp^{(h)}rh_2g\text{-}eie/o\text{-} > $ σφαραγέομαι 'burn noisily' (cf. σφρᾱγῑδ- '(brand) mark' ← $*sp^{(h)}\mathring{r}h_2g\text{-}\acute{o}\text{-}$, see Tichy 1983: 178–180 und Jochem Schindler *apud* Meier-Brügger 1992: 289), $*p\!lh_2g\text{-}ie/o\text{-} > $ παλάσσω 'splatter (with blood)' (cf. πλήσσω 'strike' < $*p\!lh_2g\text{-}$, see van Beek 2013) or $*h_2rh_2g^h\text{-}ie/o\text{-} > $ ἀράσσω 'beat' (cf. ῥήσσω '*id.*', ῥηχίη 'breaker of the waves', see Höfler & Nielsen 2022: 81 where the latter forms are traced back to an unaccented root allomorph $*(h_2)rh_2g^h\text{-}$) appears to suggest that these verbal stems were recessively accented for the purposes of the $*\text{-}\acute{L}h_2\text{-} > \text{-}αρ/λα\text{-}$ rule. If $*sp^{(h)}rh_2g\text{-}eie/o\text{-}$ is reconstructed on the basis of the comparison between Gk. σφαραγεε/ο- (= Ved. *sphūrjáya*-), the recessive accent in $*sp^{(h)}\mathring{r}h_2g\text{-}eie/o\text{-}$, responsible for the development to -αρα-, can be compared to the recessive accent in $*d^h\mathring{i}ng^h\!nne/o\text{-}$ which can then be made responsible for the application of Miller's Law to the latter form. However, the matter remains quite uncertain, since influence from nominal forms cannot be excluded (e.g. $*sp^{(h)}\acute{r}h_2g\text{-}o\text{-} > $ (-)σφάραγος 'noise', see Rico 2009 or $*d^h\mathring{r}h_2g^h\text{-}eh_2\text{-} > $ ταραχή 'tumult', with a secondary oxytone accent[?]) and an alternative theory that the reflex (-)αρα-/(-)αλα- is conditioned not by the accent but by the syllable structure ($C\!LHC.C$) was advanced by van Beek 2021. Another potentially diagnostic rule has to do with the development of accented syllabic $*\acute{L} > *\mathring{o}L$ (> αρ/ορ/αλ/ολ) vis-à-vis unaccented $*L > $ ρα/ρο/λα/λο, as formulated by Klingenschmitt 1974: 275 (but see the critical disquisition by van Beek 2022): if the rule is correct, Myc. *wo-ze* 'works' may appear to indicate recessively accented / u̯ord^zei/ < $*u\mathring{r}\acute{g}\text{-}ie/o\text{-}$,

disconcerting that Miller's Law has not affected any of the other -άνω presents made from roots ending in an aspirated stop. One might object that μανθάνω and κιγχάνω are post-Homeric, λανθάνω has the trappings of a secondary competitor to λήθω, and in case Homeric τυγχάνω and λαγχάνω there is no comparative evidence for an inherited nasal present in their respective *Averbo*s, so it might be possible to dismiss these present stems as innovations and view the aspirated consonant as an import from the thematic aorist (τυγχάνω after τυχέ/ό-, etc.). But this approach inevitably fails in the case of πυνθάνομαι 'learn by inquiry' (pres. 2x *Od.*) for which the reconstruction of a nasal-infixed stem is supported by OIr. *as-boind* 'announces' and Lith. *bundù* 'wake up'. It remains entirely unclear why *d^hing^h-ṇne/o-* would undergo Miller's Law, while *b^hund^h-ṇne/o-* did not. Secondly, and perhaps more importantly, the present stem θιγγάνω is first attested in fifth-century Attic drama, while thematic aorist θιγέ/ό- is already found in Archilochus (fr. 118 W.[2]): this attestation pattern makes it somewhat unlikely that aor. θιγέ/ό- was remodeled after the pres. θιγγάνω. It does not seem, therefore, that the deaspiration rule ("Miller's Law") can be used to explain the plain -γ- in θιγγάνω, θιγεῖν[25] which matches the -*k*- of NPhr. δικ- (at least, in Lubotsky's phonology).[26]

An additional argument in favor of a connection between NPhr. δικ- and Gk. θιγ- may be sought in a dialectal Greek hapax, used in the inscription on the Cippus of the Labyadai (5th–4th cent. BCE, *DGEEP* 323 = *CID* 1.9). In the section C of the inscription which is concerned with funerary rites, we find an enigmatic word θιγανα (line 39) used to

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unless the place of the prop-vowel is analogical to full-grade forms such as ἔργον < *$\u{e}\acute{r}\u{g}$-o-*. (I thank Martin Peters for his input to this footnote).

[25] And perhaps θίγμα 'a touch' *IGRom.* 4.503.11 (Pergamum, 2nd cent. CE), Hsch. θ 582 θιγ{η}μάτων· μιασμάτων (contrast *-$\acute{g}^hm$- > -χμ-* in δοχμός 'slanted', cf. Ved. *jihmá-*), but a derivation from the aorist stem is a possibility to be reckoned with.

[26] Under the assumption (that is not independently verifiable) that the deaspiration after a nasal took place prior to the introduction of the Law of Limitation in Greek at the time when the present stem *d^hing^h-ṇne/o-* was accented on the initial syllable and the -γ- in Gk. θιγγάνω can therefore be due to "Miller's Law" (see n. 24 above), one may entertain a possible Greco-Phrygian date for this sound change (pres. *d^hing^h-ṇne/o- > *d^hing-ṇne/o-*, hence analogical remaking of aor. *d^hig^h-e/o- as *d^hig-e/o- > Gk. θιγέ/ό- and NPhryg. δικε-), a hypothesis that does not find further support in the (admittedly, very limited) Phrygian material.

