# N. D. Andreev's Proto-Boreal Theory and Its Implications in Understanding the Central-East and Southeast European Ethnogenesis: Slavic, Baltic and Thracian

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### Introduction

N. D. Andreev's theory, labelled *Proto-Boreal*, surprised – I may say – the scientific world by its large spectrum of linguistic problems: Proto-Indo-European, Proto-Uralic and Proto-Altaic (later he also added Korean) were considered as newer, derived branches from an older linguistic group labelled *Proto-Boreal.* It is also a difficult book as various languages are put together, regularly considered as belonging to different families according to traditional classifications. It is true that the idea of an archaic relationship between Uralic and Indo-European is not new, and was advocated – with notable results – by some linguists, mainly by Karel Oštir (1921) and Bojan Čop (1974, 1975). Their pioneering work would deserve more attention, and Andreev's theory would not thus seem isolated. It reflects, in fact, a long and strenuous effort towards identifying and explaining an archaic relationship among languages usually categorised independently.

It is true that other linguists previously attempted to reconstruct an older phase of what we currently label Indo-European, and also to identify common, archaic roots of Indo-European, Caucazian and Semitic languages (e.g. Delitzsch 1873; Trombetti 1925 – yet Trombetti's analysis should be analysed with care, as he really put forward precious material, just not always reliably analysed). On the other hand, many linguists predominantly tried, and at least partially succeeded, in analysing the Pre-Indo-European roots identified or identifiable in Ancient or Modern languages. I would quote the remarkable studies of the Italian linguists, published – to a large extent – in the *Studi Etruschi* beginning with 1927. Also Ch. Rostaing's *Essai sur la toponymie de la Provence* (1950) and Skok's analysis of the archaic place-names in the Adriatic islands (Skok 1950). The existence of an archaic, Pre-Indo-European stratum cannot be doubted any more (see our studies focused on this topic quoted in the references). This is in full agreement with archaeological studies, which now unanimously report remarkable Neolithic and Chalcolithic civilisations spreading, some time after 7,500 B.C. from Anatolia to Southeast Europe, and hence to Central and Western Europe. These ethno-linguistic groups, disregarding how we may reconstruct such outstanding changes and evolutions (animal domestication, copper and gold processing, larger and larger habitational sites, specific representations of

deities, etc.) must have been responsible for the corresponding material culture discovered in thousands archaeological sites; they must be held for surviving in a certain linguistic inventory in Greek, Latin (Etruscan, a non-Indo-European language), and also Thracian, Illyrian, probably also Slavic and Baltic. The analysis of such an archaic heritage cannot be easy, especially in the case of languages without written documents, in fact the usual case: the written documents in the European culture are specific to only the Greeks and Romans, later gradually adopted by the newly emerged linguistic groups in the Early and Mid-Middle Ages. There is no wonder that Chantraine, in the introduction of his *Dictionnaire étymologique de la langue grecque*, plainly assumes that only 40% of the Greek vocabulary admits an Indo-European origin, while other words were borrowed from Semitic and other neighbouring languages; and some 50% must reflect the indigenous, Pre-Indo-European heritage.

On the other hand, Marija Gimbutas is perhaps the archaeologist who provoked the hottest debate in the wake of her articles mainly related to two topics:

1. The 'Old European' cultural bloc which, with its Gimbutasian label, is the same as the Pre-Indo-European stratum in the current or previous studies; also labelled "Mediterranean" by some linguists, e.g. Skok 1950; it should be carefully discriminated against Hans Krahe's *Alteuropäisch* = oldest Indo-European identifiable stratum.

2. The 'Kurgan' or Indo-European tradition. Gimbutas opposed the two cultural blocs, and reconstructed a prehistoric tableau, which may be briefly summarised as thus:

a. The Old European cultural groups represented the indigenous Neolithic and Chalcolithic groups, which gradually created an outstanding civilisation in the Aegean and southeast Europe: animal domestication, archaeo-metallurgical skills, religious symbolism, peaceful and matrifocal societies, larger and larger habitational environment, a kind of proto-urban settlements. The Southeast European groups gradually developed a specific tradition, similar – but not identical to – Anatolian tradition. It is assumed that both human expansion and assimilation of civilisational habits played their role in this complex process, so the Neolithic and Chalcolithic groups reflected both an indigenous Upper Palaeolithic-Mesolithic element and a newer, Anatolian and/or Mediterranean element.

