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**Aharon Dolgopolsky's popular  
scientific articles (Moscow 1966-1972)**

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*Aharon Dolgopolsky immigrated to Israel from the former USSR in 1976. Prior to that, he published eight articles in a popular mood, in Russian, to people who are not professional linguists. His entire life he aspired to bequeath them to the Western world but unfortunately did not fulfill his dream. After his death I undertook that mission, since these articles encompass his doctrine, which has become a leading trend in Comparative Historical Linguistics. Now they are published online in Russian (language of origin) and in translation to English and Hebrew.*

***Tsippi Fleischer-Dolgopolsky***

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# Introduction

## Aharon Dolgopolsky 1930-2012

20th of July 2012, in Haifa, a prominent linguist and semitologist, specializing in ancient languages and comparative linguistics, one of the "founding fathers" of the Nostratic theory, Aharon Borisovitch Dolgopolsky, had passed away.

Comparative linguistics is one of modern linguistics' most important branches. It is a fully-fledged academic discipline, operating in strictly formalized methods, including computer-based ones. Its main goal is to penetrate deeper into the history of languages and to reconstruct humanity's proto-languages, increasingly more distant from today. Comparative linguistics is a part of the system of historical knowledge, it serves as a way to study unwritten and pre-written history. With its help, even when letters are silent, we can obtain information on ethnogenesis, on ethnic contacts, and even – by reconstructing the linguistic picture of the world – on environment and cultural features of people, who used the more ancient language systems.

These popular articles on comparative-historical linguistics and the long-range language comparison were written by one of the founders of the Nostratic School, Aharon Dolgopolsky. He wrote them in Russian, from 1966 to 1972, and published them in several Soviet journals of popular science.

Dolgopolsky first took interest in the comparative-historical linguistics in the early 1960s. At first he thought that standard comparative methods are not enough to prove any language relationship deeper than Indo-European, and was trying to come up with statistical proofs.. However, after meeting two other young comparative linguists, Vladimir Dybo and Vladislav Illich-Svitych, who both were working on the precise methods of reconstruction, moved him to a purely comparative stance, where he worked to a great success. From 1964, he developed the Nostratic comparison in close contact with Illich-Svitych. This included proving the genetic relationship between the six largest language families of the

Old World – Indo-European, Uralic, Altaic, Dravidic, Kartvelian and Afro-Asiatic. Dolgopolsky's work on the Nostratic reconstruction was crowned in 2008 by him publishing the largest collection of Nostratic etymologies to date: the Nostratic dictionary (Cambridge, 2008).

In 1966, after Illich-Svitych's death, Dolgopolsky informally continued the former's course on Nostratic linguistics for the students of the Department of Structural and Comparative Linguistics (MSU) and the school-aged students who were the members of its linguistic club. Later this course grew into a scientific Illich-Svitych Nostratic Seminar, which continues in Moscow to this day. At that time Dolgopolsky also, first at the request of Znanie-Sila editorial board and then out of his own wish to further his educational mission, wrote the popular articles (also in other magazines) we now publish. These articles allow any non-linguist to become acquainted with the problems of linguistic reconstruction and of language relations, using the works at the forefront of this field of study.

## Synopses

### 1. Languages – brothers, grandpas, nephews

Different Slavic, Baltic, Germanic and other languages are compared with one another to explain the idea of Indo-European language family. The concept of comparative-historical linguistics is then sketched out.

### 2. How they spoke six thousand years ago

The article further explains the idea of sound correspondences in comparative-historical linguistics. As a result, several Indo-European roots are reconstructed, and the table of basic sound correspondences in Indo-European languages is given.

### 3. Languages are looking for relatives, from Sahara to Kamchatka

The article makes an effort to find genetic relationship between Indo-European language family and languages from other families. A new, Borean (or Nostratic) macrofamily is suggested, which could include Indo-European, Uralic and Altaic (which may or may not be genetically related) languages, and the history of five Borean roots is traced. The article contains a map of major language families of Earth.

### 4. Languages of Africa and the blizzard argument

The article deals with the task of finding the Afroasiatic Urheimat. Through reconstructing such words as "snow" and "blizzard" the author comes to the idea that it probably was in Asia, not in Africa. The article also cites the Borean (Nostratic) hypothesis.

### 5. Why don't we call the cat "a cat"?

The article, in a form of a dialogue, deals with different theories of the various words meaning "cat" in Indo-European and other languages. It is clarified that the word was borrowed from some Afro-Asiatic language, probably Old Berber. From then, starting at the 4th Century A.D., it spread through Greek into many Indo-European languages together with the appearance of the domesticated cat itself.

**6. Languages and the problem of ancestral land**

The article once again establishes the Nostratic macrofamily, uniting Indo-European, Afro-Asiatic, Kartvelian, Dravidian, Uralic and (so-called) Altaic languages. Through reconstructing various Nostratic roots, the author tries to find the Nostratic Urheimat (Anterior Asia or the south of Central Asia), the time of language separation (late Mesolithic), and explain why these languages have spread so widely (possibly because of the Neolithic revolution).

**7. Scripts of the planet**

A large and colorful scheme of different writing systems from the earliest times to 1966 is introduced. The accompanying article explains the various types of writing systems and their history.

**8. Overview of the Nostratic research – excerpts and summary (updated to 1972)**

This article summarizes and expands all previous articles. It introduces the idea of studying distant relations between languages by establishing regular phonetic correspondences and sound laws, and suggests the existence of the Borean (or Nostratic) macrofamily. It contains a table of such correspondences between the members of this macrofamily, a map of the language families and the Old World; it suggests the time and way of spreading for the Borean (Nostratic) languages. There are also reconstructions of several Borean roots.

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## Languages – brothers, grandpas, nephews

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### Childhood memories

Children often ask questions which not every father can answer. My father who visited Riga in his youth was once careless enough to show me – a fourth-grade pupil – his knowledge of Latvian. He started counting to ten:

-Viens, divi, trīs, četri, pieci, seši, septiņi, astoņi, deviņi, desmit.

These Latvian words were so oddly similar to Russian ones: divi – dva, trīs – tri, četri – četyre... But why? I received no clear answer to my question. My school teacher was puzzled too.

Still this unsolved mystery kept bothering me. Why so similar? Let's see, when two persons are singing, it is called a duet, when there are three of them – a trio. These are definitely not Russian words (Italian, they told me), but they look almost like Russian's dva and tri. So, Russian – Latvian – Italian.

Onwards and upwards. Next year I went to the fifth-grade and started to learn English. Here again – familiar roots: three stands for tri. Add on Latin triumvirate (the union of three) and German drei (“ein, zwei, drei” – who doesn't know that?). Or English six – similar to sextet (six members playing) and German sechs...

There was a book on our shelf – “Dictionary of Foreign Words”, and it had an appendix – a wonderful “Grammar of foreign words” by Prof. N.V. Yushmanov. I read this marvelous grammar without stopping, like it was a fairy tale. And I recommend it to everyone. Unfortunately, next editions of this “Dictionary” (after 1941) didn't contain the work by the deceased professor. Way too sad! In this grammar I found a table of Latin and Greek numerals, written in Russian letters, and I met my old friends again. It was like an obsession. Judge for yourself: dva – Latin duo (a duel means two persons fighting) – Greek duo (dipole, diode – a lamp with two electrodes); tri – Latin tres – Gr. treis (triade), pyat' (5) – Greek pente (The Pentagon, pentatonic); desyat' (10) – Latin decem (decimetre). Greek hex (6) – and hepta (7) – will fit too, if we suppose, that initial 'h' in Greek corresponds to initial 's' in other languages. Then Greek 6 and 7 will be similar to those of Latin (sex, septem), German (sechs, sieben) and Latvian (seši, septiņi).

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\* Znanie-Sila (Knowledge Is Power), #2, 1966, pp. 10-14

I wrote down all these wonders in the form of a table.

### Puzzle-table

Russian	Latvian	Latin	Greek	English	German
odin	viens	unus	Eis	one	ein
dva	divi	duo	duo	two	zwei
tri	trīs	tres	treis	three	drei
četyre	četri	quattor	tettares	four	vier
‘pyat	pieci	quinque	pente	five	fünf
‘šest	seši	sex	hex	six	sechs
‘s’em	septiņi	septem	hepta	seven	sieben
‘vosem	astoņi	octo	octo	eight	acht
‘devyat	deviņi	novem	ennea	nine	neun
‘desyat	desmit	decem	deca	ten	zehn

Numeral 1 looks different here, but from 2 to 10 we’ve got striking similarities. I would have been even more surprised if I knew numerals from ancient India:

eka, dva, tri, čatur, panca, šaš, sapta, ašta, nava, dača.

And if I knew the history of these languages, I would have guessed that even where the words look different at first sight, they had been similar in the past. For example, Russian devyat’. In the Old Slavic (the ancestor of Russian) and Old Baltic (Latvian-Lithuanian) languages the “d” appeared in place of the original initial “n-“ under the influence of neighboring desyat’. If this hadn’t happened, we would still count like this: vosem’, nevyat’, desyat’. And in Greek we’ve got ennea (9) from ennewa (long time ago the sound "w" did indeed exist in Greek, but then it became lenited – like in the English word “our” – and then disappeared at all). In Ancient German (9th century AD) nine sounded like niun (with short u – something like niwn).

Now let’s compare: nevyat’, neviņi, novem, ennewa, niwn. Close, uh?

So let’s add to our table some more antiquities. We’ll write down Ancient Indian words and replace today’s English words with Old English ones (the way they sounded in the times of Ivanhoe). We’ll replace the words from modern German with Old German from the time of Charles the Great. So here’s what we’ve got:



<b>Old Indian</b>	<b>Russian</b>	<b>Latvian</b>	<b>Latin</b>	<b>Greek</b>	<b>Old English</b>	<b>Old German</b>
eka	odin	viens	unus	eis	ān	ein
dva	dva	divi	duo	duo	twā	zwei
tri	tri	trīs	tres	treis	þrīo	driu
čatur	četyre	četri	quattor	tettares	fēower	fior
panca	pyat'	pieci	quinque	pente	fif	fimf
šaš	šest'	seši	sex	hex	six	sehs
sapta	sem'	septiņi	septem	hepta	seofon	sibun
ašta	vosem'	astoņi	octo	octo	eahta	ahto
nava	devyat'	deviņi	novem	ennea	nigon	niun
dača	desyat'	desmit	decem	deca	tīen	zehan

Now look closer. Is there any regularity? Let's compare the second and the tenth line. Look at the initial consonant. 2 and 10 in Russian regularly begin with d. Germans have z, and in English there is t. Maybe we've got some kind of law here? Maybe German z always corresponds to English t and Russian (or Indian, Latvian, Latin, Greek) d? So, English t – German z – Russian – d.

