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The Anatolian Subgroup of Indo-European in the Light of the "Minor" Languages

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ABSTRACT:
There was early recognition that Hittite was not alone as an Indo-European language of ancient Anatolia, but various factors retarded the impact of the related languages on our conception of the new subfamily and its relationship to the rest of the Indo-European family. New textual discoveries and the efforts of multiple scholars in the four-plus decades after World War II dramatically improved our understanding of the "minor" languages and led to the first serious attempts at reconstructing Proto-Anatolian. The pace of progress in the evidence for and analysis of these languages has only accelerated in the last quarter century, at last enabling a truly pan-Anatolian approach to refining our notion of Proto-Anatolian and its true relationship to Proto-Indo-European/Proto-Indo-Anatolian.

KEYWORDS:
Anatolian, Hittite, Luvian, Lycian, Lydian, Carian

Almost immediately following Bedřich Hrozný's successful identification of Hittite as an Indo-European language, there was an early recognition that Hittite (Nesite) was not the only Indo-European language in Anatolia. Forrer (1919) already identified Luvian and Palaic as distinct languages among Hattusha texts, and Cuneiform Luvian was recognized as closely related to Hittite by Hrozný (1920: 35–39 & 55) and Forrer (1922: 215–223, correcting 1919: 1035). Forrer (1922: 241–247) tentatively added Palaic as also related.

The affiliation of the language of the "Hittite hieroglyphs" was established by the early 1930s: see Forrer 1932: 59 and *passim*, Meriggi 1932: 10 & 42–57, and Hrozný 1933: 77–80. Lycian and Lydian were shown to be Indo-European with special affinity with Hittite-Luvian-Palaic by Meriggi (1936a, 1936b), though this was not universally acknowledged. The concept of an "Anatolian" subgroup of Indo-European was thus existent before the Second World War, even if that label would not become standard for many decades.

However, the full impact of the "minor" Anatolian languages on the history of Hittite and its relationship to the rest of Indo-European was long delayed. Handbooks on the historical grammar of Hittite published from the 1930s to the 1970s largely explicated Hittite directly from some model of Proto-Indo-European, treating the other languages very selectively or in appendices: see e.g. Sturtevant 1933, Sturtevant-Hahn 1951, Kronasser 1956 & 1966, and Oettinger 1979. Hittite still played an outsized role in the more comprehensive treatment of Kammenhuber 1969. To the extent it was

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even discussed, "Proto-Anatolian" was effectively a back-projection from Old Hittite, not a serious intermediate reconstructed language on a par with Proto-Indo-Iranian, Proto-Germanic, Proto-Slavic, or the like.

I must emphasize that this Hittite-oriented approach was fully justified, due not only to the restricted evidence for other members of the subgroup, but also to long-term limitations in our understanding of them. Despite the efforts of Forrer, Hrozný, Meriggi and others, the language of the Anatolian hieroglyphs resisted full decipherment—partly due to bad luck. Forrer (1932: 40, 56[1], & 57[3]) recognized the value /ni/ for the sign ⊂, but the logical, indeed unavoidable reanalysis of the sign ⋂ as /i/ was blocked by its use for the first vowel in the name of Hama(th), leading him to a compromise *e/ä* (1932: 24 and *passim*). And Forrer did not even list /ni/ for ⊂ in his summary of findings (1932: 34)! It is hardly a surprise that the idea was long forgotten. The delay in the full recognition of the correct values lasted until the 1960s and beyond (see Hawkins — Morpurgo Davies — Neumann 1974: 151–152 & 157–158 with note 57 for a brief description of their "rediscovery," with credit to the work of Hermann Mittelberger). See also the fuller treatment of the decipherment by Hawkins (2000: 13–17) with further references.

The full textual evidence for the sparsely attested Palaic was published only in Otten 1944. World War II and its aftermath delayed its full exploitation: see *inter alia* Kammenhuber 1959ab and the handbook of Carruba 1970. Significant progress in Cuneiform Luvian was finally achieved in the 1950s: see Rosenkranz 1952, Otten 1953ab, and Laroche 1959. The impact of these and other contributions on Anatolian historical and comparative grammar was still limited by the restricted nature of the corpus (see further below).