b. The Kurgan or Indo-European tradition may be traced back as far as the fifth millennium B.C. in the North Pontic steppes. Unlike their western Old European counterparts, the Indo-Europeans (or Kurgan people) developed a specific ideology of the glorious warrior, domesticated the horse, adopted bronze metallurgy from (seemingly) the Caucasian groups, and began to expand west, north and east in waves. Gimbutas identified three waves of expansion:

4400–4200; 3400–3200, and 3000–2800 B.C. The second and third waves were responsible for the decisive Indo-Europeanisation of a vast Euro-Asian space, but with specific preservations of the Pre-Indo-European heritage. Gimbutas did not speak of a unified, homogene ethno-linguistic groups, but rather a convergent tradition gradually imposed from a presumably limited group, which later conquered various other Mesolithic groups of the Volga-Ural region.

Such a reconstruction is or may be, of course, debatable. But, rarely noticed so far, her theory matches, at least loosely, if not even in details, N. D. Andreev's theory of the Proto-Boreal language. Gimbutas dealt mainly with archaeological data (though she incidentally refers to comparative linguistics as well), whereas Andreev refers to only linguistic material. It is interesting that, despite the common points of their theories, Gimbutas and Andreev never quote each other! We may assume that they had no knowledge of their mutually complementary theories, and that archaeology and linguistics may indeed offer an incentive to interdisciplinary research.

### The Proto-Boreal Linguistic Group

Before expanding on Andreev's theory, we may briefly present it as a reconstruction of an older linguistic reality ("Proto-Boreal", hereafter PB), corresponding to an older, Upper Palaeolithic-Mesolithic phase, out of which Proto-Uralic (hereafter PU), Proto-Altaic (hereafter PA), Korean (discussed in two studies published after the publication of his main book) and Proto-Indo-European later developed in the evolution to Mesolithic-Neolithic-Bronze Age. Andreev reconstructs an archaic inventory of 203 roots, and analyses them in the three main derived branches. Andreev's reconstruction remarkably matches, as said above, the Gimbutasian theory, even in details. The common points, as I may identify them, are the following:

1. A vast area of (initially) food-gatherers located in the East-Boreal part of Europe, hence the term Proto-Boreal; it confirms or supports Gimbutas's theory that the Kurgan people were NOT a compact ethno-linguistic group, but rather a vast and large congregation of initially different groups, which gradually gathered together under a common ideology represented by the 'warrior knight', kurgan burials, veneration of the shining sky (Jupiter-Zeus) etc.

2. A gradual expansion; that is what Gimbutas says too, and analysing how the Kurgan (PIE) groups later assimilated Caucasian technologies, mainly arsenic-copper alloy, and perhaps horse domestication, which may be of Trans-Uralian origin.

3. A parallel satem-centum dichotomy, identifiable in not only Indo-

European languages, but also in Uralic and Altaic. As an example, Finnish and Estonian (closely related languages of the Fennic-Uralic group, see the Appendix) are of centum type, whereas Hungarian (Ugrian branch of the Uralic group) is of satem type. Altaic languages regularly reflect a process similar to the satem groups.

There are of course other features of the PB reconstruction. We shall try to present them below.

### Proto-Boreal Reconstruction

Andreev identifies the following proto-phonemes:

J – sonant

H – velar spirant (usually labelled 'laryngeal')

Q – voiced explosive

C – consonant

In a review of Andreev's book, Lucia Wald (*Revue Roumaine de Linguistique*, 33, 2/1988: 119–122) expands on Andreev's terminology by adding or suggesting the following terms:

PB – Proto-Boreal

EA – Early Altaic

EIE – Early Indo-European

EU – Early Uralic

MIE – Middle Indo-European (between EIE and PIE: PB > EIE > MIE > PIE)

PIE – Proto-Indo-European

U-A – Uralic-Altaic

Wald also summarises the basic points of Andreev's theory:

• Very likely PB was a language characterised by an inventory of root-words undivided in parts of speech, the only device of forming new lexemes being the paratactic composition – a status still in existence in EIE.

• A peculiar evolution of Boreal velar spirants whose representatives in EIE have often been described as laryngeals or variations of $\partial$ (*schwa indogermanicum*); they were preserved – under some conditions – only in Hittite, Tungus-Manchurian and Fenno-Ugrian languages.

Note. We assume that Thracian also had a velar spirant (laryngeal) still preserved in Proto-Romanian, until a historical moment difficult to determine, probably until at least the 6th century A.D. Its traces in (Modern) Romanian is zero, *f/v* and *h*; in Albanian, its counterparts seem to be as in Romanian, sometimes also *th* and *dh* (more in our paper *Ten Theses on Thracian Etymology* in Studia Thracologica, Bucharest, XXII, 1–2, 2001).