Check it out. Remember a few words with English t? For example: to, heart, tear. If our formula is correct, we'd find similar words in German (with z) and Russian (with d), which correspond with or correlate to their meaning. Indeed, we can find them and draw another table:

<b>English</b>	<b>German</b>	<b>Russian</b>	<b>Greek</b>
To	zu	do	
heart	Herz	serd-ze	cardia
tear	zerren	drat'	dero
two	zwei	dva	duo
ten	zehn	desyat'	deca

Our regularity has made it through. We've found a formula of correspondences: English t = German z = Russian d = Greek d.

An attentive reader could have probably noticed another formula: Old English/ Old German h = Russian s = Latin/Greek k (written c in the words themselves)

Old German	Old English	Russian	Greek	Latin
herza	heorte	serd-ze	cardia	cor(d)
aht	eahta	vosem’	octo	octo
zehan	tīen (>tehan)	desyat’	deca	decem
halm	healm	soloma	calamos	culmus

It turns out that all these sounds (they are called Indo-European) relate with such regular correspondences.

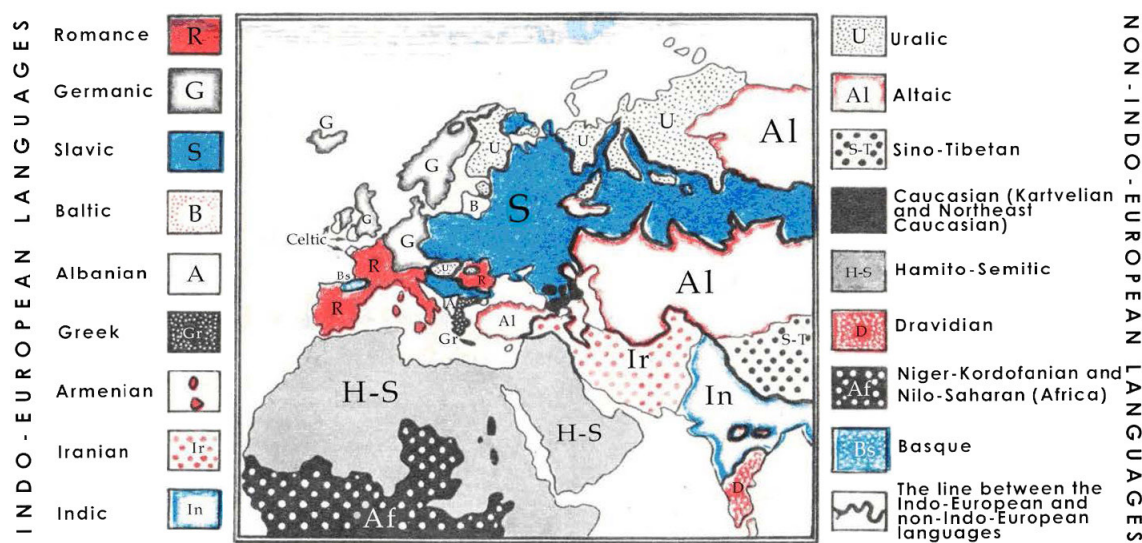
But let’s go back to our puzzle. Where does this similarity come from? Why do these phonetic correspondences exist? The answer is that these languages are in genetic relation.

### What does it all mean?

Let us start with a definition. We call languages genetically related if they have a common origin.

Here are some examples. When Romans conquered Italy, Gallia, Spain, Balkans, their language – Latin – started to replace that of the local “barbarians”: Gallic on the territory of today’s France, all the languages of Etruscans, Osci and Umbri in Italia, Iberian in Spain and others. Spread out on such a vast territory from Gibraltar to the Black Sea, the uniform Latin language started to fall apart into local varieties – dialects. In different areas Latin developed not identically: Latin sounds changed in different ways, some words expelled others, the grammar changes also varied. The differences had grown and so one day in place of the uniform Latin we found a whole bunch of offspring languages: French, Provençal, Catalan, Spanish, Portuguese, Rhaeto-Romance (in Switzerland and in the north of Italy), Italian, Romanian etc. For all these languages Latin is the ancestor-language, or – as linguists say – the proto-language.

Another example is India. In the second millennium BC the Aryan tribes invade India from the west. We will call their language Old Indian<sup>1</sup>. In this language they composed the ritual-philosophical hymns, a collection of which came to our time by the name “Rigveda”. A literary variant of the Old Indian, called Sanskrit, served as the language of Indian culture for thousands of years. Aryans (or Indo-Aryans) occupied The North and the part of Central India and somehow got even to Ceylon. And their language – Old Indian – gradually fell apart into new offspring-languages: Hindi, Bengali, Marathi, Gujarati – in India, Nepali – in Nepal, Singhalese – in Ceylon. But all these languages are of one family, whose father (Proto-language) is Old Indian.



So here we’ve got two families, each with its own ancestor – a Proto-language. And fortunately, we have a lot of written texts in these ancient languages, a rich literature, and with its help we can study them in detail. So, Romans and Indians got lucky.

But not everybody else has. For example, the Germanic group of languages (English, German, Scandinavian languages) comes from a single Proto-Germanic ancestor. Unfortunately, people who spoke this language didn’t have written culture and left no writings to us. By comparing the German languages linguists have to reconstruct the ancient roots and sounds – the Proto-German language itself.

The same situation can be seen with Slavs. The Proto-Slavic language, in which ancient Slavs spoke in the times of Caesar and August, has also left nothing to us. And again we have to reconstruct it by ourselves.

But the method and reliability of such reconstruction is a matter of different talk.

1 It is called Indo-Aryan in scientific works. – *Translator's note.*

## Indo-European Grandpa

Now let's go back to our numeral table, the puzzle-table. Why do these Russian numerals look so much similar to Latvian, German, Latin and Greek ones? You – reader – have probably got an answer: because they have a common origin.

There are three groups of languages we have known. Slavic languages (Russian, Polish, Czech, Bulgarian, Serbian etc) have a common ancestor – Proto-Slavic language. French, Italian, Spanish, and Romanian are brothers too, their Dad is Latin. Yet another group consists of Germanic languages: German, Dutch, Scandinavian languages, English (here, the “pater familias” is Proto-German). So, all these Daddies – Proto-Slavic, Proto-German, Latin, Proto-Baltic, Ancient Greek, Old Indian and others – come from the common Grandpa, whose scientific name is Indo-European. It is called Indo-European, because its descendants are spread from Europe to India.

The Indo-European Grandfather-language can be reconstructed too. Some of these reconstructions can be seen in this illustration.



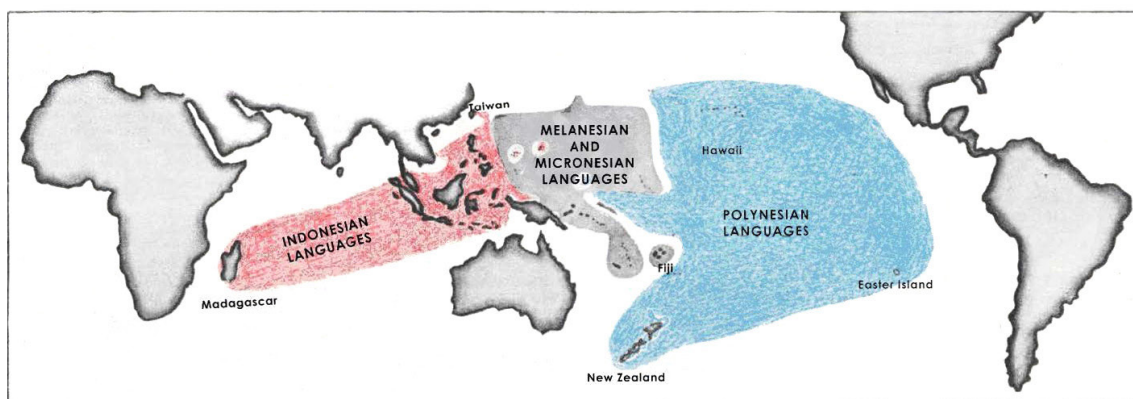
If the Indo-European language existed, then there must have been people (tribes), who spoke this language. When did Indo-Europeans live? According to modern linguists, Indo-European stopped being uniform (i.e. broke up into several different languages) around fifth or fourth millennium BC. Where did they live? The territory of settlement of Indo-Europeans is usually placed in the steppe zone of Europe (The Danube basin, the north of the Balkan Peninsula, the northern coast of the Black Sea). There are some reasons to suspect that in an earlier period Indo-Europeans could live in Asia Minor.

Indo-European language, most likely, was at first the language of a not very large tribe or a group of tribes, and then spread to a large territory as a result of the settlement of Indo-European tribes, originally engaged in cattle breeding (this is evident from their language) and therefore, probably, semi-nomadic.

Such immense (by geographical scale) migrations in those days – and later – were not uncommon. Remember this: Turkic languages are very close to each other, while being spread from Tuva and Yakutia in the east to Turkey in the west. The peoples of the Malay-Polynesian language family have settled over fantastically vast territories over the past millennia: in the west – Madagascar (near Africa itself), in the center – Indonesia and the Philippines, in the east – the Easter Island (a stone's throw to America!), and in the south – New Zealand.

So the Indo-European language spread on the vast territory and at the same time split into new dialects – future descendant languages. It would be naïve to think, of course, that all the nations that now speak Indo-European languages can ethnically (i.e. by blood) date back to the ancient Indo-Europeans. Indo-European peoples, confronting others, often gave them their own language. Let us recall, at least, how the Iberians in Spain switched to Latin after the Roman conquest, or as in the territories now belonging to Russia the Finno-Ugric peoples Merya, Wes' and Muroma became russified and switched to Russian language. Such processes often occurred in the past, and therefore it is not necessary to understand linguistic kinship as an obligatory ethnic relationship. Compare at least the appearance of blond and blue-eyed Russian Pomor from under Arkhangelsk with a black-browed Ukrainian or with a Bulgarian. Or compare the Kazakhs and the

Azerbaijanians among themselves: how different they are anthropologically and how similar are their languages! <sup>2</sup>



## Sound Laws

Do you remember our mysterious formulae of correspondences: [English t = German z = Russian/Greek d] or [English h = German h = Russian s = Latin/Greek k]? Where do they come from?

Such correspondences are the result of different changes, which the same sounds have undergone in different descendant languages.