Advances were likewise achieved in the analysis of Lycian through comparison with Luvian, most notably by Laroche (1958, 1960a, 1967). The results were summarized in Neumann 1969. These fully validated Lycian as an Anatolian language closely related to Luvian. Wider impact on Anatolian grammar was again limited by the nature of texts, which consisted either of reasonably well understood but stereotyped and repetitive tomb inscriptions or of longer compositions that resisted (and after 50 years still largely resist!) reliable interpretation due to problems of vocabulary and difficulty in determining clause boundaries. The Lydian evidence was finally made fully accessible by Gusmani (1964). Its Indo-European status was likewise fully confirmed, but various apparent peculiarities vis-à-vis the rest of the Anatolian IE languages retarded analysis and left even its precise historical relationship to the rest of the group seriously debated.

The 1970s and 1980s brought new evidence leading to dramatic progress in our understanding of Luvian and Lycian, with significant implications for Anatolian comparative and historical grammar. First, discovery and publication of the extensive Hieroglyphic-Phoenician bilingual of Karatepe (Bossert 1949–53) had confirmed much of the previous decipherment, as well as the Luvian features of the language of the hieroglyphs, but apparent striking differences versus Cuneiform Luvian remained: see Laroche 1960b and Meriggi 1962 & 1966–75, but note the titles of the respective handbooks, three decades after Meriggi's well-argued identification of the language as a form of Luvian!

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More than two decades passed after Bossert's *editio princeps* of Karatepe until Hawkins — Morpurgo Davies — Neumann (1974) combined the new evidence of Altıntepe pithoi and the cumulative facts from the Karatepe Bilingual and elsewhere—plus previous findings of Mittelberger, Bossert and others—to establish strikingly new readings for some basic syllabic signs. Previous 𔓰 *a* > *i*, previous 𔓱 *ā* > *ya*, previous 𔓲 *i* > *zi*, previous 𔓳 *ī* > *za* (and several *Ca* signs > *Ci*). The startling result of these quite dramatic redefinitions of the values of some of the most frequently used phonetic signs, including in *grammatical endings*, was that the language of the hieroglyphs now suddenly differed from Cuneiform Luvian only in details.

Various limitations of the hieroglyphic syllabary (only V and CV signs, no VC, widespread use of a single CV sign for *Ca* and *Ci*, etc.) still complicated analysis, but the far more varied content of Hieroglyphic Luvian texts greatly expanded knowledge of Luvian grammar, with major implications for the history of Anatolian. I cite just two examples here: Morpurgo Davies (1979) demonstrated that Luvian had reflexes of the (in)famous and historically problematic "*ḫi*-conjugation" of Hittite (at the same time eliminating alleged traces of a Luvian "subjunctive"). Morpurgo Davies (1982–83) definitively confirmed based on Luvian and Lycian evidence the "lenition" rules of Eichner (1973: 79–83, 100[86] *et alibi*) by which PIE voiceless stops and the second "laryngeal" $*h_2$ were weakened (or voiced) after accented long vowel and between unaccented vowels *in Proto-Anatolian*.

The discovery in 1973 and publication of the extensive Lycian-Greek bilingual of the Létôon text (also with an Aramaic version) led to a great advance in our understanding of Lycian grammar: see the *editio princeps* in Laroche 1979. The new evidence predictably confirmed many previous analyses, but modified or refuted others. Finally, Starke (1985) showed that the vast majority of Cuneiform Luvian texts consisted of duplicates and variants of a mere *handful* of ritual compositions, leading to many new insights into the morphophonology and lexicon of both forms of Luvian and of Lycian (Starke 1990).

I have spent nearly half of my generous allotted speaking time summarizing the history of the study of the "minor" ancient Indo-European languages of Anatolia and adjacent areas through the mid-1980s. I have done so because I think it is salutary to remind ourselves and others repeatedly that scholarship in any field is a cumulative and collaborative exercise. We should frequently acknowledge with due gratitude the great debt that we owe to those who preceded us—to use the frequent metaphor, those on whose shoulders we stand. The accelerated and still accelerating progress in Anatolian comparative and historical grammar over the past thirty-plus years has *only* been possible because those of us active in the field were able to build upon the foundations laid by those mentioned above and others I have not named. It was the preceding developments that led to serious inclusion of the "minor" languages in reconstructing Proto-Anatolian: see e.g. Eichner 1986: 12–13 and more extensively Eichner 1988, followed by Melchert 1994. Inadequate treatment of the languages beyond Hittite and skepticism about their relevance lingered: see the review of Puhvel 1984 by Melchert (1986: 569a) and the retort in Puhvel 1991: v. However, this was merely a minor bump on the road to progress, and even a cursory inspection of Puhvel 2011 (see among many the entries for *pašku(wai)-* and *paštar(iya)-*) affirms that

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a pan-Anatolian perspective has now become standard, if not universal in Anatolian comparative and historical grammar.