Andreev convincingly explains the influence of the velar spirants on the IE vowels and sonants. Thus:

(a) the simple velar spirant *X* > IE *ă, ā, ∂*, the long sonants and aspirant occlusion;

(b) labio-velar spirant *Xw* > IE *ŏ, ō;*

(c) *Xy.*

• The three velar series, e.g. *K-R-, Kw-R-, Ky-R-.*

• The well-known centum-satem distinction is also found in Uralic-Altaic.

• In EIE the sonants *Y* and *W* were only consonants, their vocalic nature being developed much later in inter-consonant position.

• The PB vowel system was very poor, reduced to a syllabeme with an indefinite tamber variously articulated in accordance with the tamber of the contiguous consonants, a stage preserved also in EIE. In the course of history the vocalic inventory became richer owing to the influence of the velar spirants in the adjacent syllabeme and to the vocalisation of the sonants. In contrast to EIE, in the other two Boreal branches the reduction and vocalisation of the velar spirants occurred much later; some idioms preserve them till now. Instead of the Ablaut, the vowel harmony was established. All Ural-Altaic dialects have preserved clear marks of a syllabeme with positionally conditional tambers.

• The level of linguistic structure: absence of parts of speech, a scanty inventory of words, which implies an extensive periphery around the semantic nucleus, prevalently concrete nature of protosemes, the systematic character of the vocabulary, the lack of synonymy and therefore a reduced redundancy. On the whole the Boreal protosemes prove to be more archaic and more concrete than the corresponding units in EIE, but closer to those found in U-A languages.

• The semantic fields of EIE vocabulary (chapter XI):

- a. denominations of the means of livelihood with the changes from PB (a stage characterised by hunting, fishing and gathering) to EIE (cattle breeding and agriculture).

- b. names referring to communication and preservation of information;

- c. labour and tools;

- d. human relations – several words for female persons, according to their age and social status (girl, female-teenager, mother, daughter, wife), but only one for 'man': *X-N-* 'the one who goes ahead';

- e. affiliation to a certain tribe and to peaceful or warlike tribal relations;

- f. clime and earth structure – many terms related to woods, hills, marshes, rivers and a severe climate with only two seasons: winter and spring (glacial age); no trace of words for 'summer' and 'autumn';

• The transition from PB to EIE – the last period of the Halocene or Upper Palaeolithic-Mesolithic; geographically the PB area must have been a vast region delimited by the Rhine in the west and the Altai mountains in the east. In the course of time, the three basic linguistic groups derived from PB got gradual contours in the following regions:

Altai-Urals -> Altaic
Urals-Dnieper -> Uralic
Dnieper-Rhine -> EIE

Note. Gimbutas locates the Kurgan homeland in more southern regions, starting from the assumption that arsenic-copper technology was borrowed from the Caucasian groups. It should be yet remembered that Gimbutas goes as back as the fifth millennium B.C., whereas Andreev reconstruct a linguistic reality prior to this period.

• The right element (root) of a compound changed into a modifier in IE, and then a new classification of themes was created (Benveniste's theory). The last stage was represented by an opposition *r – n.* It is ingenuously explained as a result of the transformation of the EIE main lexical opposition 'things *v.* inanimate': *$*RXy > r(XY) > -r(\partial)$* and 'made or brought for us': $*NXw > *N(Xw) > *n(\partial)$. The most remote stage of the IE Ablaut might have been represented by the opposition, with semantic value, between stressed and unstressed syllabemes, reduced to zero, in correlation with the consonantal opposition *w/y* – vocalic opposition, e.g.

$*PL\text{-}Xw\text{-}_w\text{-}$ 'marsh' ~ $*PL\text{-}Xy\text{-}_w\text{-}$ 'to float' –> *$*plou$-* ~ *$*pleu$-*

The velar spirants led to the *$*o$* and *$*e$* degrees, i.e. IE typological evolution from an amorphous to an inflectional evolution. Setting up inflectional morphemes prior to the separation into parts of speech may explain e.g. *$*-r$-* as a mark of the objective case of nouns and passive voice of verbs or *$*-e$-* as vocative and imperative.