Let's take the Russian word "gora" and listen, how Moscow-, Vologda- or Rostov- citizens pronounce it. Muscovite will say gará. Vologzhanin will pronounce gorá (in Vologda people "okayut", as we say, meaning that they save vowel 'o' even in unstressed syllables, not making it an 'a'). And Rostovchanin in spite of g will say something like voiced h: γará (that is how linguists designate this voiced h). The same situation will occur in every word: Northern Russians "okayut", Muscovites and Southern Russians "akayut" (turning unstressed 'o' into 'a'), Northern Russians also transform g into γ. These sound laws are written down in such manner: Old Russian g > Southern Russian γ; Old Russian unstressed o > South and Middle Russian a. The > symbol means "turning into...".

Different sound laws exist in the history of every language and every dialect. They had already existed in the era of early Indo-Europeans and their descendants.

<sup>2</sup> Modern linguistics stopped to recognize the Melanesian languages as a genealogical unity. - *Translator's note.*

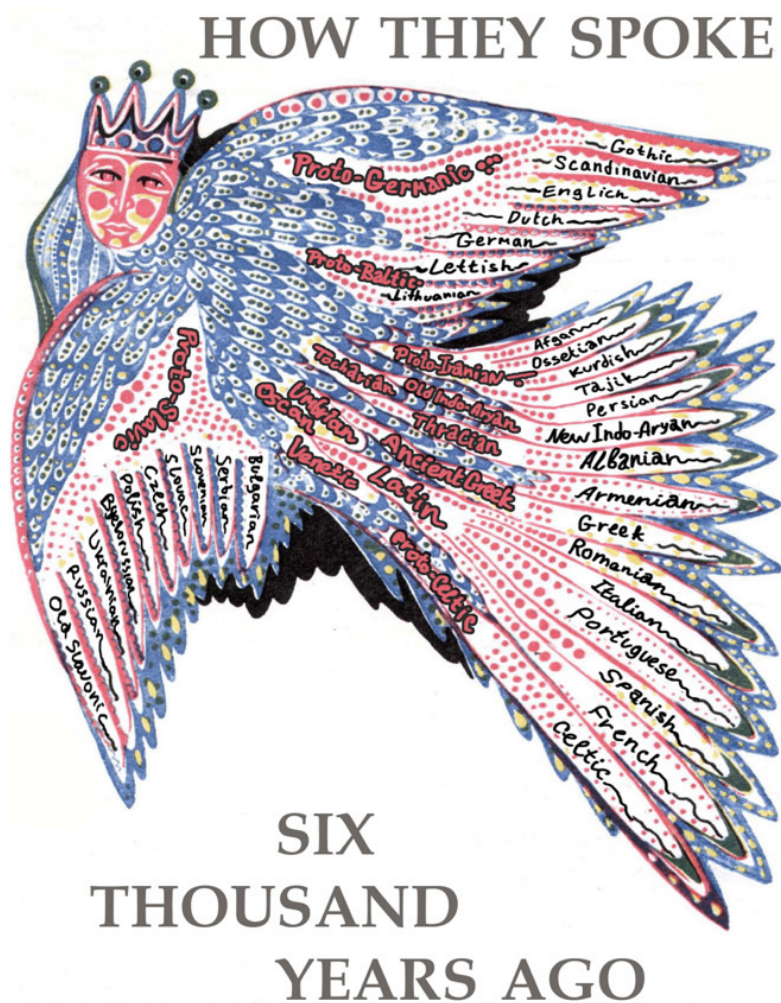
Now it is clear, how we can explain the formula: English t – German z = d in other languages! Very simple: Old Germans made d voiceless, turning it into t. Such t is preserved in Scandinavian, Dutch and English languages: two is två in Swedish and twee in Dutch. And Germans turned that t into z (ts): zwei. And this sound law works in other words too: Russian sidet’ – Latin sedere – English to sit – German sitzen (pronounced “zitsen”).

### What’s the profit?

So, what’s the profit from comparative linguistics? Our reader will answer this question himself, if he thinks often about such things as:

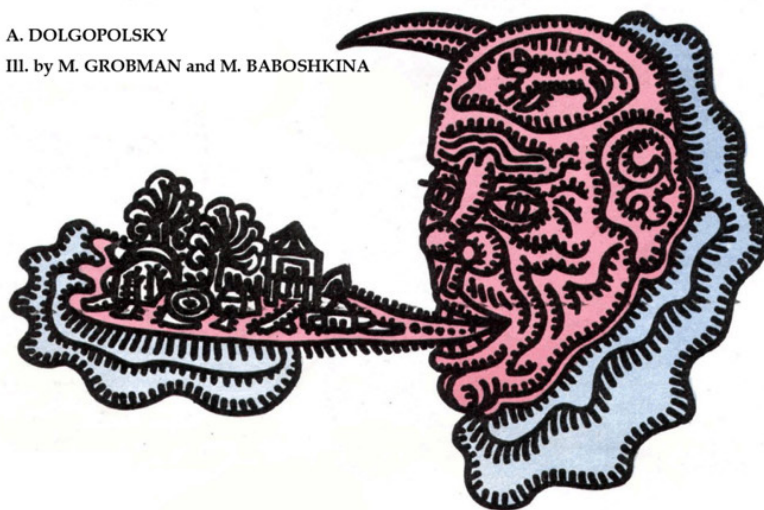
1. **History**. Especially of those peoples, who didn’t have written culture in antiquity and haven’t left us any chronicles, historical treatises and so on. What else, apart from language, could tell us that Hungarians came to Danube from the Urals, Ossetians are descendants of Scythians, and that Gypsies come from India?
2. **Decipherment of languages** of disappeared civilizations. Comparison with Old Indian made a great deal for understanding and translating The Avesta – the sacred book of Zoroastrians from Ancient Iran. Scholars understand the rich literature of Assyria and Babylon, because its language belongs to Semitic group of languages and akin to many others (Arabic, Jewish etc.).
3. **Learning languages**, especially learning roots and vocabulary. If we can connect the roots from different language with something familiar, it is much easier to memorize foreign words. It turns out that mechanical memorization of the words is not always necessary! If we know formula "Latin f – Russian d", it’s not difficult to remember that fumus is dym (‘fume, smoke’) and so on.
4. **The explanation of the language structure**, especially all these absurd exceptions in grammar of every language. For example, why does Russian verb “kladet” has infinitive “klast”? Why s instead of d? Turns out, it was a Proto-Slavic sound law, where d + t gave st. And therefore we have klad + ti = klast’ (to put) or ved + ti = vesti (to behave / have a habit), or pryad + ti = pryast’ (to weave). The knowledge of the language history allows us to see behind the heap of exceptions a once-existed system, enables us to untangle these absurdities, to explain them.

## How they spoke six thousand years ago



A. DOLGOPOLSKY

Ill. by M. GROBMAN and M. BABOSHKINA



\* Znanie-Sila (Knowledge Is Power), #7, 1966, pp. 26-29



## Linguistics' Sherlock Holmeses, or How to Reconstruct the Indo-European Language Ancestor

Let us first describe a task. We have many descendant languages. We need to compare them to each other in order to reconstruct the shape of the Indo-European proto-language, which existed millennia ago. We need to draw the face of the grandfather based on the images of his grandsons. Is this possible?

Let's remember the Sherlock Holmes novels. What did he do? In fact, he observed the consequences of some unknown events, and then built some hypotheses. First there were several hypotheses, then the one that explained all the known signs of unknown events best and most fully won.

Linguistics works the same way. We need to find such language (such sounds, roots, flexions, words) and such rules of transformation (in particular, the formulas of sound shifts) that the reconstructed language could really be the ancestor of every Indo-European language. For example, it should have such roots that we could create roots of every known Indo-European language using sound transformation formulas. But that's not all. We also need for the reconstructed language to be similar to every other language. For example, all languages in the world have vowels and consonants, so Proto-Indo-European also should have them. Moreover, their number should be roughly the same as in other languages. Parts of speech also should be more or less normal, as well as the grammar in general. The Indo-European language shouldn't be what languages aren't. To put it scientifically, it should be typologically similar to other languages of the world.

This is the task.

So how do we reconstruct sounds? Here is a correspondence: Slavic  $p$  = Latin  $p$  = Greek  $p$  = Indo-Aryan  $p$  = Germanic  $f$  = Armenian  $h$ . For example, Latin *pater* corresponds to Greek *patēr*, Indo-Aryan *pitar*, English *father*, German *Vater*, Armenian *hayr* – “father”. How do we know which Indo-European sound do Latin, Greek, Indo-Aryan  $p$ , Germanic  $f$ , Indo-Aryan  $p$ , Armenian  $h$  come from? Maybe the initial sound was  $f$ ? Let's check with typology. It turns out, in no language of the world does the change  $f > p$  occur. It doesn't happen. So the hypothesis of Indo-European  $f$  doesn't fly. Maybe  $h$  was the one? This one doesn't fly, too:  $h > p$  change also doesn't exist. On the other hand, the change

$p > f$  is common: ancient Finno-Ugric  $p$  resulted in Hungarian  $f$ , Old Iranian  $p$  gave us Ossetian  $f$ , similar shifts can be seen in the history of Arabic, Manchu, etc. The shift of  $p > f > h$  is also not a big deal: such changes are observed in Japanese, Evenki, Hausa, Kaffa (Western Ethiopia) and so on. That's why, in this case, all researchers unilaterally reconstruct the sound  $p$  in Indo-European.

By the way, we can obtain additional arguments for this hypothesis from an unlikely source, namely, if we analyze the words that the Indo-Europeans loaned from their neighbors. The name for an axe, *peleku* (Indo-Aryan *paraśuḥ-s*, Greek *pelekū-s*) is borrowed from the Semitic language. And there this word, as it turns out, also starts with  $p$ !

### What is Phoneme, or on Mortal and Non-Mortal Sins

Anybody who ever learned a foreign language knows a simple truth: a foreigner can distinguish between the sounds that we can't. For an Englishman, long and short  $i$  are different sounds: *[lik]* with a short  $i$  means "to lick", while *[li:k]* with a long  $i$  means "to leak". In Russian, whether it is long or short, the word is one – *lik* ("face"). Long  $i$  and short  $i$  are different phonemes in English, but one and the same in Russian.

The main property of a phoneme is its ability to distinguish words (and grammatical forms) from each other.

If you started learning a modern living language, then you should not only know the differences between phonemes, but master all fine points of pronunciation, especially if you don't want to speak with an accent.