refer to an object placed (ποτθεθῆι) beside or on top of the tomb: μηδ᾽ ὀτοτυζόντων ἐ‖[χ]θὸς τᾶς ϝοικίας πρίγ κ᾽ ἐ|πὶ τὸ σᾶμα hίκωντι, τηνεῖ | δενατος ἔστω, hέντε κα ha | θιγανα ποτθεθῆι· τῶν δὲ π[ρ]όστα τεθνακότων ἐν τοῖς | σαμάτεσσι μὴ θρηνεῖν μη|δ᾽ ὀτοτύζεν "no lamentations will be made outside the house before they arrive at the tomb; there, let it/him be ΔΕΝΑΤΟΣ until the ΘΙΓΑΝΑ is placed. On the tombs of the previously deceased there is to be no dirge or lamentation" (C 35–42). The hapax has been much discussed, and the presence of another unclear form, ΔΕΝΑΤΟΣ, in the same sentence has not facilitated the progress on this aporia[27]. A wide range of interpretations has been proposed[28]; one that has enjoyed considerable popularity is due to Fournier (1898: 272) who thought that "[l]a θιγάνα serait une image apportée sur la tombe, un vase, un ornament, la stèle peut-être" and signaled a possible etymological relationship with θιγγάνω[29]. Simultaneously, Reinach 1898 proposed the translation 'tumulus'[30], comparing Hsch. θ 601 θιγάνα· χῶμα σωροειδές 'heaped wall', although there is no reliance on the correctness of the transmitted *interpretamentum*[31]. If the Delphic word is indeed θιγάνᾱ and not οἰγάνᾱ, the letters for <Θ> and <Ο> being indistinguishable in the inscription[32], it can be analyzed as a derivative of the root θιγ-

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[27] Sometimes the form is corrected as ΔΕΝΑΓΟΣ. Dubois 2004 suggests δ᾽ ἔνατος 'in fault' (ἐν+ἄτη) used in a religious sense: the person assisting with the burial is considered polluted until the θιγανα is placed. A connection with ἄτη was earlier sought by West 1968 who read δὲ <ἄ>νατος 'immune from fine', hence 'permissible'.

[28] See Rougemont 1977: 54–56 for a detailed discussion and bibliography, as well as Frisone 2000: 117–118.

[29] Cf. *DELG* 420 ("Peut-être dérivé de θιγ-, cf. θιγγάνω?").

[30] But his translation "jusqu'à ce que le tumulus ait été amoncelé" may be impugned on the grounds that the verb προστίθημι would not be used of something placed on top of the grave.

[31] This entry is alphabetized after θίς· ὄχθος and the manuscript reads θισανα, but as Reinach remarks, "[l]a confusion de C et de Γ est continuelle dans la cursive des manuscrits". Latte and Cunningham have adopted in their Hesychius editions Wackernagel's correction to θιγάνα made in his copy of M. Schmidt's edition (probably, following Fournier's and Reinach's publications). Another possibility is Hemsterhuis' correction of transmitted θισαναχωμα to θίς· ἀναχῶμα.

[32] See e.g. Solmsen 1905: 80: "possitne etiam οἰγάνα"; ΟΙΓΑΝΑ is printed by Jacquemin, Mulliez and Rougemont 2012: 63. A word οἰγάνη / οἰγάνη could be a derivative of οἴγνυμι 'open' (cf. ἄνοιγμα 'door' and the construction of

(cf. δρέπω 'reap' : δρεπάνη 'sickle'; στέφω 'wreathe' : στεφάνη 'head-band; helmet') used not in its secondary meaning 'touch' but in an older meaning, referring to a different physical action (cf. MHG *tîchen* '*bewerkstelligen*')[33]. While the exact meaning of θιγάνᾱ remains unknown and no certainty is attainable until such time that a new attestation of the word becomes available[34], the parallelism between Greek **θιγ**άνᾱ ποτθεθῆι and Phrygian <ε>**δικ**ες μανκαν both of which are used in the context of a burial, referring to placing an object in a tomb, is at least noteworthy, and the realization that 'to touch' is not the most ancient meaning of Gk. θιγ- may open further vistas for the understanding of the Delphic hapax.

Since it appears that Gk. θιγγάνω, θιγεῖν and perhaps Delphic θιγάνᾱ cannot be easily aligned with PIE *d^heig^h- 'build up, work clay, fashion' without a host of additional assumptions[35], the most straightforward solution would be to reconstruct a different PIE root *d^heig- or *$d^hei\hat{g}$- on the strength of the Greek-Germanic comparison, as proposed above. Reconstructing the semantics of this root is not easy: the meaning of MHG *tîchen* is somewhat fuzzy, but it is not unreasonable to assume that a concrete physical action such as 'driving', 'handling' or 'pushing' is the original meaning in Germanic, leading to 'setting in motion, executing, creating', etc. This meaning can be easily squared with 'to touch, to handle' in Greek, cf. Welsh *cyffwrdd* 'to touch, feel with the hand' from *cyf-* '*con-*' and *hwrdd* 'push, thrust', Polish *dotykać* / *dotknąć* 'to touch' < Slav. *tyk- 'push, thrust', cf. Gk. τύκος 'axe, mason's hammer', PIE *$te\underset{\smile}{u}k$-, or PDE *touch* from Old French *touchier* 'hit, knock'.

προστίθημι with θύρας or πύλας in the sense 'close the doors'), as Alcorac Alonso Déniz kindly points out to me. This root of οἴγνυμι contained a *$\underset{\smile}{u}$ (PGk. *$o\underset{\smile}{u}eig$- / *$o\underset{\smile}{u}ig$-, see Forssman 2005) but no intervocalic digamma is expected in the 5th-century Delphic inscription (see Moralejo Alvarez 1973: 32).

[33] Of course, if the meaning of θιγάνᾱ is 'stele' or 'statue', the semantic proximity to Lat. *fingere* 'to shape, fashion' and especially Toch. B *tsik$^{\bar{a}}$*- 'to form', A *tseke* 'image, form, construction' would be extremely appealing; however, reconciling the Greek -γ- with PIE *-$\hat{g}^h$- is going to be very difficult (but see n. 43).

[34] It is important to emphasize that θιγάνᾱ may in theory refer to any object used in funerary rites, including, for instance, a stretcher or a hand-barrow (*'pusher'?) on which the dead body is carried, or a lid on the tomb.

[35] For one such theory see n. 43 at the end of this paper.

The reconstructed meaning 'drive, push' may be interestingly matched by that of Old Irish *dingid*, ·*ding*, perf. *dedaig*, *ro-decht* 'presses, thrusts, forces'[36]. The Irish verb is traditionally derived from PIE *d^heig^h*-, discussed above[37], but Celtic *g can continue PIE *g or *g^h*, and semantic problems remain, cf. "il est difficile de justifier le sens de «presser, écraser»" (*DEIA* D 92). A meaning that could be aligned with that of PIE *d^heig^h*- is only found in the compound verb *con:u-taing* 'builds', *cumtach* 'construction', which is why already Pedersen (1911: 506) surmised that more than one PIE root may underlie the Celtic forms[38].