Gradually the following structure was achieved:

a. vocalic variation as a result of a PB syllabeme with contextul variations;

b. biconsonant roots;

c. identification of IE *schwa* with velar spirants;

d. existence of three velar series in PIE;

e. a morphological amorphous structure of PB and EIE which annulled grammatical parallelism between PIE and U-A;

f. a socio-linguistic stage of hunters, fishers and gatherers.

Summing up, the reader may note the originality and accuracy of Andreev's argumentation, even if it may further lead to additional questions and to perplexities. If it were for this reason only, Andreev's theory deserves much more than scattered praises in linguistic journals. It brilliantly concludes a long-term investigation, whose prioneers were – among others – Bojan Čop and Karel Oštir; and also largely expands the possibility of new research based on a rich and exciting material.

**The Proto-Boreal Consonant System**

Dentals

| PB | T | D | Dh | S | N | L |
|---|---|---|---|---|---|---|
| PIE | t | d | dh | s | n | l |
| PU | t | t | t | s | n | l |
| PA | t | d | d | s | n | l |

Labials

| PB | P | B | Bh | M |
|---|---|---|---|---|
| PIE | p | b | bh | m |
| PU | p | p | p | m |
| PA | p | b | b | m |

Simple Velars

| PB | K | G | Gh | X- | -X- | R | -R- |
|---|---|---|---|---|---|---|---|
| centum | k | g | gh | xa-, a- | -xa-, -ā-, - a- | r | -r- |
| satem | k | g | gh | xa-, ∂a- | -xa-, -ā-, -∂a- | r | -r- |
| Finn-Baltic | k | k | k | ha- | -ha-, -ā-, -ă- | r | -r- |
| Obi-Ugrian | k | k | kh | – | -ɣ-, -a- | r | -r- |
| Tung.-Man. | k | g | g | xa-, ha- | -ɣ-, -ā-, -ă- | ∂r- | -r- |

Palatal Velars

| PB | Ky | Gy | Ghy | Xy- | -Xy- | Y |
|---|---|---|---|---|---|---|
| centum | k | g | gh | xe-, ∂e- | -xe-, -ē-, -∂e- | y |
| satem | č | ʒ | h, ʒ | xe-, e- | -xe-, -ē-, - e- | y |
| Finn-Baltic | ki | ki | ki | hi- | hi-, -ē-, -ě- | y |
| Obi-Ugrian | č | č | khi | – | ∂i, -e- | y |
| Tung.-Man | č | ʒ | ʒ | xi-, hi- | -ɣi-, -ē-, -ě- | y |

Labiovelars


| PB | Kw | Gw | Ghw | Xw | -Xw- | W |
|---|---|---|---|---|---|---|
| centum | kw | gw | ghw | x°-, ∂°- | -x°-, -ō-, ∂° | w |
| satem | k | g | gh | x°-, ∂°- | -x°-, -ō-, ∂° | w |
| Finn-Baltic | ku | w | w | hu- | -hu-, -ō-, -ŏ- | w |
| Obi-Ugrian | ku | w | w | – | -ɤu-, -o- | w |
| Tung.-Man | ku | (x)w, (h)w | (x)w, (h)w | xu-, hu- | -ɤu-, -ō-, -ŏ- | w |


Note. This scheme does not reflect some Indo-European situations, e.g. Gr. *b* < *Gw* and *ph* < *Ghw,* Skr. *ç* < *Ky*, etc. The situation is also complicated in languages with poor or limited written sources like Thracian and Illyrian; in such cases, the analysis should consider complex analyses, which should permanently consider the possible similarities with known data. As a simple example, there are striking similarities between Thracian (including the Thracian elements of Romanian) and Baltic, mainly Lithuanian.


### Positional Syllabic Tamber

The syllabic tamber in PB depended on the two neighbouring consonants. The passage to PIE led to essential changes of linguistic typology, among these *vocalisation of sonants*, which – in its turn – led to zero degree too. There was initially only *$\ddot{a}$ in PIE.
Examples:
PB *Gw-R* 'a hill': fin. *VuoR-i* (< *$GwoR-x_wy$-) 'id.' and *VaaR-a* (< *GweR-x*-): Fin. *KuoR-i* 'bark, crust' (- *GweR-xwy*-); *KaaR-na* 'crust' (-*GweR-xn*-); Fin. *LoN-kka* 'coapsă'( ...-$k_xw$-); *LaN-ne* 'id.' (...-*nx*-).