But ancient languages are different in that they don't exist in audible form. Here, too, you need to differentiate between phonemes, or you'll confuse different words and won't understand the texts. But the fine points of pronunciation are a luxury for ancient languages, which not many need. In the Greek language, there was a phoneme  $[\pi]$  (like our  $p$ ) and a phoneme  $[\phi]$  (they pronounced it like  $p$  with aspiration). But now, when reading texts,  $\phi$  is customarily pronounced as  $f$ , and that doesn't stop us from understanding both Sofokles (sorry, Sophocles) and Aristophanes (pronounced Aristofanes). We don't pronounce Greek phonemes perfectly, but we always **distinguish** them from each other, and that is the point

of a system of signs. When studying ancient languages, you can often rely on the formula “Pronounce it however you wish, but distinguish one from another”.

When reconstructing the language of Indo-Europeans, we in some ways behave like a person who’s reading in Ancient Greek: we know that a phoneme exists, but have no idea on its precise pronunciation. For example, *p*: we know that it was *p*, and not *b* or *f*, but we don’t know if it was tense or lax *p*, or whether it was aspirated or smooth, and so on.

Sometimes it’s even worse. You can see Indo-European *s* in the table. But how did it sound? We only can give an approximate answer: it was some kind of sibilant – maybe *s*, maybe *sh*, maybe *sch*.

Moreover, we can’t guarantee that it was even one phoneme, not two or three. It is entirely possible that there were, two phonemes (for example, *s* and *sh*), which then merged in all the descendant languages.

Okay, we have reconstructed the phonemes. Now we can build roots and whole words using them. Linguists compare Old Indo-Aryan *bharanti* “they carry”, Latin *ferunt*, Greek *pherusi*, Gothic *berand* and our, Southern Russian, *berut*’ (“they take”) and reconstruct the ancient form *\*bheronti*<sup>1</sup>, which had the same meaning (“they carry”).

Why do we think it was the same? Because the root *\*bher-* means "to carry" in Indo-Aryan, and in Latin, and in Armenian, and in English, and in Tocharian, and in Irish – everywhere it's "to carry". Only Slavs use it for the meaning "to take".

Which of the meanings is more ancient? Let's suppose for a minute that it's "to take". If so, we couldn't possibly explain this amazing coincidence, i.e. that the Irish in the west, and the Indo-Aryans in the east, and Greeks, and Romans, and Armenians, and Tocharians – everyone somehow agreed to change the meaning from "to take" to "to carry".

It is much more probable that the ancient meaning is "to carry". Almost all Indo-European languages kept it, while the Slavic ones changed it. Such modifications are common.

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1 The \* sign is put before reconstructed words and sounds.

### Always mind the $\geq$ symbol!

When we say: "There was one front fricative in the Indo-European language, *s*", it, strictly speaking, should be read as "In the Indo-European language, the number of front fricatives was  $\geq 1$  (1 or more)". This "or more" ( $\geq$ ) clause must be always kept in mind when we make assertions on a reconstructed language. We know some things about this language, and our knowledge grows every decade, but some things we know not. These unknowns are what the "or more" formula signifies.

In 1868, August Schleicher decided, apparently, in jest, to write a fable in the Indo-European proto-language. It was called "A sheep and horses". It was 98 years ago. As time passed, linguists were studying stone inscriptions and cuneiform tablets, wrote down fairytales in unknown dialects in their field notepads, pored over dictionaries and parchment or palm-leaf manuscripts. Our knowledge was growing. In 1939, Schleicher's fable was published in the new Indo-European translation by Herman Hirt. If in 1868 it was called *Avis akvasas ka*, in 1939 the same title sounded like *Owis ekwōses k<sup>w</sup>e<sup>2</sup>*.

Where Schleicher thought to be one vowel *\*a*, the linguists of the 20<sup>th</sup> century see three different vowels: *\*e*, *\*o*, *\*a*. Schleicher reconstructed one consonant *\*k*, while now in the same place we can distinguish between three different consonants: *\*k* (simple *k*), *\*k̂* (palatalized *k*) and *\*k<sup>w</sup>* (labialized *k*).

Of course, the Indo-European fable is a joke. Naturally, many features of Indo-European remain unknown to us. For example, very little is known about the Indo-European syntax, about the usage of grammatical forms. Often, we know the root of a word, but can't identify which declination type it used. Lastly, we don't even know if all the roots, words, flections and suffixes reconstructed are from the same period.<sup>3</sup>

But still, we know much. It's only about two thousand Indo-European roots and stems, a few tens of flections and some suffixes. But from these roots and suffixes, hundreds of thousands or millions of words were derived – words of Russian, Latin, Persian, Irish, Indo-Aryan, Hittite languages... It is most demonstrable when you're standing with a small notebook of ancient roots in front of long bookshelves filled with dictionaries of different Indo-European languages.

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2 The most recent version as of 2013 is by Dr. Andrew Byrd, and is called *H<sub>2</sub>óuis h<sub>1</sub>ékūōs-k<sup>w</sup>e* – *A translator's note*.

3 Editor Tsippi Fleischer's comment in cooperation with A. Dybo. This article was written by Aharon Dolgopolsky in 1966 (!). Following publication of "Indo-European Dictionary with Nostratic Etymologies" by A. Dolgopolsky (2013), a lot of issues have been resolved.

## Things we know about Indo-Europeans, or dictionaries instead of shovels

Let's get down to excavations.

We see an Indo-European settlement. It was called *\*wik* – there we have Slavic *\*vǐsb*, Indo-Aryan *vís* “settlement, tribe”, Gothic *weihs* “village”, Latin *vicus* “village” (from where, by the way, comes *vicinus* > French *voisin* “neighbor”), as well as English *wick*, seen in such compounds as *bailiwick*, *sheriffwick*, *Warwick* etc. When Greeks talked about the Dorian tribe, they called them *trichaiwikes* “three-kinned, separated into three clans”. As you can see, one word could mean both a settlement and a clan. This can count as historical evidence – one clan settled in one village.

The head of the clan was called *\*wik-pat-* (“clan master”). From this word comes Indo-Aryan *\*wiśpátis* and Avestan (Old Iranian) *vīspaitis* “head of clan”. In Lithuania, the word *viešpats* now means just “lord”.

### What did Indo-Europeans do? See for yourself.

Indo-European	Old Indo-Aryan	Latin	Greek	English	meaning
peku-	paśu	pecu			cattle
g <sup>w</sup> ou-	*gāuš	bos		cow	cow
wak̂-ä	vaśa	vacca			heifer
uks-	ukṣán			ox	ox, bull
owi-s	avis	ovis	ois	ewe	sheep
ag <sup>w</sup> hn-		agnus	amnos	yea(n)(ling)	lamb
ekwo-s	áśvas	equus	hippos		horse
pōlo-s			pōlos	foal	foal
sū-s	su	sūs	hūs	sow	pig
porĕk-		porcus			piglet

As you can see, it's a whole animal farm. The Indo-Europeans, apparently, were cattle-breeders.

Some skeptics could argue thus: these animals could, while not domesticated yet in that period, have been called the same names. Where is proof that at least some of these words referred to cattle even at that time?

And proof there is. Let's see how many names refer to cows. There's a name for the species in general (*g<sup>w</sup>ou-s*), a separate name for a female cow (*wak<sup>h</sup>-ā*), and a name for an ox or a bull (*uks-*). By the way, there is a separate name for a wild ox – *tauro-s*, from which we get Greek *tauros* (remember the Minotaur, the bull of the Cretan king Minos), Latin *taurus*, Old Norse *θiorr* (*θ* is read like *th* in English), Irish *tarb*.

What about sheep? We see a similar picture – a name for an adult sheep, a separate name for a lamb. Now let's reflect on when people call animals of different ages and sexes with different words (derived from different roots)? Here's an example:

<b>masculine</b>	—	<b>feminine</b>	—	<b>young</b>
<b><u>1</u></b>				
ox	—	cow	—	calf
ram	—	sheep	—	lamb
rooster	—	hen	—	chicken
stud	—	bitch	—	puppy
<b><u>2</u></b>				
wolf	—	she-wolf	—	wolfing
hare	—	doe hare	—	young hare
eagle	—	eagless	—	eaglet
bear	—	she-bear	—	bear cub

It appears that we name differently-aged animals or animals of different genders with different roots only when they are important for humans and their domestic life, i.e. after the animal was domesticated.

There are other proofs of the horse, cow, sheep domestication, too. The Indo-Europeans knew yoke or horse-collar. It was called *\*jugo-m*, from which English *yoke*, German *Joch*, Russian *igo*, Indo-Aryan *jugam*, Latin *jugum*, Greek *zügon* were derived. There was a root meaning “to drive, to transport”: *wegh-*, thus we have English *wedge*, Russian *vezu*, Indo-Aryan *vahāti*, Lithuanian *vežu*, Latin *vehō*. From the same root some names for carriage were derived: Russian *voz*, Greek *ochos*, German *Wagen* and English (poetic) *wain*. So *wain* and *wagon* are the same. They also probably had wheel — *\*k<sup>w</sup>ek<sup>w</sup>los*, which was put on an axle — *\*aksis*.

Did the Indo-Europeans know agriculture? Let’s dig into the dictionaries: Latin *arat* «he ploughs» = Greek *aroi* = Gothic *arjiθ* = Slavic *oret*. So they knew how to plough. What about sowing? Compare English *sow* with Russian *seyat’* and German *säen*. Or Latin *semen* with Russian *sem’a* and German *Same*. But what did they sow? After consulting the sound correspondences table, you can easily identify Russian *zerno* with German *Korn*, English *corn*, Latin *grānum*. After harvesting, they milled it - compare with Russian *molot’*, German *müllen*, Latin *molere*. To that end they used the *quern* stone (Russian *zhornov* = Lithuanian *girnos* = Indo-Aryan *grāvan* and so on). It means that they planted cereals. Which cereals exactly? That’s where linguistics, sadly, can’t help: names for cereals changed their meaning in every language, and we can’t reconstruct the oldest. For example, what did the root *jew-* mean? In Indo-Aryan *yavas* is either barley or emmer; Lithuanian *javai* just means “cereals”; and the meaning of Greek *zeia*, known from Homer, Herodotus and Xenophon, is causing fruitless discussions between philologists: some translate it as “emmer”, some doubt such interpretation. Other ancient names for cereals are equally mysterious. It seems this question is more suitable for archaeologists than for linguists.

Continuing our linguistic excavations, we can learn many things about the dwelling places of ancient people and other parts of their lives: they had a *\*dom-* (Russian *dom*, Latin *domus*, house), it had a *\*dwer-* (door), they could *\*sjū-* (sew), *\*wes-* and *\*ou-* (put on clothes and shoes), so their feet weren’t always *\*bhos-* (Russian *bos*, English *bare*). We can also learn something about the spiritual culture of the Indo-Europeans. One interesting fact is that the concept of a god (*\*deiw-*,

which turned into Latin *deus*, Indo-Aryan *devás*, Lithuanian *dievas* “god” and Old Iranian *daēvas* “demon”) is linked to the concept of daylight (*\*djeu-* > Indo-Aryan *dyāus* «sky, daylight», Greek *Zeus* and Latin *Juppiter* — from *\*Djeus pater* «Djeus father»).