While the proposed Celtic connection necessarily remains extremely tentative, the Greek-Germanic comparison allows reconstructing a new root *d^heig*- / *$d^heig̑$*- with the meaning 'handle, drive, push, thrust', from which the meaning 'touch' in Greek can be unproblematically derived[39]. The Phrygian verb would be a regular reflex of this root under Lubotsky's devoicing theory: PIE *$d^hig/g̑$*- >

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[36] See *eDIL* s.v. *dingid*.

[37] See McCone 1991: 41; Schumacher 2004: 276–7.

[38] The meaning 'to build' may also be attested in Celtiberian *a]mPiTinCounei*, viz. /*ambi-dingounei*/ (Bot. I, A. 6), whose precise semantics are, however, uncertain. It is in theory possible that the meaning 'to press' in Irish developed from 'knead, form', reconstructible for *$d^heig̑^h$*- (cf. PDE *dough*).

[39] Another language family where reflexes of *d^heig*- / *$d^heig̑$*- may be sought is Italic where we find Faliscan perf. *fifiked* / *f(if)iqod* 'produced' with a velar stop that would be unexpected as a reflex of aspirated *g^h* but can go back to plain *g / *$g̑$*. But there is little reason to separate the Faliscan forms from Lat. *fingō,* Umbr. *fiktu* (see Meiser 1986: 82–84) and several reasons against doing so: (a) there is no certainty that <k>/<q> in the Faliscan form stand for [g] and not e.g. for [γ], (b) it is possible that the Faliscan outcome of PIE *g^h* / *$g̑^h$* actually was /g/, differently from Latin (cf. *lecet* 'lies' < *$leg̑^h$*-), (c) the stop may have been analogically imported from the present stem (Lat. *fingō*) where *$ng̑^h$* > -*ng*- was regular, which seems the likeliest explanation (see the discussion in Bakkum 2009: 75). Poccetti 2005: 28 separated *fifiked* / *f(if)iqod* from Lat. *fingō* and PIE *$d^heig̑^h$*-, but connected these forms on semantic grounds with perf. *$fefēk$*- < *d^heh_1*-*k*- in Praesamnitic *fεfικεδ*. Note that word-medial -*g*- in Classical Latin present *fīgere* 'to drive in, insert, fasten' (vis-à-vis Old Latin *fīuere* and the noun *fībula* 'pin' < *$fīu̯ibula$* < *$fīu̯ed^hla$*) can be unproblematically explained as introduced by analogy to the perfect, and Old Latin *FIGIER* proves that *ī* does not go back to *$ei̯$* (for the root *$d^heh_2ig^w$*- 'to stick, pierce, sting' see Nikolaev 2022).

Phryg. *dik-* [40] . NPhr. <ε>δικες from 3 sg. *$(h_1)e$-$d^h ig/ǵ$-e-s-t can represent a secondarily sigmatized thematic aorist of the type discussed by Gorbachov 2005: 208–10 who aptly compared Slavic aor. in -*ox*-: the parallel with Gk. θιγέ/ό- makes this analysis particularly tempting in view of the close relationship between Greek and Phrygian[41].

The argument presented in this paper can be summarized as follows: under the well-supported (but not universally accepted) theory that PIE unaspirated voiced stops were devoiced in Phrygian, NPhr. <ε>δικες < *edikest* (or αδικες < *ad-edikest*), construed with μανκαν 'stele', should go back to a PIE root ending in a voiced tectal. A root *$d^h e\underset{\smile}{i}g$- or *$d^h e\underset{\smile}{i}ǵ$- can be reconstructed on the basis of Gmc. *$dei\underset{\smile}{k}$- 'schaffen' and Gk. θιγ- 'to handle' (with Delphic θιγάνᾱ remarkably used in the context of a burial, quite similar to NPhr. <ε>δικες), and the reconstructed meaning 'handle, drive, push' *vel sim.* will explain the semantics of OIr. ·*ding* 'presses, thrusts, forces'. However, it is important to admit that individual solutions can be advanced for the forms in all three languages, as discussed above[42]. Several outlandish ways of aligning the forms in unaspirated *-ǵ*- with the well-established root *$d^h e\underset{\smile}{i}ǵ^h$- 'to build up, work clay, fashion' can be envisaged: these hypotheses are prompted by the morphological parallelism between the *Averbo*s of these roots (Gk. θιγγάνω vis-à-vis Arm. *dizanem*)[43]. The

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[40] See n. 17 above.

[41] See Obrador Cursach 2019.

[42] Gmc. *dik- may owe its *k to the iterative *$dikkō$- < $^{TP}d^h iǵ^h$-neh_2- from the root *$d^h e\underset{\smile}{i}ǵ^h$- 'to build up, work clay, fashion' (see n. 15 above); the meaning of OIr. ·*ding* may come from 'knead' < 'to work clay' (see n. 38 above); and the -γ- in Greek may be due to deaspiration after a nasal if the latter took place prior to the introduction of the Law of Limitation in Greek and if finite verbal forms were underlyingly recessively accented for the purposes of "Miller's Law" (see n. 24 above).

[43] In particular, the meaning 'to work clay' detectable in several descendants of the root *$d^h e\underset{\smile}{i}ǵ^h$- would be a nice match to NPhr. <ε>δικες construed with μανκαν 'stele', cf. Toch. A *tseke* 'image, form, construction', *(kuntis)tsek* 'potter', Lat. *figulus* 'potter', Ved. °*díh*- 'wall', etc. It is therefore not unreasonable to inquire whether there is a way of reconciling NPhr. <ε>δικες with the latter root, and in fact, it may be possible to do just that. It appears that already in PIE a voiced aspirated consonant was assimilated to the following *s (and, generally, a voiceless obstruent), losing its aspiration and voicedness (see Solmsen 1895: 296; Mayrhofer 1986: 110; Byrd 2018: 2070): compare the *s*-aorist *$u\underset{\smile}{e}\breve{ǵ}^h$-$s$- 'carry by vehicle' > Lat. *vēxī*, Cypriot Gk. *e-we-xe* (ἔϝεξε),