The pace of study of the "minor" Anatolian languages has continued to accelerate and expand over the past quarter century. One crucial factor has been continued new discoveries and much enhanced text corpora. Major new texts include Hieroglyphic Luvian inscriptions from the Hittite Empire of the late second millennium BCE: Yalburt (*editio princeps* Poetto 1993) and Südburg (Hattusha, *editio princeps* Hawkins 1995). Empire orthography leaves their interpretation controversial up to present, but both nevertheless have contributed to further new readings of certain signs, to the lexicon, and to our evolving conception of Luvian dialects in the second millennium. Further exciting new Hieroglyphic Luvian texts from the Iron Age also continue to be found: ALEPPO 6 (*editio princeps* Hawkins 2011: 40–45) and ARSUZ 1 & 2 (*editio princeps* Dinçol *et al.* 2015).

The Carian-Greek Kaunos Bilingual (discovery 1996, *editio princeps* Frei — Marek 1997) validated the radically "new" readings of many letters of the Carian alphabet and finally confirmed Carian as an Indo-European language closely related to Luvian and Lycian (summary of the research history and then current results in Adiego 2007). Our knowledge of the grammar is still limited, and the broader impact of Carian remains modest, but the presence of three voiceless coronal sibilants has interesting implications (cf. Melchert 2012a with references).

By far the broadest impact in terms of textual evidence we indisputably owe to the masterful edition by Hawkins (2000) of all Iron Age Hieroglyphic Luvian inscriptions known to date, making the corpus at last accessible to a wide range of scholars, not just the handful prepared to retransliterate themselves with the correct values all the previous editions prior to the mid-1970s.

The result has been a veritable torrent of published research reassessing virtually every aspect of the synchronic grammar of the "minor" languages and the implications for Anatolian historical grammar *and* the relationship of the subgroup (NB not just Hittite!) to Indo-European. This has reached its culmination in "eDiAna: Digital Philological-Etymological Dictionary of the Minor Ancient Anatolian Corpus Languages," an ongoing joint research project of Ludwig-Maxmilians-Universität München and Philipps-Universität Marburg (see https://www.ediana.gwi.uni-muenchen.de/index.php). This project combines original in-depth philological analyses with a highly productive exploitation of the known close interconnections of the lesser languages *among themselves*: many of the articles cited below stem from members of the project team. These same qualities also mark the "Luwili Project: Luwian Religious Discourse Between Anatolia and Syria" (see https://luwili.wordpress.com/), which in particular seeks to elucidate the religious incantations that comprise most Luwian cuneiform texts by comparison "with similar compositions in other languages coming from the same areas." Building on the pioneering work of Starke (1985), this reexamination of the many textual fragments has led to further dramatic new insights into the true interrelationships of the extant ritual compositions and their variants and promises to revolutionize our conception of Luvian dialects of the Empire period. The published paper by the principal investigators (Mouton — Yakubovich 2019) is merely a sample of what is to come.

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I close with a *highly* selective and eclectic list of representative examples of recent research on minor corpus languages having pan-Anatolian implications (and beyond), grouped according to area of most impact. The composition of the list unavoidably reflects personal priorities and prejudices of mine, and others would choose differently, but I am confident that there would be much overlapping.

Phonology:

1. Rieken (2008) demonstrated that the Hieroglyphic Luvian signs <ta> and <tá> continue "unlenited" voiceless **t* versus the sign <tà> reflecting "lenited" **t* or voiced **d*$^{(h)}$, enormously increasing the Luvian evidence for the Proto-Anatolian "lenition" rules (see the reference above to Eichner 1973), with myriad implications.
2. Goedegebuure (2010a) proved that Cuneiform Luvian *zanta* means 'down' and is cognate with Hittite *katta* 'down' < **ḱm̥ta/ō*, requiring a major revision in the analysis of the three-way contrast in Luvo-Lycian reflexes of PIE dorsal stops (see Melchert 2012b).
3. Goedegebuure (2010b) presented a heavily revised analysis of the oblique cases of Luvian demonstrative pronouns, leading to recognition that "Čop's Law" (the change **ĕ.*C_1V > *a*C_1.C_1V in Luvian) is common Luvo-Lycian and must be redefined as **ĕ.*C_1V > **ĕ*C_1.C_1V (Kloekhorst 2014: 571–574). Equation of Hieroglyphic Luvian **ānni* 'with, for, against' with the Lydian preverb *ẽn-* < **éni* (Yakubovich apud Goedegebuure 2010a: 313, Boroday — Yakubovich 2018: 18) argues that this prehistoric change further includes Lydian.
4. Oettinger (2021) presented new arguments for preservation of the PIE "laryngeals" **h*$_2$ and **h*$_3$ as *k* in word-initial position before vowel in Lydian. This renews the question of the phonetics of the PIE "laryngeals": compare Weiss 2016 versus Kloekhorst 2018.

Morphology

5. Goedegebuure (2007) established the pronominal ablative-instrumental ending *-in* for Hieroglyphic Luvian demonstratives and the variant *-atīn* for Cuneiform Luvian. This finding validated the much doubted claim by Dunkel (1997) following Delbrück of a PIE ablative-instrumental case ending **-(i)m*. See further possible implications for Anatolian and PIE case syntax in Melchert — Oettinger 2009.
6. Sasseville (2014–15) and (2018a) presented further evidence for secondary *common gender* substantives in **-eh*$_2$ referring to *individuals* derived from thematic adjectives (following Hajnal 1994: 166–168 & 2003: 193 *et al.*).
7. Sasseville (2018b: 55–60) provided evidence from "Luvic," especially Lycian, that in Proto-Anatolian denominative factitives in **-eh*$_2$*-* were limited to "conversion" from nominal stems in **-eh*$_2$. These include stems in *-iya-* made from verbal nouns in **-yeh*$_2$ to verbal stems in **-ye/o-* (deradical and denominal), which show a *consistent* stem in *-i-* and must be kept apart from the former (2018b: 109–110): e.g., Luvian *walli-*^{tti} 'raise, exalt' → *walliya-* '*raising, exalting' → *walliya-*^{tti} 'rise, stand up'.

8. Yakubovich (2019) offered new evidence for Lydian mediopassive endings *-taλ/-daλ* < Proto-Anatolian **-tori/dori*, further cementing the existence of the "*r*-middle" in Proto-Anatolian and the status of Lydian as a true (i.e., genetic) member of the Anatolian subgroup.

Syntax

9. Sideltsev — Yakubovich (2016: 87–107) furnished a fine-grained reanalysis of indefinites in Luvian, Lycian, Lydian and Palaic, distinguishing universal quantifiers, free-choice relatives and non-relatives, negative polarity items, and existential quantifiers.
10. Boroday — Yakubovich (2018), a wide-ranging reanalysis of the system of "local adverbs" in languages outside Hittite, revealed that the putatively archaic Old Hittite system is innovative and paints a very different picture of the situation in Proto-Anatolian, requiring rethinking of its evolution from PIE (see especially their methodological conclusion p. 20).
11. Giusfredi (2020) presented a comprehensive, accessibly formulated minimalist-theoretical survey of Luvian syntax, with important consequences for Hittite and Proto-Anatolian syntax.
12. Sadykova — Yakubovich (2019) demonstrated that *clause-initial pā* in Kizzuwatna Luvian is a modal particle cognate with Lydian *fak*. Examples from other dialects of Cuneiform Luvian argue for an original function of marking result/final clauses, thus cementing cognacy with the Tocharian imperative prefix *pä-*.