So, when did Indo-Europeans exist? The answer to this question is still very vague. If we suppose that the speed of changes in languages was the same in antiquity as it is now, than we have to place the Indo-European entity in 5<sup>th</sup> or 4<sup>th</sup> millennium B. C. Naturally, in the beginning of the 2<sup>nd</sup> millennium B. C. we can see in the written monuments such Indo-European languages as Hittite-Luwian in modern Turkey, a Greek dialect in Creto-Mycenian writings and traces of Old Indo-Aryan in the Hurrite writings from the state of Mitanni (modern Eastern Turkey and part of Syria). These languages are the most ancient we know of in writing, but they had already at that time greatly diverged – not less than modern English, Swedish, German and Icelandic. A Hittite couldn't understand an ancient Greek or a speaker of Old Indo-Aryan without a translator. Germanic languages took more than 2000 years to branch out to the distance at which they are now. It seems that about the same amount of time was needed for ancient Indo-European languages to acquire the differences we find in the monuments at the beginning of the 2<sup>nd</sup> millennium B. C. Thus, Indo-European languages must have started to diverge in 5<sup>th</sup> or 4<sup>th</sup> millennium B. C.





Of course, such reasoning in no way can be considered proven and exact. At best, it can be used as an approximate preliminary reference point.

*Where* did Indo-Europeans live? There were many studies and discussions on that matter. Researchers looked for names of plants, wild animals, natural objects in Proto-Indo-European that could help to place Indo-Europeans on the map. They studied ancient river names in different countries. Compared the oldest known settlements of peoples speaking Indo-European languages to each other. Alas, the results are still very approximate. By leaving out regions where Indo-Europeans couldn't live in antiquity, scientists were left with a vast area, inside of which they try to find an original Indo-European settlement region. This area includes all Middle and South-Eastern Europe, and most recent studies compel to widen the search even more, adding Asia Minor to it.

There's a reason. It turns out, the Indo-European language has borrowed some words from another ancient language – Semitic (the one from which Assyro-Babylonian, Hebrew, Aramaic, Arabic and Ethiopic languages descend). One such borrowing is the word *\*(a)stēr* “star” (like in English *star*; German *Stern*, Greek *astēr*; cf. also *astronomy*). Another is the numeral *\*septm̥* “seven”. There are some other borrowings. They exist in all or almost all Indo-European languages, which means they were loaned into the common Indo-European language before it split into the daughter languages.

So where Indo-Europeans should have lived to loan words from Semites? Semites settled the Near East, Indo-Europeans must be placed somewhere near them, so, most probably, Asia Minor. Maybe in a later period they could migrate to Balkans or other regions of South-Eastern Europe.

Then, maybe, both sides of the argument are right – those who place Indo-Europeans in South-Western and Middle Europe, as well as those who think they came from Asia Minor; they simply deal with different periods.

The Asia Minor hypothesis can also explain the borrowing of ancient Indo-European roots into the ancient Kartvelian language, the ancestor of Modern Georgian.

We ask the reader not to take this hypothesis as final and not subjected to revision. The question of the area of settlement is still extremely obscure.

It would be a whole different business if the scientists could connect the Indo-Europeans to some archaeological culture. Then many things would become clear

in linguistics as well as in history. We would know which objects and elements of culture were a result of foreign influence, we could study the name of an object which we have in a root... Alas, these happy days are still ahead. But it's possible that they will come soon.

### Basic sound correspondences in Indo-European languages

Ind-European	Old Aryan	Indo-Russian	Lithuanian	Greek	Latin	English	German
*p	p	p	p	p	p	f	f
*b	b	b	b	b	b	p	f
*bh	bh	b	b	ph	f	b	b
*t	t	t	t	t	t	th	d
*d	d	d	d	d	d	t	z, ss
*dh	dh	d	d	th	f	d	t
*k	k, č	k, ch	k	k	c	h	h
*g	g, j	g, zh	g	g	g	k	k
*gh	gh, h	g, zh	g	ch	h	g	g
* $\hat{k}$ (= k')	ś	s	š	k	c	h	h
* $\hat{g}$ (= g')	j	z	ž	g	g	k	k
* $\hat{g}h$ (= gh')	h	z	ž	ch	h	g	g
*k <sup>w</sup>	k, č	k, ch	k	p, t, k	qu	wh	w
*g <sup>w</sup>	g, j	g, zh	g	b, d, g	v	qu	qu
*g <sup>w</sup> h	gh, h	g, zh	g	ph, th, ch	f	w	w
*s	s, š	s, kh, sh	s	k, -, s	s, r	s, r	sch, s, r
*j	y	y	j	z, -	j	y, -	j, -
*w	v	v	v	h, -	v	w	w
*r	r	r	r	r	r	r	r
*l	r, l	l	l	l	l	l	l
*m	m	m	m	m	m	m	m
*n	n	n	n	n	n	n	n

Are there many Indo-European words in Russian (or English)? Short answer is – yes, almost all of them. It's better seen by analyzing any Russian (or English) text. Let's take, for example, Lensky's aria from Eugene Onegin (Pushkin):

Where, oh where have you gone,  
golden days of my youth?

WHERE Compare the interrogative words: *where, who, which, what, where*. They all have the interrogative root *wh-*. According to the table, it can be traced to Indo-European *\*k<sup>w</sup>*. And, naturally, such root can be seen in any Indo-European language. In Latin it's *qu-*: *quis* "who", *quid* "what", *quo* "where". In Russian it's *k-*: *kuda* "where to", *kto* "who", *kotoryj* "which", *kak* "how", *gde* (which should be spelled *kde*) "where". The spelling *wh* shows ancient pronunciation (labialized *h*); this *h* with lips put forward is still pronounced by many in Britain and America, but others pronounce it as *w*. According to the table, it's *w* in German. So it is: *wer, was, wo*.

HAVE This verb does not only have cognates in other Germanic languages, like German *haben* or Swedish *hava*. It is also related to Latin *capio* "to take" and Russian *khapat* "to seize".

YOU From Indo-European *\*wos*. Cognate to German *euch* "your", Latin *vos* "you (plural)", French *vous* and Russian *vy*.

GONE This Indo-European root, *\*g'hē-*, seems to only have survived in Germanic, Hellenic and Indo-Iranic languages. Compare with German *gehen*, Greek *kikhánō* "to arrive, meet with", Indo-Aryan *jāhāti* "to put away, remove". In the Russian text the word *udalilis* is used instead, literally meaning "moved far away". The root *-dal-* (*dl-*, *dol-*), "far, long" in Russian corresponds to *tall* in English. There is a Greek word *dolichos*, known to any aspiring anthropologist: people with elongated skulls are called *dolichocephals* "long-headed".

GOLDEN From Indo-European *\*ǵholt-* "gold". Cf. German *Gold*, Russian *zoloto*.

DAYS Anyone who has ever been to Latvia remembers their greeting: *Lab-dien!* - Good day! In Lithuania you'll hear: *Laba diena!* In Old Indo-Aryan we

can find the word *dinam* “day”. Now let’s move to ancient Roman market squares: every eight days peasants came there to trade. This market day was called *nundinum*: *nun* is English *nine*, German *neun*, and *nundinum* means “nine-day”. Why nine and not eight? Roman peasants rather peculiarly counted nine days from one *nundinum* to the next one, counting both market days in.

The Indo-European stem *\*din-* was itself composed of the root *\*di-* and suffix *\*-n-*. Latin also has this root: *dies* “day”, and we have it in the abbreviations A.M. and P.M.: *ante meridiem* “before midday” and *post meridiem* “after midday”. Latin *meridies* “midday” comes from ancient *medidies*.

OF Comes from Proto-Germanic *\*ab*. Compare with Greek *apó*, Indo-Aryan *ápa* “away, off”, Latin *ab* “from”, Russian *po* “along, over, on”.

MY Try to find correspondences in foreign languages by yourself.

YOUTH The word “young” comes from Proto-Indo-European *\*yowen-*. Russian *yuny*, Latin *iuvenis*, German *jung* all are its cognates.

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## Languages are looking for relatives, from Sahara to Kamchatka

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### Mysterious coincidences

Imagine you have opened a basic textbook of some language (we will not reveal yet, which specifically). A boy is drawn, pointing a finger at himself. The caption says: *Minu nimi on Artturi*. Quite clear, isn't it? Anyone who knows German will remember at once: *Mein Name ist Arthur*. And anyone who studied French figures out: *Mon nom est Arthur*. That's right. You understood it correctly: *My name is Arthur*.

But in what language is that? We read the next phrase: *Me asumme Helsingissa*. *Me asumme* – that is almost Slavic *my es'my, we are*. Probably that means: *We are (located) in Helsinki*. The translation is correct again. It would be better to say, almost correct. The phrase means: *We live in Helsinki*.

But wait, the reader exclaims, that is in Finnish! How could it be, Finnish is not an Indo-European language! It does not fall within the family of related languages, to which Slavic, Germanic (German, English, Scandinavian and others), Romanic etc. languages belong to.

Yes, Finnish language does not belong to Indo-European. It belongs to Uralic language family, which includes Finno-Ugric languages (Finnish and Estonian, two Mordovian, two Mari, Udmurt and Komi, Lopar in Laplandia and Kola Peninsula, Hungarian, Khanti and Mansi on Ob) and Samoyedic languages on Yenisey and Russian Far North, from Taimyr Peninsula to Arkhangelsk region (Nenets and other languages).

Yes, the Finnish language is not an Indo-European one, yet still you could understand the phrases from the textbook. Unbelievable, but it's true.

A quick-witted reader would think that Finns adopted the word *nimi* (“name”) from their neighbours, Germans, or other Indo-Europeans. Well, your hypothesis would be plausible, if we skip one circumstance: we see the same word in use

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\* p. 106. Znanie-Sila (Knowledge Is Power), #1, 1967, pp. 43-46

among all Finno-Ugric and Samoyedic people – Khanti on Ob (*nam* “name”), Nganasan in Taimyr (*nim* “name”), Kamasins in Yenisey upper section (*nim* “name”). Even Yukaghirs people on Kolyma have this word: in 18<sup>th</sup> century it sounded as *nim*, nowadays as *niv*. Ancient Indo-Europeans have never been in such faraway places. It turns out, that it is a native Uralic word.