perhaps directly Ved. (subj.) *vákṣat*; nom. sg. *$d^h rig^h$-s* > Gk. θρίξ 'hair' (note the absence of the Grassmann's Law); *$h_1 eg^{wh}$-ske/o-* 'drink' > Hitt. *ak-ku-uš-ke/a-* with a fortis consonant; *μob^h-s-eh_2* 'weaver, wrapper; wasp' > *μop-s-eh_2* > OHG *wefsa*, Lat. *vespa* (perhaps also with metathesis *$\mu opseh_2$* > *$\mu ospeh_2$* > Hitt. *wašpa-* 'garment', see Olsen 2016); or *$d^h reg^{wh}$-s-eh_2* > Toch. B *traksiñ* 'ears (of grain)' (cf. Khot. *drrāṃśá-* 'millet', Gk. τρέφω 'nourish'): without deaspiration, the form would have undergone the Tocharian version of the Grassmann's Law, lose plain *d* before *r* and come out as Toch. B *$räks$-* (the appurtenance of Skt. *d(h)rākṣā-* 'grape', OIr. *derc* 'berry' seems less certain, but see Adams 2005). Under this theory, all voice/aspiration assimilation in PIE would proceed right-to-left. As Ringe 2017: 136 has observed, however, the sound change $D^h s > Ts$ (known to the readers of traditional Germanic grammars as "Primärberührungseffekt", see e.g. Paul 2007: 125) is diametrically opposed to Bartholomae's Law and would bleed it if ordered prior to it: both sound changes target the same sequences and must reflect the same underlying constraint on the difference in aspiration in a cluster, but Bartholomae's Law is progressive assimilation, while the "Primärberührungseffekt" is regressive assimilation. In other words, if all instances of $D^h s$ (as well as $D^h T$) were eliminated in PIE, Indo-Iranian forms like YAv. *vaβža-ka-*, Baluchi *gwabz* 'wasp' < Indo-Iranian *$\mu abz^h \bar{a}$-* < *$\mu ob^h seh_2$-* would have been impossible. One way out of this impasse is to theorize that all cases of Bartholomae's Law in Indo-Iranian are based on an analogical restoration of the voiced aspirate, not dissimilar to the classical account of Lachmann's Law in Latin where a voiced consonant was analogically restored only to be devoiced again with a lengthening (see Jasanoff 2004). Since devoicing and deaspiration before a voiceless obstruent is observed in several IE languages (see above), while, contrary to Miller 1977b, Bartholomae's Law is arguably an Indo-Iranian sound change (a position which is not universally accepted but its full discussion cannot be accommodated on the present occasion), it is at least thinkable that as $D^h s / D^h T$ clusters continued being illicit, the would-be speakers of Proto-Indo-Iranian reversed the assimilation in clusters starting with D^h, as they created forms like *$C\breve{a}D^h$-tăr-*, *$C\breve{a}D^h$-s-*, etc., thus allowing a more faithful preservation of root allomorphs. In terms of theoretical phonology, while the constraint on *$D^h s$ / *$D^h T$* clusters was still active in Indo-Iranian, the voiced outcome (later devoiced in Indo-Aryan) was now ranked higher than devoicing and deaspiration observed in other IE languages. A form like *μob^h-s-eh_2* 'wasp' that was supposed to give *μop-s-eh_2* in PIE by the "Primärberührungseffekt" (> OHG *wefsa*, Lat. *vespa*) would be remade in Indo-Iranian as *μab^h-sā* > *$\mu abz^h \bar{a}$-*, as the primary root *μab^h-* 'to weave, wrap' was still available and the speakers were still aware of the semantic connection. Similarly, Vedic forms showing the effects of Grassmann's Law in underlyingly biaspirate roots (e.g. Ved. *d(h)ákṣu-* 'burning' (PIE *$d^h eg^{wh}$-*), *ad(h)ukṣat* 'milked' (PIE

*dʰeugʰ-), *jugukṣataḥ* 'want to hide' (PIE *g^(w)ʰeugʰ-), *drapsá-* 'drop' (PIE *dʰrebʰ-), Late Ved. *grapsa-* 'bunch' (PIE *gʰrebʰ-), etc.) would have to be analyzed as coinages of Indo-Iranian date (e.g. *dʰrabʰsá- > *dʰrabẓʰá- > *drabẓʰá- > drapsá-). The variation in the aspiration of the first consonant in some of these forms (showing potentially interesting distribution across the Rigveda, see Scharfe 1996) is attributable to the conflict between expected *Dʰ...Ts < *Dʰ...Dʰs (by "Primärberührungseffekt") and innovative *D...Ts < *D...Dʰs < *Dʰ...Dʰs with Grassmann's and Bartholomae's Laws. (But under the traditional phonology, dh- could have been reintroduced into the *dhákṣat*-type forms based on *adhāk*-type forms; in other words, the alternation in forms like *ad(h)akṣat* can be explained through the coexistence of *dʰagẓʰat* (> *dhákṣat*) with *(a)dʰākšt (> *adhāk*) where the former form would have been subject to Grassmann and Bartholomae's Laws, while the latter would show the effects of earlier final devoicing and deaspiration (Schindler 1976: 623), ultimately identifiable with the "Primärberührungseffekt" in word-final position). In some relic and no longer etymologically transparent forms, however, the analogical restoration of the voiced aspirate did not happen in Indo-Iranian, e.g. Ved. *makṣú* 'quickly, immediately', OAv. *mošu* 'id.' < *mokṣu (Lat. *mox*, MWelsh *moch*) that can be analyzed as the "Primärberührungseffekt"-outcome of earlier *mo-gʰs-h₁u 'at hand(s)' (for this reconstruction see Neri 2013: 194) or Iranian *xšan(u)-* 'give one thing for another, exchange, requite' (Osset. *(ä)xsän* 'common', OAv. *xšạnmānē* 'as substitution', Av. *xšnūt-* 'requital', in the reconstruction by Schwartz 1982 and *forthcoming*) if ultimately delocatival from *gʰs-en 'at hand', cf. the semantics of reciprocity in Gk. (Att.) ξένος and ξενίᾱ, Lat. *hostis*, PDE *guest* (but the etymological connection between the Iranian forms and Gk. *ksénųo-* is not universally accepted). The proposed PIE development *Dʰs > *Ts is merely a hypothesis that invites further difficult questions. (I thank Jay Jasanoff and Michael Weiss for their critical input to this footnote). Nevertheless, this hypothesis allows reconciling NPhr. δικ- with the root *dʰeig̑ʰ-.