Lexicon

13. Sasseville (2019) and Sasseville — Yakubovich (2018 [2021]) were able to identify on the basis of new joins among the Palaic texts and comparison with Hittite passages reflexes of an unextended PIE root **dek^{w}-* 'to show' (the base of **dek^{w}s-* in Hittite *tekkušše/a-* 'to show' ~ Avestan *daxša-* 'to instruct'), plus Palaic reflexes of PIE **g^{w}ó/éw-* 'bovine' and **ḱwon-* 'dog'.
14. Mouton — Yakubovich (2019) shared their discovery of new words for 'internal' and 'external/peripheral' in Cuneiform Luvian and Lydian, with further implications for the Anatolian lexicon.
15. Rieken — Yakubovich (forthcoming) show that the alleged isolation of Lydian *aλa-* 'other' in Anatolian is falsified by identification of multiple reflexes of **al-* 'other; foreign; distant; wild' in Luvian and Lycian.
16. Rieken (2019), building on a new analysis of Luvian loanwords into Hittite (*zīla-* 'result of an oracle', *ziladuwa/zilatiya* 'in the future', plus other Luvian), provided a compelling new common origin for an entire set of words with the common denominator 'to (come/bring to an) end' < 'to cease' < PIE **k^{w}yeh$_{1}$-* 'to rest' (Kümmel — Rix 2001: 393–394). These include Hittite *zē(y)a-* 'to be cooked done', *zinni/a-* 'to finish, complete', and *zēna-* 'autumn'.

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I began my study of Indo-European linguistics and Hittite more than 50 years ago having barely even heard of the existence of the languages I have discussed above. I can now in retrospect only characterize the developments in the field of Anatolian comparative and historical linguistics of the last thirty-plus years as exciting, immensely gratifying, and more than mildly humbling. What appeared innovative in my expressly pan-Anatolian approach of 1994 now reads more like a retrospective of what had been achieved to that point. Research of the last quarter century and especially of the last decade (and ongoing) has affirmed—far beyond my expectations of 1994—that multiple aspects of Proto-Anatolian phonology, nominal and verbal morphology, and syntax are better preserved in the "minor" Anatolian languages than in Hittite (even Old Hittite). Growing recognition of this fact has led to and will continue to lead to genuine *comparative* reconstruction of Proto-Anatolian and serious reconsideration of the relationship of the Anatolian subbranch to the rest of the Indo-European family.

BIBLIOGRAPHY

Adiego, I. J. (2007) *The Carian Language*, Brill: Leiden — Boston.

Boroday, S. — Yakubovich, I. (2018) Hittite local adverbs in comparative perspective, in: E. Rieken (ed.), *100 Jahre Entzifferung des Hethitischen: Morphosyntaktische Kategorien in Sprachgeschichte und Forschung. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 21. bis 23. September 2015 in Marburg*, Wiesbaden: Reichert, 1–22.

Bossert, H. (1949) Die phönizisch-hethitischen Bilinguen von Karatepe. I. Fortsetzung, in: *Oriens* 2, 72–120.

—. (1950) Die phönizisch-hethitischen Bilinguen von Karatepe, in: V. Čihar *et al.* (eds.) *Symbolae ad Studia Orientis Pertinantes Frederico Hrozný Dedicatae* (= *ArO* 17/1–18/3), 10–42.

—. (1951–53) Die phönizisch-hethitischen Bilinguen von Karatepe. 3., 4., 5. Fortsetzung, in: *JKF* 1, 264–295; 2, 167–188; 2, 293–339.

Carruba, O. (1970) *Das Palaische. Texte, Grammatik, Lexikon* [StBoT 10], Wiesbaden: Harrassowitz.

Dinçol, B. *et al.*, eds. (2015) Two new inscribed Storm-god stelae from Arsuz (İskenderun): ARSUZ 1 and 2, in: *AnSt* 65, 59–77.

Dunkel, G. (1997) Delbrück and the instrumental-ablative in **-m*, in: E. Crespo — J. L. García Ramón (eds.) *Berthold Delbrück y la sintaxis indoeuropea hoy. Actas del Coloquio de la Indogermanische Gesellschaft, Madrid, 21–24 de septiembre de 1994*, Madrid — Wiesbaden: Ediciones de la UAM — Reichert, 63–83.

Eichner, H. (1973) Die Etymologie von heth. *mēhur*, in: *MSS* 31, 53–107.

—. (1986) Die Akzentuation des Lydischen, in: J. Schindler — M. Peters (eds.), *Festgabe für Manfred Mayrhofer* (= *Die Sprache* 32), Wien: Verlag der Wiener Sprachgesellschaft, 7–21.

—. (1988) Anatolisch und Trilingualismus, in: A. Bammesberger (ed.), *Die Laryngaltheorie*. Heidelberg: Winter, 123–151.

Forrer, E. (1919) Die acht Sprachen der Boghazköi-Inschriften, in: *Sitzungsberichte der preussischen Akademie der Wissenschaften, phil.-hist. Klasse* 63, 1029–1041.