To assume that Finns borrowed the word *minu* “mine” (genitive case of *minä* “I”) from Indo-Europeans is even harder, because personal pronouns of first and second person are never borrowed from other languages. But these are not the only surprising things. The same root *min*, *men* is used not only by all Finno-Ugric and Samoyedic languages. Other language families use it, too: Turks, Mongols, Tungusic people, Georgians...

Do you know how to say “I”, “you”, “he” in Mordovian? *Mon*, *ton*, *son*.

There is a plenty of such riddles in languages of Eurasia and Northern Africa. For example, there is Agav nationality in Northern Ethiopia. Agav language is a part of Kushitic group of Afro-Asiatic family. You can find a lot of suddenly familiar in their language: “water” - *'aḳic*, “woman” - *kičīnā*, “to know” = *kənt* (root *kən*). The first word is just like in Latin, the second looks as a Swedish *kvinna* “woman”, the third – as German *kennen* “to know”. What an obsession! How such similarity is possible? Are these random coincidences? Or all these words came to Finns, Kushites and others from Indo-Europeans? Or, finally, is it an evidence of some age-old kinship of languages?

Today we will try to figure it out, but let us first take a look on world map and remember the existing language families. We will see if there are languages related to Indo-European among them. But first we'll try to find out how kinship of languages is actually determined (take a look at the chart).

To determine the kinship of languages is to find the facts which we cannot explain without assuming the languages have the same origin. What kind of facts?

Correspondences between languages. But not every similarity is good enough to prove kinship. Imagine some weirdo tries to prove that German and Chinese are relative languages with the following arguments:

1) adjectives are settled before nouns both in German and Chinese (*großes Haus* – *da fangzi* «big house»);

- 2) both languages have voiceless aspirated consonants;
- 3) both have the same complex word structure: two nouns make one, the second component is primary, the first is a definition for it; x+y noun means the same as phrase x-noun y: *Ruß+land* = Russian land in German, *Eguo* = *E* (“Russian”)+*guo* (“land”) in Chinese.

Can we consider such arguments? No. Firstly, there are two options for adjectives - to be settled before or after noun. It is easy to imagine, how often non-related languages are placing adjectives in the same way! Secondly, voiceless aspirates can appear in different languages autonomously. Moreover, as it turns out to be, in German they are not native sounds, they took place of voiced aspirates (*Tisch* from *disk*). Thirdly, complex words like *Rußland* or *Eguo* continue to appear in different languages, for example, in Russian: *steklotara* «glassware» (*steklo* - «glass», *tara* - «ware»), *electrosvarka* «electrofusion» (*electro* - «electric», *svarka* - «welding»). And if they appear in non-related languages, correspondences in these attributes don't prove kinship. There are a lot of similar words in Turkish, Cherkes, Finnish, in the languages of Western Africa, too, and so on.

Commonality of basic structural principles cannot prove kinship: same principles are discovered in languages of great distance from one another too often. Moreover, a language can influence the structure of another language, which could be adjacent, but not related. The languages would become more similar, but stay non-related. That is called a language union. For example, Bulgarian, Romanian, Albanian have a lot in common in principles of organization. Definite article always goes after a noun and merges with it into one word («teacher» — Bulgarian *учителят*, *uchitelyat*, Romanian *învățătorul*, Albanian *mësuesi*, where *-at*, *-ul*, *-i* are articles), infinitive is replaced by a subjunctive, genitive case merges with dative, vowels are very similar in all three languages... Yet still Bulgarian stays a Slavic language, Romanian – a Romance one, and Albanian – neither of them. They resemble good friends taking a lot from each other, but they are not brothers.

So, structure similarity can't prove the kinship of languages. Unless if, for example, two languages have similar sounding endings of, say, 2<sup>nd</sup> person

singular of a verb, or genitive case of a noun, or the preposition “in”. In case there are many such correspondences, they can not be a result of a random chance. But unfortunately, grammar won't get us far. Why? There are two reasons.

Firstly, languages can lose almost all ancient grammar formants, or completely change their sound appearance throughout the long centuries of evolution. French language had lost its *casus* suffixes (endings). English had lost almost all *casus* suffixes, and almost all personal endings of verbs. And Russian, while keeping the *casus* system, had lost ancient vowels in the endings, which are the most distinctive sound element of *casus*.

So, we have to compare the words, and roots of the words. But not all the words are good enough for estimating kinship. First of all, we remove the ones the sound of which is predestined by their meaning. For example, onomatopoeic words: cockoo – German *Kuckuck*, Turkish – *guguk*, Nivkh (on Amur River) – *khykus*, Tabasaran (in Dagestan) – *kkukkum*. These words are similar not because the languages are related. Baby talk (*mommy*, *nanny* etc.) words are no good for that purpose, too. They are similar in different languages, as undeveloped speech apparatus tends to pronounce only a limited set of sounds and sound combinations. That is why Ukrainian *nen'ya* (“mom”) resembles Udmurt *nene*, Chechen *nana*, *nune'e* in Native American language of Coeur d'Alene (Idaho, USA). Languages' kinship has nothing to do with that.

Furthermore, we remove clothing and cultivated plants naming and other words, connected to material and spiritual culture and transferring from one language to another with cultural influences. It would be funny to estimate relative connections between Russian and Tatar languages on the basis of clothes naming: Tatar *kalfak* 'cap' sounds like Russian *kolpak* 'cap', because it came to Russian from Turkic languages, and Tatar *botiki* is similar to Russian *botiki* 'boots', as it infiltrated Tatar from Russian.

From the roots that are left, the ones that correspond to concepts rarely changing their namings are most illustrative. We call such vocabulary stable. Which words are more useful for languages relationship studies: with the meaning “very”, or with the meaning “ear”? Of course, “ear”. The word “very” is one of those “coming into a habit, wearing out, like dress”, and by wearing out they are



replaced by new ones. For example, Russian word *ochen'* 'very' has appeared rather recently, before it *vel'my* and *zelo* were in use. The ancient roots, which kept the initial meaning through the ages, are like precious seed in this unstable vocabulary, and they are rarely found. In fact, it is such a rare case, that the number of such words is comparable to the number of purely coincident words. So, we can't prove any kinship using unstable vocabulary.

Stable vocabulary is quite another matter. Turns out that the concept of “ear” hadn't changed its naming in all the Slavic languages since their emergence. The ancient Indo-European naming of an ear also persisted in all Germanic, Romance languages, in Greek, Lithuanian... The word “ear” has strong experience of doing its job (indicate an ear) – more than 6 thousand years, from Pro-Indo-European language, and even from more ancient times, as it seems now.

How do we separate stable vocabulary from unstable? We can use dictionaries to see how roots behave in same meanings in different languages. Then we get a list of meanings, in which roots are stable, and other, which are considered as unstable. Studies like that were done plenty of times (by the author of these lines, too). But more often linguists use their experience and intuition to separate stable from unstable unconsciously – and it gives mostly correct results.

Names of some body parts (“tongue”, “ear”, “nail”, “tooth” etc.), of water and similar basic concepts are the most stable words. But pronouns are the champions of stability – personal and possessive pronouns of 1<sup>st</sup> and 2<sup>nd</sup> person and interrogative. Even if two languages eventually diverged from each other, they usually kept the pronouns similar. For example, Russian and such phonetically worn out language as French: *menya* – *me*, *ty* – *tu*, *nas* – *nous*, *kto* – *qui*.

So, if there are multiple correspondences in stable vocabulary and sound compliance rules between languages are discovered – we make a conclusion that these languages are related.

### Coincidence, borrowing or affinity?

So, where did these amazing correspondences between Indo-European, Uralic, Turkic, Mongolian, Manchu-Tungus, Kartvelian, Hamito-Semitic<sup>1</sup> that were mentioned at the beginning of this article come from?

There is a lot of correspondences: more than 600 common roots are discovered by now, most of them from stable vocabulary. It is important that pronouns match particularly great – the champions of stability: interrogative, 1<sup>st</sup> and 2<sup>nd</sup> person pronouns. The most stable of connective words – negative particles – also match.

There are some correspondences in other grammatical forms as well. There are regular phonetic compliances in all these roots, pronouns and grammatical formants. For example, Proto-Indo-European *d* corresponds to Proto-Uralic *t* (the one that by certain strict rules in Finnish language gives *t* or *d* in different cases), Proto-Turkic *d*, Kartvelian *t*, Hamito-Semitic *t*. You can find the examples of this compliance formula on root development schemes with meaning «water» and «to eat». See page 42 ahead. And if we told you the history of all Borean roots known to science (there are many hundreds of them), you would see that every time when Indo-European root contains *d*, there is *t* in Uralic, *t* in Hamito-Semitic, and etc., corresponding to it. You would see a law of conformities. Sound conformity formulas play the same role in comparative linguistics as equations do in physics. When do physicists take a new theory seriously? It happens when it is able to describe with formulas a natural phenomenon that had never been described before. The same thing takes place in comparative linguistics: the hypothesis of kinship is proved if and only if linguistic equations – sound conformities – are established. Nowadays, as a result of V.M. Illich-Svitych's researches, such formulas were found for all Borean languages.

We notate as *\*t* the Borean sound, from which Indo-European *d*, Uralic, Kartvelian and Hamito-Semitic *t* etc. were derived. Indo-European *p*, Kartvelian and Hamito-Semitic *p̣* (i.e. “p” with closed vocal cords) take their origin in other sound, which we note as Borean *\*p̣*, and which has disappeared from Turkic words. (see the example of root development with a meaning “leg”, page 42 ahead).

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1 The Hamito-Semitic family is now more commonly called Afroasiatic. - A translator's note.

Let's explain some more symbols in the roots' schemes. A dot over a consonant means closed vocal cords. A dot under Dravidian *t* – it is a cerebral pronunciation (backward-curved tip of the tongue). An apostrophe is a glottal stop, the same sound as we can hear in a German “*ein*”. An inverse *e* - ə - designates unknown vowels.

How can all this be explained?

There is only one explanation – the kinship of languages.

It turns out to be that there is a huge “superfamily” of languages, which involves plenty of language families of northern and eastern Eurasia, and northern Africa as well.

At the end of last century, the great Danish scientist H. Pedersen was making assumptions of existence of this “superfamily”. He called it *Nostratic* (from Latin *noster* “our”: this allegedly includes all “ours” languages – Europe and the neighboring communities). Although that term has stuck, I dislike it personally because of its eurocentrism. Are Malay, Chinese and Congolese supposed to call these languages “vestratic” (yours)? In my report on the VII World Anthropology Congress I brought a term *Borean* to my colleagues' attention (from Greek *boreas* “north”) - in fact our “superfamily” occupies, more or less, northern area. After all, there is a term *Austriac languages* (from Latin “southern”), describing Austro-Asian, Malayo-Polynesian and some other languages, located mostly southern than Borean.