The prediction is that PIE *dʰeig̑ʰ-s- would be phonetically realized as [dʰeik̑s-]; *dʰeik̑- would violate PIE root-structure constraints, but *dʰeig̑- with a voiced final consonant would not: it could in theory have been extracted as an allomorph of *dʰeigʰ- ("Nebenform", Falk–Torp 1909: 142). But let us examine specifically the possibility of accounting for NPhryg. δικ- based either on the PIE "Primärberührungseffekt" or on a milder version of the claim above, namely, that a form like *(h₁e-)dʰĕig̑ʰ-s-t or *(h₁e-)dʰig̑ʰ-s-t would undergo a devoicing of the cluster *g̑ʰst in word-final position (cf. *(h₁e-)dʰēg^wʰ-s-t > Ved. *adhāk* 'burned', *(h₁e-)ųēg̑ʰ-s-t > *ávāṭ* 'conveyed'). In the verbal system of PIE *dʰeig̑-, contact between the root-final consonant and a *s could have taken place either in the sigmatic aorist *dʰēig̑ʰ-s- or in the desiderative *dʰi-dʰig̑ʰ-(h₁)s-e/o- (where the laryngeal would be regularly lost between two obstruents, see Jasanoff 2003: 77), for

reader is therefore invited to choose between two solutions: NPhr. <ε>δικες can be taken either from a "new" root *$d^h e\underset{\smile}{i}\acute{g}/\acute{g}$- 'drive, handle, push' or from the allomorph *$d^h e i \acute{g}$- of the familiar root *$d^h e i \acute{g}^h$- 'work clay, fashion'. Either way, a suitable meaning for the phrase <ε>δικες ειαν (εσαν) μανκαν can be obtained: "put" (< *'pushed') or "fashioned" a stele.

References

Adams, D. Q. 2005: Tocharian B *traksiṃ* 'grains' and an Indo-European word for 'berry'. *Journal of Indo-European Studies* 33, 1–8.
Anderson, J. G. C. 1898: A summer in Phrygia II. *Journal of Hellenic Studies* 18, 81–128.

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which compare OIr. *didis*, ·*did*. But there is barely any evidence for a sigmatic (or any other type of) aorist made from the root *$d^h e i \acute{g}^h$-, Lat. *finxī* clearly being an innovative formation, and the root vowel is problematic, since in Phrygian one would expect *ai*/αι < *$\bar{e}\underset{\smile}{i}$ or *ei*/ει < *$e\underset{\smile}{i}$. A PIE desiderative as the origin of the Phrygian form is unlikely both because of the context and because of the absence of the thematic vowel after *s (even though under this theory ΔΔΙΚΕΣ may be interpreted as a reduplicated form with a syncope or a spelling error, representing a reflex of *$d^h i$-$d^h i \acute{g}^{(h)} s$-). The past tense being a more promising direction, it is possible to tentatively propose that Phrygian <ε>δικες may go back to an imperfect made from the root present stem, well attested for the root *$d^h e i \acute{g}^h$- (Toch. B *tsikale*, Ved. subj. -*déhat* (RV 7.50.2), participle *dihāná-* (RV 10.87.4), Pāṇ. *degdhi*, YAv. *uzdišta*, thematized in Goth. *digan* and Arm. aor. (< impf.) *edēz*). The root imperfect *$(h_1)e$-$d^h (e) i \acute{g}^h$-t 's/he built up' was secondarily sigmatized as *$(h_1)e$-$d^h (e) i \acute{g}^{(h)}$-$s$-$t$'s/he built up', fully parallel with the tendency of sigmatizing root preterits observable across the Indo-European languages, cf. Vedic 3 sg. *dhāṣ*, *ápāṣ*, *bhūṣ*, *abheṣ* < *-s-t (but see Kümmel 2018: 245–50 who views the ending *-s as inherited, with a rejoinder by Jasanoff 2019: 42–3, n. 62); it is interesting to compare secondarily sigmatized Vedic *adhikṣan* (JB 3.121) from *dih*-, see Narten 1964: 142. In particular, this sigmatization tendency is documented for "Balkan-Indo-European", cf. the reflexes of the root *$d^h eh_1$- (root aorist in Ved. *ádhāt*, OCS -*dě*) in OPhryg. *edaes*, Messap. (*hipa*-/*opa*)*des* 'deposited' usually taken from *$d^h eh_1$-s-t (but see Weiss 2018–2019: 124) and, perhaps, Arm. 1 sg. *edi* 'I put' (< *$d^h \bar{e}$-s-om ~ OCS *děxŭ*) and even Greek (see de Lamberterie 2013: 40). As for the subsequent development in Phrygian, either *$(h_1)e$-$d^h i \acute{g}^h st$ > *$(h_1)e$-$d^h i \acute{g}st$ (deaspiration) > *$(h_1)e$-$d^h ikst$ (regressive voicing assimilation) > pre-Phrygian *$edikst$ > *$ediks$ was remade to *edikes* by analogy to the Phrygian *es*-aorist (*edaes*, *eneparkes*, εσταες, etc.) or *$edikst$ underwent epenthesis with a vowel breaking up the illicit cluster -Kst# (see Sowa 2005: 617). Needless to say, this theory is offered here as a mere possibility.

Ásgeir Blöndal Magnússon. 1989: *Íslensk orðsifjabók*. Reykjavík: Orðabók Háskólans.

Bakkum, G. C. L. M. 2009: *The Latin Dialect of the Ager Faliscus: 150 Years of Scholarship*. University of Amsterdam dissertation.

Batisti, R. (*forthcoming*) Post-nasal deaspiration in Ancient Greek: Mirage or reality? *Proceedings of the International Colloquium of Ancient Greek Linguistics* (Madrid, 16–18 June 2022).

Batisti, R. 2022: L'arroganza e l'ingiuria: su alcune forme greche in στεμφ- e in στε(μ)β- e sulproblema della 'deaspirazione postnasale'. *AION Linguistica* 11 n.s., 57–78.

Bayun, L. S., Orel V. È. 1988: Iazyk frigiiskikh nadpisej kak istoricheskii istochnik II. *Vestnik drevnej istorii* 5, 132–168 (Баюн Л. С., Орел В. Э. 1988: Язык фригийских надписей как исторический источник II. *Вестник древней истории* 5, 132–168).

Beek, L. van 2013: 'Struck (with blood)': The meaning and etymology of παλάσσω and its middle perfect πεπάλακτο. *Mnemosyne* 66, 541–565.

Beek, L. van 2021: Accentuation versus syllable structure: What conditioned the disyllabic reflex of PIE *CRHC in Greek? Paper presented at the Oxford Workshop on Indo-European Accentuation (15–16 July 2021).