The three degreees of velar consonants in PB

(1) The three tambers of the so-called *šva indogermanicum:* velar spirants PIE *X, *Xw, *Xy*, which in postsyllabic vocalisation led to contracted sounds *$\bar{a}$, *$\bar{o}$, *$\bar{e}$.*
(2) The role of the second focus of articulation for labiovelars and palatals.
(3) The intra-systemic argument represented by different meanings of roots:
    *Kw-R* 'a worm', *K-R* 'hard', *Ky-R* 'herd';
    *Gw-L* 'to sting, *G-L* 'birdy, specific to birds', *Gy-L* '(good) luck, victory';
    *Ghw-N* 'to strike, to beat', *Gh-N* 'to gnaw', *Ghy-N* 'to step';
    *S-Xw* 'to jump', *S-X* 'sun', *S-Xy* 'to sow, to seed'.
(4) Difference in treatment of PB simple and aspirated voiced consonants in

Obi-Ugrian (OU) and Mančur-Tungus (MT) groups:

| PB | OU | MT | PB | OU | MT |
|----|----|----|----|----|----|
| *G* | *k* | *g* | *Gh* | *kh* | *g* |
| *Gy* | *č* | *ž* | *Ghy* | *khi* | *ž* |
| *Gw* | *w* | *(x)w, (h)w* | *Ghw* | *w* | *(x)w, (h)w* |

Velar spirants and long contracted sounds. The case of spirant *X*. Examples:
PB *\*D-Xw* 'to give' > Hit. *DaaH-hi*, Skr. *Di-tá;-*, gr. *dí-DŌ-mi;*

PIE *\* ´ X -* (stress + *X*) > *\*a;*

*\*T-X* 'to melt, thaw; to vanish': gr. *TA-kerós*, dor. *TĀ-kō*, OCS *TA-jati* (see also #
33 and 100).

PIE *\* ´ Xw* (stress + *\*Xw*) > *\*ō; \*∂ : \*ō.*

Ex. (20): *\*B-Xw*: Lit. *BA-m̃bti*, gr. *bu-BŌ-nos*

Ex. (12): *\*Dh-Xw* 'fir-tree needles': Gr. *Tho-ós,* Skr. *DhĀ-ra-*, Evenki *DüΓ-ün,*
Khanty *TuΓ-ər*

Ex. (92): *\*P-Xw* 'protecting fire': Khanty *PăΓ-ərla,* Negidal *PŌ-ža.*

*\* ´ Xy > ē         ∂:ē*

Ex. (101): *\*K-Xy* 'to pick with a hook': lat. *CA-pessō, CĒ-pi*, Negid *KeΓ-jan*, Hant.
*KäΓ-ri;*

Ex. (98) *\*Gh-Xy*: gr. *e-KhA-ndanon,* Skr. *ja-HĀ-ra,* Ulč. *GĒ-xü;* see also # (9).

Velar spirants and long sonants. In Uralic and Altaic, the velar spirant is
preserved as such:

Ex. (132) *\*Y-X-* 'to hunt': O. Germ. *JA-gōn,* Vedic *YĀ-van,* Evenki *Ϊ-mka-;*

Ex. (141) *\*W-X-* 'a sheath; vagina': Skr. *Ū-rú-,* Lat. *VĀ-gīna,* Udegej *WA,* Lat. *VĀ-rus;*

Ex. (14) *\*N-X-* 'nose': Lat. *NĀ-ris,* Skr. *NA-kra;*

Ex. (138) *\*L-Xw* 'shovel; to dig': OCS *LO-pata,* O. Ir. *LĀ-ige,* Evenki *LŌ-mki,*
Negidal *LoΓ-osïn-,* Khanty *Ḷ̣aΓ-∂l (∂:ō)*

Therefore a long sonant is often in agreement with not only the evolution of
root structure J1–H2– but also with the evolution of the type H1–J2–. See also #
160:

*\*X-W*: Lith. *ÁU-dē,* OCS *AU-sa,* Fin. *VU-ras,* Negidal *XaW-ādakta.*

Ex. (172): *\*Xy-Y* 'to go, walk': Homeric *EĪ-mi,* Lith. *EĪ-dinē*, Oroči *Ī,* Fin. *HiI-htää.*

**Perspectives**

The Proto-Boreal view as suggested by Andreev concludes a long chapter of
hot discussions regarding the possible relationship between Indo-European and
other linguistic groups. Unlike previous attempts, Andreev's book is brief,

profound, and – last but not least –coherent. Furthermore it is open to modular, both horizontal and vertical developments. Andreev himself (Andreev 1986 b, 1987) added data, mainly from Hungarian and Korean (two languages initially absent in his book) and made additional comments. It is outstanding that he aimed at an accurate, computer-like analysis of languages in their historical development. His arguments may be eventually debatable, yet it is for the first time that an ample material is analysed in such a way, with such convincing rectitude and by suggesting possible or potential developments.