Holger Pedersen examined only pronouns, he did not search for the ancient roots in other words. The successive researchers has bridged this gap. They took the path of pairwise comparison of the language families: they compared Indo-European languages with Uralic (i.e. B. Collinder), with Semitic (H. Meller, A. Cuny), with Urartic (G.B. Jahukyan Gahukjan ?), Uralic with Yukaghir (B. Collinder, J. Angere, O. Tayer), with Chukchee-Kamchadal (J. Angere) and etc. These researchers made a lot of invaluable observations.

But there is still a paradox: comparison of any two language groups is much less reliable thing than comparison of five, six or more groups. Why? The thing is that an accidental sound correspondence of roots with the same meaning in

four or five languages groups is a thousands times less likely than an accidental correspondence in two families. If Indo-European *\*melĝ* – “to milk” (from whence English *milk*, German *Milch*, Russian *moloziwo* “colostrum” and *moloko* “milk”, Latin *mulgeo* “to milk” and others take their origin) coincides with Finno-Ugric *\*mālye* “breast” (Sami *miel’ga*), we can not deny a chance of accidental convergence here. But what would you say if the same root was found also in Hamito-Semitic languages (Semitic, Egyptian, Cushitic), meaning “to suckle”, “to milk”, and in Chukchee and Yukaghir meaning “breast”? The root that was found in three or more language groups is surely an ancient one.

That is why two Soviet linguists – V.M. Illich-Svitych’s and the author of these lines – had abandoned pairwise comparison of languages families and began to compare many of linguistics families at once. It makes it easier to discover the ancient roots and then to define the rules of sound conformities. It makes it easier to catch the remnants of ancient grammar.

### Undoubted and questionable relatives

So, Indo-European languages have relatives. Let us enumerate them. I will further express my own personal point of view. In general it converges with my colleagues' opinions, who are also studying that problem, but there might be slight differences in some details.

Here are more or less undoubted and examined relatives: Uralic, Turkic, Mongolic, Manchu-Tungus, Korean, Dravidian, Kartvelian, Hamito-Semitic languages. Each of these language groups went through a kind of preliminary treatment and now can be compared with other language groups. What kind of treatment? Linguists have compared languages inside of every language group and covered more or less well the ancient Proto-Uralic, Proto-Turkic, Proto-Kartvelian condition and so on. Now we have more basis for comparison.

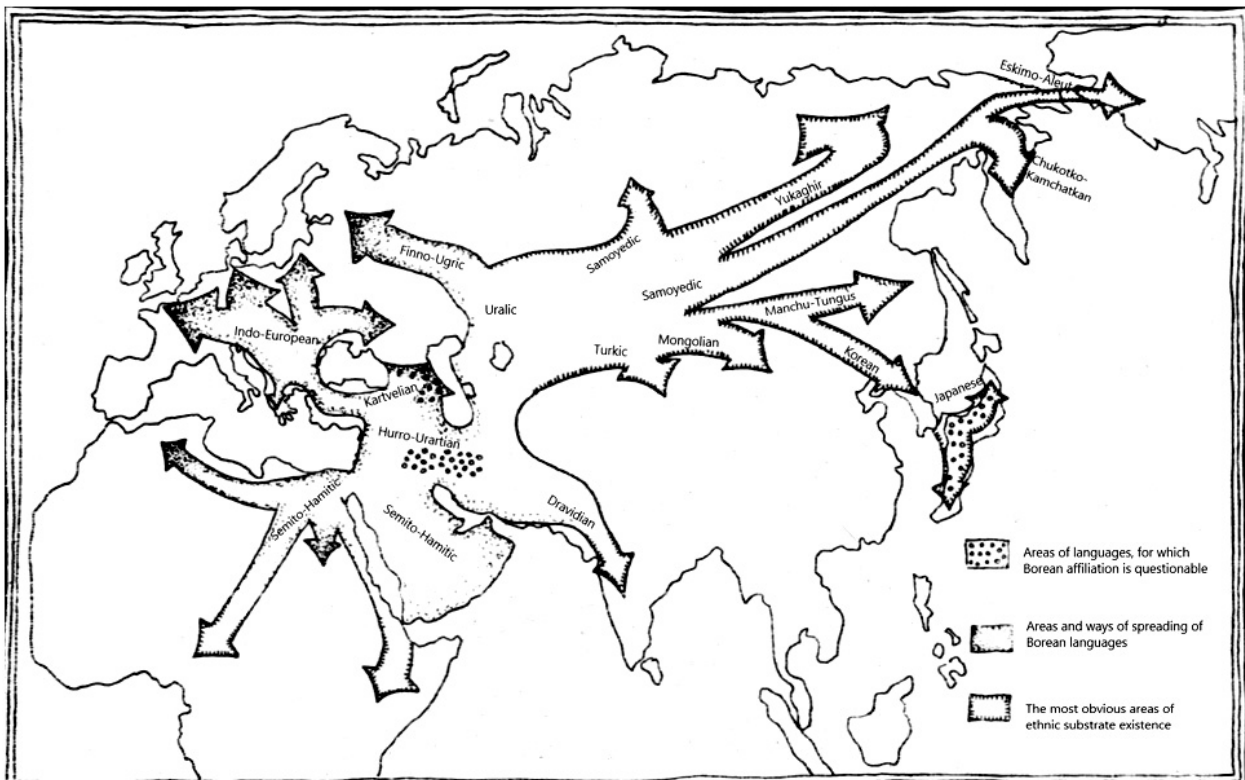
Of course, there is still a lot of uncertainty. For example, here is a problem: could it be that Turkic, Mongolic, Manchu-Tungus and Korean make a united Altaic language family?

Map No. 1



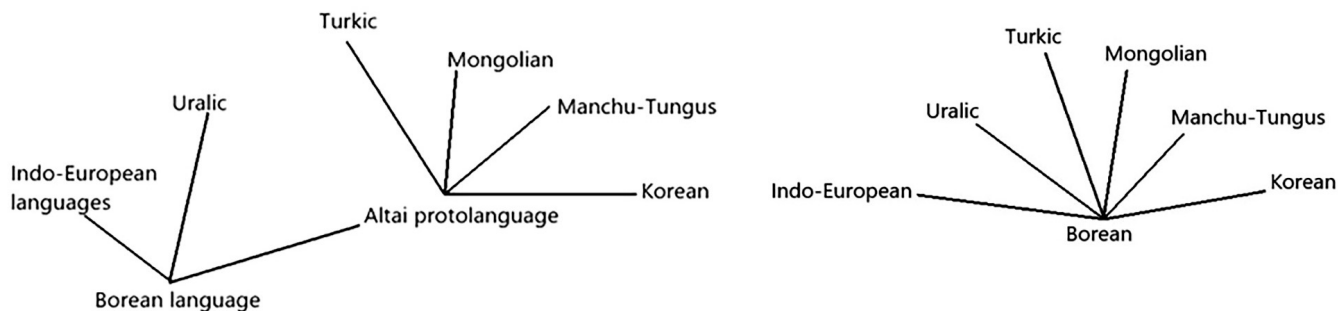
Language families of the Old World (Geographical location approximately related to 1500 A.D., European and Chinese colonisation of new lands has not started yet)

Map No. 2



One of possible assumptions on ancient ways of spreading Borean languages.

There are two possible ways to place the languages on that family tree:

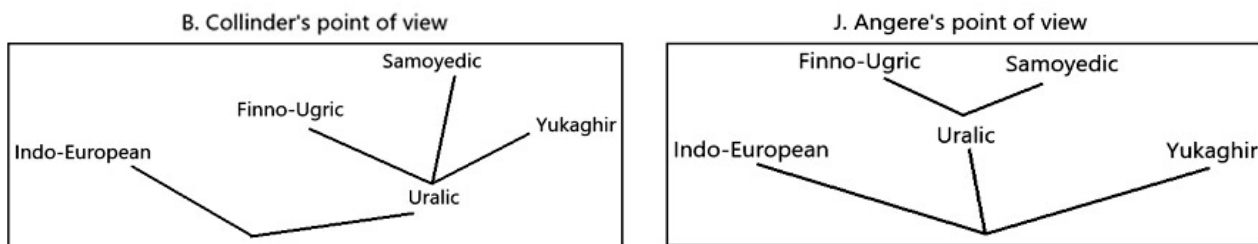


It is yet uncertain, which of the two schemes is correct. There are ways to solve the dispute, but we would need a separate article to discuss them.

Less studied, but still obviously related languages: the Yukaghir language in Magadan region, Chukchee-Kamchadal languages and the extinct Hurro-Urartian group in Anterior Asia.

According to Swedish professor B. Collinder and French researcher O. Tayer, Yukaghir language is so closely connected to Uralic languages, that it should be included into the Uralic family. Others, (B. Kreynovich, Y. Angere) point out that Yukaghir has significant connections with so-called Altaic languages (e.g. Manchu-Tungus) and Chukchee-Kamchadal languages.

So, here are two possible schemes:



Chukchee-Kamchadal group has many common roots with other Borean languages. But the exact sound compliance rules have not been found yet. We don't have a list of common roots in Chukchee, Koryak and Kamchadal languages, neither do we know the ancient appearance of these roots.

Unfortunately, we know very little about Hurric and Urartian. All we have is some writing on walls and potsherds. We do not even know how to say “you” in Urartian. But the pieces we have show apparent connections with Borean languages.

Questionable relatives: Eskimo-Aleut languages and Japanese. In Eskimo-Aleut we find some Borean roots, but sound correspondences are not clear yet. The situation is complicated by the horrible sound history of these languages: some destructive sound transformations took part, and they still haven’t been studied properly<sup>2</sup>.

There is another hurdle-difficulty with Japanese. It has not only clearly Borean roots (especially likely to Korean, Manchu-Tungus and other Altaic roots), but also at the same time roots of completely different origin – Malay-Polynesian. So, the true face of Japanese is uncertain: is it a Malay-Polynesian language with Altaic (Borean) influence, or vice versa, a Borean (Altaic) language which has adopted vocabulary of Malay-Polynesian newcomers. By now most of Japanese researchers incline to agree with the second point of view.