Beek, L. van 2022: *The Reflexes of Syllabic Liquids in Ancient Greek: Linguistic Prehistory of the Greek Dialects and Homeric Kunstsprache*. Boston; Leiden: Brill.

Beekes, R. 2010: *Etymological Dictionary of Greek*. Leiden; Boston: Brill.

Benecke, G. F., Müller, W., Zarncke, F. 1854–1866: *Mittelhochdeutsches Wörterbuch*. Leipzig: Hirzel.

Brixhe, C. 2004: Corpus des inscriptions paléo-phrygiennes: Supplément II. *Kadmos* 43, 1–130.

Byrd, A. M. 2018: The phonology of Proto-Indo-European. *Handbook of Comparative and Historical Indo-European Linguistics*, ed. by J. Klein, B. Joseph, and M. Fritz, vol. 3, 2056–2078. Berlin: de Gruyter.

Calder, W. M. 1911: Corpus Inscriptionum Neo-Phrygiarum. *Journal of Hellenic Studies* 31, 161–215.

DEIA = J. Vendryes, *Lexique étymologique de l'irlandais ancien*. Dublin: Institute for Advanced Studies; Paris: CNRS Éditions, 1959–.

DELG = P. Chantraine, *Dictionnaire étymologique de la langue grecque. Histoire des mots*, Paris, Klincksieck, 1968–1980 (cited after the 2009 edition).

DGEEP = E. Schwyzer (ed.) *Dialectorum graecorum exempla epigraphica potiora*[3]. Leipzig: Hirzel, 1923.

Diakonoff, I. M., Neroznak, V. P. 1985: *Phrygian*. New York: Caravan Books.

Dieu É. 2022: *Traité d'accentuation grecque*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.

Dubois, L. 2004: Review of Frissone 2000, *Bulletin épigraphique* 2004, nᵒ 11, *Revue des études grecques* 117, 585.

eDIL = G. Toner et al. (eds.) *Electronic Dictionary of the Irish Language*, 1st digital ed. Royal Irish Academy. www.dil.ie.

EWAhd = A. L. Lloyd, R. Lühr and O. Springer (eds.). *Etymologisches Wörterbuch des Althochdeutschen.* 7 vols. Göttingen und Zürich: Vandenhoeck & Ruprecht, 1998–.

Falk, H., Torp A. 1909: *Norwegisch-Dänisches Etymologisches Wörterbuch*. Heidelberg: Winter.

Forssman, B. 2005: Das Verbum οἰγ- 'öffnen' bei Homer. *Sprachkontakt und Sprachwandel: Akten der XI. Fachtagung der Indogermanischen Gesellschaft (17.–23. Sept. 2000, Halle an der Saale)*, ed. by G. Meiser and O. Hackstein, 105–115. Wiesbaden: Reichert.

Fournier, P. 1898: Corrections au règlement de la phratrie des Labyades. *Bulletin de correspondance hellénique* 22, 271–272.

Fraenkel, E. 1962–1965: *Litauisches etymologisches Wörterbuch*. Heidelberg: Winter.

Frisone, F. 2000: *Leggi e regolamenti funerari nel mondo greco*. Vol. 1: *Le fonti epigrafiche*. Lecce: Congedo.

Gorbachov, Ya. 2005: The Origin of the Phrygian Aorist of the Type *edaes*. *Proceedings of the Sixteenth Annual UCLA Indo-European Conference*, ed. by K. Jones-Bley, M. Huld, A. Della Volpe and M. Robbins Dexter, 191–218. Washington D.C.: Institute for the Study of Man.

Gorbachov, Ya. 2008: Nine observations on the Old Phrygian inscription from Vezirhan. *Kadmos* 47, 91–108.

Haas, O. 1951: Zur Deutung der phrygischen Inschriften. *Revue hittite et asianique* 11, 1–30.

Haas, O. 1966: *Die phrygischen Sprachdenkmäler*. Sofia: Académie Bulgare des Sciences.

Hajnal, I. 2005: Das Frühgriechische zwischen Balkan und Ägäis – Einheit oder Vielfalt?, *Sprachkontakt und Sprachwandel: Akten der XI. Fachtagung der Indogermanischen Gesellschaft*, ed. by G. Meiser and O. Hackstein, 185–214. Wiesbaden: Reichert.

Hämmig, A. E. 2013: *Nevotan niptiyan*, die Fluchformel der Stele von Vezirhan. *Indogermanische Forschungen* 118, 125–154.

Hämmig, A. E. 2019: Deciphering Phrygian: Blind alleys and viable ways. *Phrygia in Antiquity: From the Bronze Age to the Byzantine Period*, ed. by G. R. Tsetskhladze, 287–304. Leuven: Peeters.

Hock, H. H. 2014: Vedic verb accent revisited. *Vedic and Sanskrit Historical Linguistics: Papers from the 13th World Sanskrit Conference*, ed. by J. Klein and E. Tucker, 153–178. Delhi: Motilal Banarsidass.

Höfler, S. 2016–2017: "La belle Hélène", a generic brothel, and the development of *CR̥HC* sequences in Ancient Greek. *Die Sprache* 52, 177–201.

Höfler, S. & Nielsen, J. U. 2022: A Proto-Indo-European word for 'spider'? Un-weaving the prehistory of the Greek ἀράχνη and the Latin *arāneus*. *Graeco-Latina Brunensia* 27, 69–89.

Jacquemin, A., Mulliez, D. and Rougemont G. 2012: *Choix d'inscriptions de Delphes, traduites et commentées*. Paris: École française d'Athènes.

Jasanoff, J. H. 2003: *Hittite and the Indo-European Verb*. Oxford University Press.

Jasanoff, J. H. 2004: Plus ça change... Lachmann's Law in Latin. *Indo-European Perspectives: Studies in Honour of Anna Morpurgo Davies*, ed. by J. H. W. Penney, 405-416. Oxford; New York: Oxford University Press.

Jasanoff, J. H. 2019: The sigmatic forms of the Hittite verb. *Indo-European Linguistics* 7, 13–71.

Jasanoff, J. H. 2022: Double nasal presents. *Indo-European Linguistics* 10, 88–106.

Katz, J. T. 2007: The Development of Proto-Indo-European **sm* in Hittite. *Verba Docenti. Studies in Historical and Indo-European Linguistics Presented to Jay H. Jasanoff by Students, Colleagues, and Friends*, ed. by A. J. Nussbaum, 169–183. Ann Arbor; New York: Beech Stave Press.