Andreev's view is also an incentive to further analyses regarding the evolution of Upper Palaeolithic-Mesolithic-Chalcolithic languages, and the human evolution in prehistory. There are various ways in which we may attempt to exploit the available data and suggest further analyses. One refers to the very essence of the linguistic and ethnic realities in prehistoric Europe and Asia. We may thus better understand Slavic, Thracian or Illyrian ethnogenesis, as an example, and compare this to Hittite, Greek or Latin ethnogenesis, generally better known from written sources. And we may further expand the analysis to the Uralic-Altaic area, and understand why the similarities between (say) Finnish and other Indo-European languages is sometimes striking.

Indeed, Andreev's theory is always open to further investigations and to additional data. We tried to suggest a possible relationship with some archaic forms in Romanian. In all these cases, it is understood that we consider these forms of (certain, probable, possible) Thracian origin. In other words, they represent a component of the sub-stratum element in Romanian. This is important to understanding the complex ethnogenesis in Central-East Europe, e.g. the Slavic ethnogenesis, a topic we also approached in some instances. This contribution therefore continues and expands previous attempts towards the understanding of Euro-Asian prehistory.

### Sample Lexicon

Andreev identified 203 basic roots, and analysed their development in Proto-Indo-European, Proto-Uralic, Proto-Altaic, later also in Korean. We have updated and commented all the 203 roots. As the whole lexicon has over 60 pages, and their number is increasing every day, please point your web browser to

**http://www.homepage.mac.com/sorin_paliga/**

and download the latest version. Be prepared to have Adobe Acrobat Reader 5 or Adobe Reader 6 for a correct display and print of the diacritical marks. Just a sample here:

*T-W- 'to keep, to hold; support'

——————————————————

Lith. *TV-árdyti* 'restrain, repress'
Lith. *TU-rēti* 'keep', from archaic *\*TW-́r-*
Äwenki *TU-rut-* 'keep together'
Nanaj *TU-ndüwän* 'to keep'
Fin. *TU-kea* 'support' (< *\*TW-ḱ*)
Est. *TU-gi* 'support, prop'
Ewän (Lamut) *TÜ-rüt-* 'to hold, to restrain, to prop' (< *\*TW-r-́xy-*)
Khanty *TŎ-təṇ* 'to hold, prop in a boat' (< *\*TW-tx́*)
Khanty *TŎ-γət* 'to hold, prop a boat' (< *\*TW-xt–*)
Äwenki *TÜ-k-* 'to hold, to keep fast' (< *\*TW-r-xy-*)
Lith. *TaU-pà* 'restrain in expenses, thrift, economy' (< *\*T-W-p-*) =
*TaU-sà* 'id.' (< *\*T-W-s-*)
Äwenki *TÜ-rga* 'prop, support' = *TÜ-kta* 'id.'
O. Mong. *TU-lγan* 'prop, support'
Nenets *T'U-rts'uts'* 'to have as a prop, as a support'
O. Mong. *TU-l-* 'to lean upon'
Nenets *T'U-rkutas'* 'to lean upon'
Äwenki *TÜ-nin-* 'to lean upon' (< *\*TW-xn--yn-*)
Khanty *TŎ-tastəta* 'to lean upon, to set against'
Nenets *T'U-rxalas'* 'to lean upon'
O. Turk. *TU-truq* 'to support, to prop'
Khanty *TăW-ərta* 'to hold a river, to dam, to weir' (< *\*T-́W-xr-*)
Korean *TU-k* 'dam, weir' (< *\*TW-g-́xy-*)
O. Turk. *TU-γ* 'dam, weir, obstacle, barrier'
Khanty *TŎ-l* 'barrier; partition' (< *\*TW-lx́*)

Note 1. In Khanty, the Boreal -*W*-, when vocalized, may become -*Ŏ*- under the influence of the following -*X*-, not necessarily in the immediate neighbourhood.

Note 2. When dealing with long narrow vowels *Ū, Ü, Ī* we must bear in mind that those long phonemes may be the result of a contraction either from the type -*WH*-, -*YH*- (where the symbol *H* denotes any velar spirant, currently labeled 'laryngeal', i.e. *X, Xy, Xw*; or from the type -*HW*-, -*HY*-.

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