—. (1922) Die Inschriften und Sprachen des Ḫatti-Reiches, in: *ZDMG* 76, 174–269.

—. (1932) *Die hethitische Bilderschrift* [SAOC 3], in: Chicago: University of Chicago Press.

Frei, P. — Marek, C. (1997) Die karisch-griechische Bilingue von Kaunos: eine zweisprachige Staatsurkunde des 4. Jh.s v. Chr., in: *Kadmos* 36, 1–89.

Giusfredi, F. (2020) *A Study in the Syntax of the Luwian Language* [THeth 30], Heidelberg: Winter.

Goedegebuure, P. (2007) The Hieroglyphic Luwian demonstrative ablative-instrumentals *zin* and *apin*, in: A. Archi — R. Francia (eds.), *VI Congresso Internazionale di Ittitologia, Roma, 5–9 settembre 2005* (= *SMEA* 49 & 50), Rome: CNR, 319–334.

—. (2010a) The Luwian adverbs *zanta* "down" and **ānni* "with, for, against", in: A. Süel (ed.), *VII. Uluslararası Hititoloji Kongresi Bildirileri Çorum 25–31 Ağustos 2008 — Acts of the VIIth International Congress of Hittitology, Çorum, August 25–31, 2008*, Ankara: T. C. Çorum Valiliği, 299–318.

—. (2010b) The Luwian demonstratives of place and manner, in: I. Singer (ed.), *ipamati kistamati pari tumatimis: Luwian and Hittite Studies Presented to J. David Hawkins on the Occasion of his 70th Birthday*, Tel Aviv: Institute of Archaeology Tel Aviv University, 76–94.

Gusmani, R. (1964) *Lydisches Wörterbuch*, Heidelberg: Winter.

Hajnal, I. (1994) Die lykischen *a*-Stämme, in: J. Rasmussen (ed.), *In honorem Holger Pedersen: Kolloquium der Indogermanischen Gesellschaft vom 26. bis 28. März in Kopenhagen*, Wiesbaden: Reichert, 135–171.

—. (2003) 'Jungluwisch': ein Bestandsaufnahme, in: M. Giorgieri *et al.* (eds.), *Licia e lidia prima dell'ellenizzazione*, Roma: CNR, 187–205.

Hawkins, J. D. (1995) *The Hieroglyphic Inscription of the Sacred Pool Complex at Hattusa (SÜDBURG)*, with an archaeological introduction by Peter Neve [StBoT Beiheft 3], Wiesbaden: Harrassowitz.

—. (2000) *Corpus of Hieroglyphic Luwian Inscriptions*, Volume 1: *Inscriptions of the Iron Age*, Berlin: de Gruyter.

—. (2011) The inscriptions of the Aleppo temple, in: *AnSt* 61, 35–54.

Hawkins, J. D. — Morpurgo Davies, A. — Neumann G. (1974) Hittite Hieroglyphs and Luwian: New evidence for the connection, in: *NAWG* Jahrgang 1973 (Nr. 6), 145–197.

Hrozný, B. (1920) Über die Völker und Sprachen des Chatti-Landes, in: *Boghazköy-Studien* 5, 25–48 & 53–56.

—. (1933) *Les inscriptions hittites hiéroglyphiques*, Lfg. 1, Praha: Orientální Ústav.

Kammenhuber, A. (1959a) Das Palaische: Texte und Wortschatz, in: *RHA* 17, 1–92.

—. (1959b) Esquisse de grammaire palaïte, in: *BSL* 54, 18–45.

—. (1969) Hethitisch, Palaisch, Luwisch und Hieroglyphenluwisch, in: B. Spüler (ed.), *Altkleinasiatische Sprachen* [*HdOr* I.2.1/2.2], Leiden: Brill, 119–357.

Kloekhorst, A. (2014) *Accent in Hittite: A Study in Plene Spelling, Consonant Gradation, Clitics, and Metrics* [StBoT 56], Wiesbaden: Harrassowitz.

—. (2018) Anatolian evidence suggests that the Indo-European laryngeals $*h_2$ and $*h_3$ were uvular stops, in: *Indo-European Linguistics* 6, 69–94.

Kronasser, H. (1956) *Vergleichende Laut- und Formenlehre des Hethitischen*, Band 1, Heidelberg: Winter.

—. (1966) *Etymologie der hethitischen Sprache*, Heidelberg: Winter.