Klingenschmitt, G. 1974: Gr. παρθένος. *Antiquitates Indogermanicae: Studien zur Indogermanischen Altertumskunde und zur Sprach- und Kulturgeschichte der indo-germanischen Völker (Gedenkschrift für Hermann Güntert)*, ed. by M. Mayrhofer, W. Meid, B. Schlerath, and R. Schmitt, 273–278. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck (reprinted in *Aufsätze zur Indogermanistik*, ed. by M. Janda, R. Lühr, J. Matzinger and S. Schaffner, 117–123. Hamburg: Dr. Kovac, 2005).

Kloekhorst, A. 2015: The Old Phrygian word for 'feet': New readings in the 'podas'-inscription (G-02). *Kadmos* 54, 107–118.

Kowal, B. 1984: Zur spätphrygischen Inschrift 31. *Kadmos* 23, 180–185

Kroonen, G. 2013: *Etymological Dictionary of Proto-Germanic*. Leiden: Brill.

Kümmel, M. 2018: Anatolisches und indogermanisches Verbum: Erbe und Neuerung. *Morphosyntaktische Kategorien in Sprachgeschichte und Forschung: Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 21. bis 23. September 2015 in Marburg*, ed. by E. Rieken, 239–257. Wiesbaden: Reichert.

Kümmel, M. J. 2013: The distribution of roots ending in IE *ND. *The Sound of Indo-European 2*, ed. by R. Sukač and O. Šefčík, 159–176. Munich: Lincom.

Lamberterie, Ch. de 2013: Grec, phrygien, arménien: des anciens aux modernes. *Journal des Savants* 2013, 3–69.

Lexer, M. 1872–1878: *Mittelhochdeutsches Handwörterbuch*. Leipzig: Hirzel.

Ligorio, O. 2016: Old Phrygian *totin*. *Lucida intervalla* 45, 33–39.

Ligorio, O., Lubotsky, A. 2013: Frigijskij iazyk. *Iazyki mira: reliktovye indoevropejskie iazyki Perednej i Central'noj Azii*, ed. by Yu. B. Koryakov & A. A. Kibrik, 180–195. Moskva: Academia [Лигорио, О. & Лубоцкий, А. 2013: Фригийский язык. *Языки мира: реликтовые индоевропейские языки Передней и Центральной Азии*, ред. Ю. Б. Коряков, А. А. Кибрик, 180–195. Москва: Academia].

Ligorio, O., Lubotsky, A. 2018: Phrygian. *Handbook of Comparative and Historical Indo-European Linguistics*, ed. by J. Klein, B. Joseph and M. Fritz, vol. 3, 1826–1831. Berlin, Boston: de Gruyter.

*LIV*² = *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen*, ed. by H. Rix, M. Kümmel, Th. Zehnder, R. Lipp and B. Schirmer. 2ⁿᵈ ed. Wiesbaden: Reichert, 2001.

Lubotsky, A. 2004: The Phrygian Zeus and the problem of the 'Lautverschiebung', *Historische Sprachforschung* 117, 229–237.

Lühr, R. 1988: *Expressivität und Lautgesetz im Germanischen*. Heidelberg: Winter.

Matzinger, J. 2006: Interpretation sprachlicher Daten aus Rest- und Trümmersprachen. Das Fallbeispiel der Streitfrage um eine phrygische Lautverschiebung. *Historische Sprachforschung* 119, 190–210.

Mayrhofer, M. 1986: *Indogermanische Grammatik*. Vol. II/1: *Segmentale Phonologie*. Heidelberg: Winter.

McCone, K. 1991: *The Indo-European Origins of the Old Irish Nasal Presents, Subjunctives and Futures*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.

Meier-Brügger, M. 1992: Relative Chronologie: Schlüsse aus dem griechischen Akzent. *Rekonstruktion und relative Chronologie. Akten der VIII. Fachtagung der indogermanischen Gesellschaft*, ed. by R. Beekes *et al*., 283–289. Wiesbaden: Reichert.

Meiser, G. 1986: *Lautgeschichte der umbrischen Sprache*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.

Meister, R. 1909: Die äolischen Demostrativa ὄνε, ὄνι, ὄνυ und die Partikel νι (νε) im Phrygischen. *Indogermanische Forschungen* 25, 312–325.

Miller, D. G. 1977a: Some theoretical and typological implications of an Indo-European root structure constraint. *Journal of Indo-European Studies* 5, 31–40.

Miller, D. G. 1977b: Bartholomae's Law and an IE root structure constraint. *Studies in Descriptive and Historical Linguistics: Festschrift for Winfred P. Lehmann*, ed. by P. J. Hopper, 365–392. Amsterdam: John Benjamins.

Miller, D. G. 2010: *Language Change and Linguistic Theory*. Volume 1: *Approaches, Methodology, and Sound Change*. Oxford: Oxford University Press.

Miller, D. G. 2014: *Ancient Greek Dialects and Early Authors: Introduction to the Dialect Mixture in Homer, with Notes on Lyric and Herodotus*. Boston; Berlin: de Gruyter.

Moralejo Alvarez, J. J. 1973: *Gramática de las inscripciones délficas: Fonética y morfología. (Siglos VI–III a.C.)*. Santiago de Compostela: Universidad de Santiago de Compostela.

Narten, J. 1964: *Die sigmatischen Aoriste im Veda*. Wiesbaden: Harrassowitz.

Neri, S. 2013: Zum urindogermanischen Wort für 'Hand'. *Multi nominis grammaticus: Studies in Classical and Indo-European Linguistics in Honor of Alan J. Nussbaum on the Occasion of his Sixty-Fifth Birthday*, ed. by A. I. Cooper, J. Rau, & M. Weiss, 185–205. Ann Arbor; New York: Beech Stave.

Neri, S. 2017: *Wetter. Etymologie und Lautgesetz*. Perugia: Università degli Studi di Perugia.

Neumann, G. 1986: Zur Syntax der neuphrygischen Inschrift Nr. 31. *Kadmos* 25, 79–84.

Nikolaev, A. 2022: τιθαιβώσσουσι μέλισσαι (Homer, *Odyssey* 13.106). *Classical Quarterly* 72, 39–52.

Nikolaev, A. 2023: New Phrygian (-)τετικμενος, Hittite *tekri-* and other descendants of PIE **deik-*. *Chatreššar* 4/2, 41–56.

Obrador Cursach, B. 2016: Phrygian mekas and the recently discovered New Phrygian inscription from Nacoleia. *Indogermanische Forschungen* 121, 177–186.

Obrador Cursach, B. 2019: On the place of Phrygian among the Indo-European languages. *Journal of Language Relationship* 17, 233–245.

Obrador Cursach, B. 2020: *The Phrygian Language*. Leiden / Boston: Brill.

Olsen, B. A. 2016: Latin *vespillō* 'undertaker' – Calvert Watkins in memoriam. *Journal of Indo-European Studies* 44, 92–110.

Orel, V. 1996: Notes in Greek and Phrygian etymology. *Orpheus: Journal of Indo-European and Thracian Studies* 6, 17–19.

Orel, V. 1997: *The Language of Phrygians: Description and Analysis*. Delmar NY: Caravan Books.

Paul, H. 2007: *Mittelhochdeutsche Grammatik*[25]. Tübingen: Niemeyer.

Pedersen, H. 1911: *Vergleichende Grammatik der keltischen Sprachen*. Vol. 2: *Bedeutungslehre (Wortlehre)*. Göttingen: Vanderhoeck und Ruprecht.

Poccetti, P. 2005: Notes de linguistique italique 2 (n. s.). En marge de la nouvelle attestation du perfectum falisque *faced/facet*, le latin de Préneste *vhevhaked*, et le falisque *fifiked*. *Revue des Études Latines* 83, 27–35.

Probert, P. 2012: Origins of the Greek law of limitation. *Laws and Rules in Indo-European*, ed. by P. Probert and A. Willi, 163–181. Oxford University Press.

Reinach, Th. 1898: Addenda et corrigenda. *Revue des Études Grecques* 11, 522.

Rico, Chr. 2009: Etude morphologique de la famille de σφαραγέομαι. *Münchener Studien zur Sprachwissenschaft* 63, 175–201.

Rieken, E. 2002: Ein Lautgesetz und der Obliquusstamm des urindogermanischen Personalpronomens der 1. und 2. Person Plural. *Novalis Indogermanica. Festschrift für Günter Neumann zum 80. Geburtstag*, ed. by M. Fritz and S. Zeilfelder, 407–416. Graz: Leykam.

Ringe, D. 2017: *From Proto-Indo-European to Proto-Germanic*[2]. Oxford University Press.

Rougemont, G. 1977: *Corpus des inscriptions de Delphes*. Vol. 1: *Lois sacrées et règlements religieux*. Paris: de Boccard (= *CID*).

Scharfe, H. 1996: Bartholomae's Law revisited or how the Ṛgveda is dialectally divided. *Studien zur Indologie und Iranistik* 20 (= *Festschrift Paul Thieme*), 351–377.

Schindler, J. 1976: Diachronic and synchronic remarks on Bartholomae's and Grassmann's Laws. *Linguistic Inquiry* 7, 622–637.

Schumacher, S. 2004: *Die keltischen Primärverben: Ein vergleichendes, etymologisches und morphologisches Lexikon*. Innsbruck: Institut für Sprachen und Literaturen der Universität Innsbruck.

Schwartz, M. 1982: The Indo-European vocabulary of exchange, hospitality, and intimacy (the origins of Greek *ksénos*, *sún*, *phílos*; Avestan *xšnu-*, *xṣ̌anman-*, etc.): contributions to etymological methodology. *Proceedings of the Eighth Annual Meeting of the Berkeley Linguistics Society*, 188–204.

Schwartz, M. (*forthcoming*): *√ksen, *ksenu-, *√ksn(e)u: Indo-European reciprocity and its Gāthic iconicity. *Münchener Studien zur Sprachwissenschaft*.

Seebold, E. 1970: *Vergleichendes und etymologisches Wörterbuch der germanischen starken Verben*. The Hague / Paris: Mouton.

Sihler, A. L. 1995: *New Comparative Grammar of Greek and Latin*. Oxford University Press.

Soeteman, C. 1962: *Dichten*, *Dichter*, *Dichtung*: Die Geschichte eines Wortstammes. *Festgabe für L. L. Hammerich*, 271–280. Kopenhagen: Naturmetodens Sproginstitut.

Solmsen, F. 1895: Zur vertretung der gutturale im griechischen. *Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der indogermanischen Sprachen* 33, 294–300.

Solmsen, F. 1905: *Inscriptiones graecae ad inlustrandas dialectos selectae*[2]. Leipzig: Teubner.

Sowa, W. 2005: Anmerkungen zum Balkanindogermanischen. *Indogermanica. Festschrift für Gert Klingenschmitt*, ed. by G. Schweiger, 611–628. Taimering: VWT.

Sowa, W. 2008: *Studien zum Phrygischen*. Göttingen: Cuvillier.

Szemerényi, O. 1954: Greek ταφών — θάμβος — θεάομαι. *Glotta* 33, 238–266.

Tamsü Polat, R., Polat, Y., Lubotsky, A. 2020: An idol-shaped stele with an Old Phrygian inscription in the territory of Nakoleia. *Gephyra* 19, 45–67.

Tichy, E. 1983: *Onomatopoetische Verbalbildungen des Griechischen*. Wien: Verlag der Österreichischen Akademie der Wissenschaften.

Wackernagel, J. 1877: Der griechische Verbalaccent. *Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der indogermanischen Sprachen* 23, 457–70 (reprinted in: *Kleine Schriften*, Göttingen, Vandenhoeck & Ruprecht, 1955, Vol. 2, 1058–1071).

Wackernagel, W. 1861: *Altdeutsches Handwörterbuch*. Basel: Schweighauser.

Weiss, M. 2018–2019: Review of J. Matzinger, *Messapisch*. Wiesbaden: Reichert, 2019. *Die Sprache* 53, 114–125.

West, M. L. 1968: Two notes on Delphic inscriptions. *Zeitschrift für Papyrologie und Epigraphik* 2, 176.

Wood, F. A. 1907: Studies in Germanic strong verbs. I. *Modern Philology* 4, 489–500.

Woodhouse, R. 2006: Conditioned devoicing of mediae in Phrygian. *Studia Etymologica Cracoviensia* 11, 157–191.

Woodhouse, R. 2009: Devoicing of PIE mediae in Phrygian. *Historische Sprachforschung* 122, 208–227.

Woudhuizen, F. 2021: The Phrygian language: An update. *Kratylos* 66, 1–17.