Kümmel, M. — Rix, H. (2001) *Lexikon der indogermanischen Verben: Die Wurzeln und ihre Primärstammbildungen*, Wiesbaden: Reichert (second edition).

Laroche, E. (1958) Comparaison du louvite et du lycien, in: *BSL* 53, 159–197.

—. (1959) *Dictionnaire de la langue louvite*, Paris: Maisonneuve.

—. (1960a) Comparaison du louvite et du lycien, in: *BSL* 55, 155–185.

—. (1960b) *Les hiéroglyphes hittites I*, Paris: CNRS.

—. (1967) Comparaison du louvite et du lycien, in: *BSL* 62, 46–66.

—. (1979) L'inscription lycienne, in: *Fouilles de Xanthos* 6, 49–127.

Melchert, H. C. (1986) Review of Puhvel 1984, in: *JAOS* 106, 568–569.

—. (1994) *Anatolian Historical Phonology*, Amsterdam — Atlanta: Rodopi.

—. (2012a) Genitive case and possessive adjective in Anatolian, in: V. Orioles (ed.), *Per Roberto Gusmani. Studi in ricordo*, Vol. II. *Linguistica storica e teorica*, Udine: Forum, 273–286.

—. (2012b) Luvo-Lycian dorsal stops revisited, in: R. Sukač –O. Šefčik (eds.), *The Sound of Indo-European 2: Papers on Indo-European Phonetics,*

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Phonemics, and Morphophonemics, Munich: Lincom Europa, 206–218.

Melchert, H. C. — Oettinger, N. (2009) Ablativ und Instrumental im Hethitischen und Indogermanischen: ein Beitrag zur relativen Chronologie, *Incontri Linguistici* 32, 53–73.

Meriggi, P. (1932) Sur le déchiffrement e la langue des hiéroglyphes 'hittites', in: *RHA* 2, 1–57.

—. (1936a) Der Indogermanismus des Lykischen, in: H. Arntz (ed.), *Germanen und Indogermanen: Volkstum, Sprache, Heimat, Kultur. Festchrift für Hermann Hirt*, Heidelberg: Winter, 257–282.

—. (1936b) Der Indogermanismus des Lydischen, in: H. Arntz (ed.), *Germanen und Indogermanen: Volkstum, Sprache, Heimat, Kultur. Festchrift für Hermann Hirt*, Heidelberg: Winter, 283–290.

—. (1962) *Hieroglyphen-hethitisches Glossar*, Wiesbaden: Harrassowitz.

—. (1966–1975) *Manuale di eteo geroglifico*, Roma: Ateneo.

Morpurgo Davies, A. (1979) The Luwian languages and the Hittite *-ḫi* conjugation, in: B. Brogyanyi (ed.), *Diachronic, Synchronic and Typological Linguistics: Festschrift for Oswald Szemerényi on the Occasion of his 65th Birthday*, Amsterdam: Benjamins, 577–610.

—. (1982–83) Dentals, rhotacism and verbal endings in the Luwian languages, in: *ZVS* 96, 245–270.

Mouton, A. — Yakubovich, I. (2019) Internal or external evil: a merism in Luwian incantations, in: *BSOAS* 82, 209–231.

Neumann, G. (1959) Das Lykische, in: B. Spüler (ed.), *Altkleinasiatische Sprachen* [*HdOr*, I.2.1/2.2], Leiden: Brill, 358–396.

Oettinger, N. (1979) *Die Stammbildung des hethitischen Verbums*, Nürnberg: Carl.

—. (2021) Language contact between Lydian and Greek or the origin of Lydian *k*, in: M. Bianconi (ed.), *Linguistic and Cultural Interactions between Greece and Anatolia: In Search of the Golden Fleece* [Culture and History of the Ancient Near East 122], Leiden — Boston: Brill, 116–130.

Otten, H. (1944) Zum Palaischen, in: *ZA* 48, 119–145.

—. (1953a) *Luwische Texte in Umschrift*, Berlin: Akademie-Verlag.

—. (1953b) *Zur lexikalischen und grammatischen Bestimmung des Luwischen*, Berlin: Akademie-Verlag.

Poetto, M. (1993) *L'iscrizione luvo-geroglifica di Yalburt. Nuove acquisizioni relative alla geografia dell'Anatolia sud-occidentale* [Studia Mediterranea 4], Pavia: Iuculano.

Puhvel, J. (1984) *Hittite Etymological Dictionary*, Vol. 1: *Words Beginning with A*; Vol. 2: *Words Beginning with E and I*, Berlin — New York — Amsterdam: Mouton.

—. (1991) *Hittite Etymological Dictionary*, Vol. 3: *Words Beginning with H*, Berlin –New York: Mouton de Gruyter.

—. (2011) *Hittite Etymological Dictionary*, Vol. 8: *Words Beginning with PA*, Berlin — New York: Mouton de Gruyter.

Rieken, E. (2008) Die Zeichen <ta>, <tá> und <tà> in den hieroglyphisch-luwischen Inschriften der Nachgroßreichszeit, in: A. Archi — R. Francia (eds.), *VI Congresso Internazionale di Ittitologia, Roma, 5–9 settembre 2005* (= *SMEA* 49 & 50), Rome: CNR, 637–647.

—. (2019) Zurück in die Zukunft: Eine neue luwische Etymologie, in: A. A. Catt — R. I. Kim — B. Vine (eds.), QAZZU warrai: *Anatolian and Indo-European Studies in Honor of Kazuhiko Yoshida*, Ann Arbor — New York: Beech Stave, 309–318.

Rieken, E. — Yakubovich, I. (forthcoming) Zu den Reflexen der Wurzel **al-* in den anatolischen Sprachen, in: H. Fellner *et al.* (eds.), *Zurück zur Wurzel: Struktur, Funktion und Semantik der Wurzel im Indogermanischen. Akten der 15. Fachtagung der Indogermanischen Gesellschaft, Wien, September 16, 2016*.

Rosenkranz, B. (1952) *Beiträge zur Erforschung des Luwischen*, Wiesbaden: Harrassowitz.

Sadykova, A. — Yakubovich, I. (2019) The Lydian particle *fak* in curse formulae and elsewhere (paper presented at the workshop "In Search of the Neo-Hittites," Ascona, Switzerland, April 1, 2019).

Sasseville, D. (2014–15) Luwian and Lycian agent nouns in *-*é-leh*$_2$, in: *Die Sprache* 51, 105–124.
—. (2018a) New evidence for the PIE common gender suffix *-*eh*$_2$ in Anatolian: Luwian -*ašša*- (c.) and Lycian B -*asa*- (c.), in: E. Rieken (ed.), *100 Jahre Entzifferung des Hethitischen: Morphosyntaktische Kategorien in Sprachgeschichte und Forschung. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 21. bis 23. September 2015 in Marburg*, Wiesbaden: Reichert, 303–318.
—. (2018b) The prehistory of the verbal stem formation of the Luwic languages, Ph.D. dissertation, Philipps-Universität Marburg.
—. (2019) "To show" in Hittite and Palaic rituals, in: *AoF* 46, 22–32.
Sasseville, D. — Yakubovich, I. (2018 [2021]) Palaic words for domestic animals and their enclosures, in: *HS* 131, 46–58.
Sideltsev, A, — Yakubovich, I. (2016) The origin of Lycian indefinite pronouns and its phonological implications, in: *MSS* 70, 75–124.
Starke, F. (1985) *Die keilschrift-luwische Texte in Umschrift* [StBoT 30], Wiesbaden: Harrassowitz.
—. (1990) *Untersuchung zur Stammbildung des keilschrift-luwischen Nomens* [StBoT 31], Wiesbaden: Harrassowitz.
Sturtevant, E. (1933) *A Comparative Grammar of the Hittite Language*, Philadelphia: Linguistic Society of America.
Sturtevant, E. — Hahn, A. (1951) *A Comparative Grammar of the Hittite Language*, New Haven: Yale University Press (second edition).
Weiss, M. (2016) The PIE laryngeals and the name of Cilicia in the Iron Age, in A. M. Byrd — J. DeLisi — M. Wenthe (eds.), *Tavet Tat Satyam: Studies in Honor of Jared S. Klein on the Occasion of His Seventieth Birthday*, Ann Arbor — New York: Beech Stave, 331–340.
Yakubovich, I. (2019) Showing reverence in Lydian, in: A. A. Catt — R. I. Kim — B. Vine (eds.), QAZZU warrai: *Anatolian and Indo-European Studies in Honor of Kazuhiko Yoshida*, Ann Arbor — New York: Beech Stave, 399–409.

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