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<sup>2</sup> Anyone interested in obtaining further details on ancient Nostratic Borean roots can refer to the works of V.M. Illich-Svitych. His “Materials to the vocabulary of Nostratic languages” goes to press soon. His monograph “Experience of comparing Nostratic languages” is now in preparation for publishing. From already published works I would recommend my “Hypothesis of the ancient kinship of Northern Eurasia languages” (Moscow, “Nauka”, 1964). (The Illich-Svitych’s work was published as: Иллич-Свитыч В. М. Опыт сравнения ностратических языков (семитохамитский, картвельский, индоевропейский, уральский, дравидийский, алтайский). М.: "Наука", 1971–1984; there is also a more recent updated work by A. Dolgopolsky: The Nostratic dictionary, Cambridge, 2008; <https://www.repository.cam.ac.uk/handle/1810/196512> - a translator’s note.)

### Examples of related roots

Here we list schemes of five Borean roots' development. Nowadays, about 600 of such roots are known. Turns out that many words from Indo-European languages have the same origin with Finnish, Arabic, Turkic, Mongolic, Georgian words. Grammatical formants (flections, suffixes) show the same origin, too. All the weight of correspondences cannot be explained by an accident, as well as by mutual influences. Kinship, the same genesis of all these languages, is the only possible explanation.

How could such kinship appear? Which great historical processes of faraway centuries have caused it? We don't know yet. A great amount of work of archaeologists, anthropologists, ethnographers, linguists is needed to give a historical picture of the genesis of Borean nations – a picture of nation's resettlement, transmission of language from one tribe to another.

One of possible hypotheses is shown on map N.2. According to it, when the last glaciation ended and the climate became warmer (about 15 thousand years ago), Northern Eurasia nations began to resettle from the South to Europe and Siberia. Presumably, there were a lot of such resettlements. And one of the last waves of this great migration left memory about it in form of the kinship between Northern and Western Eurasia and Northern Africa.

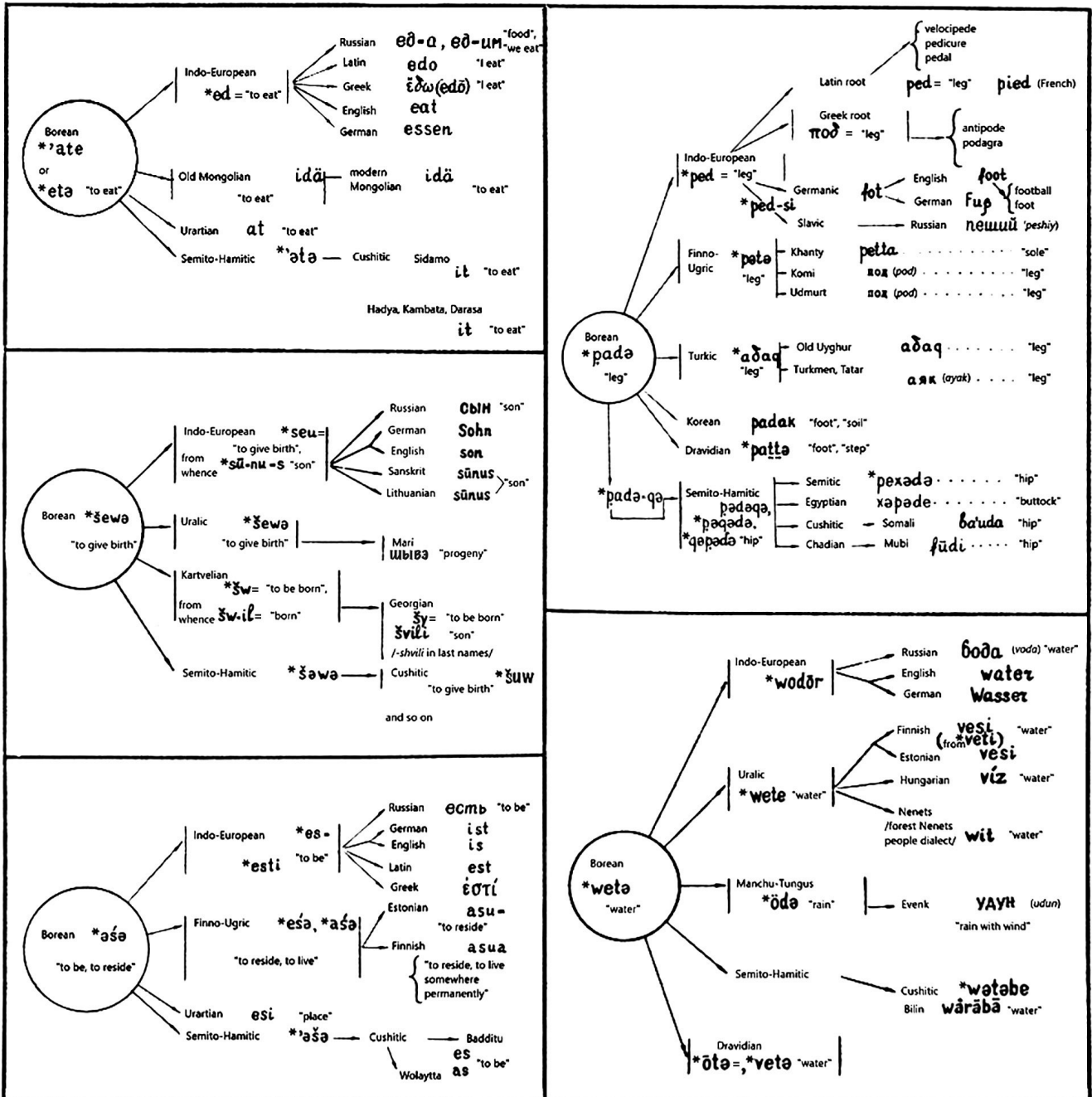
But again: that is only a guess. It remains to be seen whether it is true or not.



### How the kinship of languages is established

<b>Correspondences in different areas of the language</b>	Whether they can occur in different languages independently	Whether they can occur as a result of borrowing with a great probability	Whether they can be inherited from a common ancestral language	Whether they are a proof of kinship
<b>Correspondences in principles of sound system structure, morphology and syntax</b>	yes	yes	yes	no
<b>Correspondences in those layers of vocabulary, where the sound is resulted by the meaning (onomatopoeia, etc.)</b>	yes	yes	yes	no
<b>Correspondences in easily borrowed vocabulary</b>	no	yes	yes	no
<b>Correspondences in unstable vocabulary</b>	in small numbers		in small numbers	no
<b>Numerous correspondences in stable and hardly borrowed vocabulary (in accordance with a regular sound compliances)</b>	no	no	yes	yes
<b>A significant number of correspondences in grammatical formants (endings, prefixes, service words) in accordance with sound compliances</b>	no	no	yes	yes

A few examples in a schematic format of the transition of Borean/Nostratic roots in the descendant languages



### The language families of Earth

1. Indo–European languages: Slavic, Baltic (Lithuanian and Latvian Lettiish), Germanic, Romance, Greek, Albanian, Armenian, Iranian, Indian, Celtic and others. All these languages descend from a common ancestor – Proto-Indo-European language.
  2. Uralic languages: a) Finno–Ugric, b) Samoyedic.
  3. There are Turkic languages in Siberia (Tuvan, Khakas, Altay, Yakut and others), in Xinjiang (Uighur), in Kazakhstan, in Central Asia (Turkmen, Uzbek, Kyrgyz and others), on European territory of USSR (Cuman, Pechenieg languages in ancient times, Tatar, Bashkir and others nowadays). In the 11<sup>th</sup>-12<sup>th</sup> centuries Turkic languages were brought to Transcaucasia (Azeri language) and to Asia Minor (Turkish). The Chuvash language takes a special place among them – it is a descendant of the Volga Bulgars language.
  4. Mongolic languages: Old Mongolian literary language, existing since the Genghis Khan times, and modern languages: Khalkha-Mongolian (in Mongolian People’s Republic), Mongolic languages of China, Buryat, Kalmyk and others.
  5. Speakers of Manchu-Tungus languages live in Siberia and in North-East China: Evenks, Evens (Lamyts), Nanai in Amur, Manchu and others.
- Some researchers unite Turkic, Mongolian and Manchu-Tungus languages into one Altaic family<sup>3</sup>.
- 6-7. Korean and lately Japanese languages are referred to the same Altaic family, too.
  8. Yukaghirs live in Kolyma region. Some researchers consider their language to be Uralic.
  9. As its name suggests, we can guess where people speak Chukchee – Kamchadal languages. These include Chukchee and its close relative, Koryak (Kamchatka), and also Itelmen (Kamchadal) language which is almost extinct.

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3 See Sergei Starostin, Anna Dybo, and Oleg Mudrak (eds.): Etymological Dictionary of the Altaic Languages. 1-3. Leiden, 2003. - A translator’s note.

10. Aleut language (Aleutian Islands) and Eskimo languages (from Chukotka and Alaska to Greenland) belong to Eskimo-Aleut family.

11—14. There are isolated languages in Asia, which seem not to have relative connections. These are Nivkh language on Amur and Sakhalin, Ainu – on Japanese Hokkaido island and on Sakhalin, Ket – on Enisey River, Burushaski language in Hindu Kush mountains (Kashmir).

15-17. In China, Indochina Peninsula and partly in India there are languages of Sino-Tibetan family (Chinese, Tibetan, Burmese and others), Thai family (languages of Thailand, Laos, and partly of Southern China) and Austro-Asiatic family, which includes Mon-Khmer languages (as well as Cambodian and Vietnam), Munda languages (India) and others.

18. Islands of Pacific and Indian oceans are inhabited by speakers of Austronesian (Malay-Polynesian) languages, which consist of Indonesian (from Philippines, Indonesia and Malaya to Madagascar), Polynesian (from New Zealand to Hawaii and the Easter island) and Melanesian languages (the north-east of New Guinea neighboring islands).

19. The Dravidian family. In ancient times the Dravidians probably occupied the most part of India. It was before the intrusion of people from the west speaking the Indo-European language (whence Sanskrit and modern languages of North and Central India came from). Now Dravidians occupy the whole South of India (Tamils, Malayals, Kannada, Telugu – more than 100 million people) and there are still some left in the center of the country and in northwest, in Pakistan. It seems that the great civilization of Mohenjo-Daro and Harappa in Indus Valley was a Dravidian civilization. The first results of the undeciphered Mohenjo-Daro writings analysis speak in favor of this assumption.

20—22. There are specific linguistic families in Caucasus. Kartvelian family consists of the Georgian language together with Svan, Megrelian (Western Georgia) and Lazian (behind the Turkish border) language. Dagestan and Chechnya-Ingushetia inhabitants speak Nakh-Daghestanian languages. Abkhazians, Abazians, Adygs, Circassians and Kabardians speak Abkhaz-Adyghe languages. Is there any kinship between these three groups of languages? N. Trubetskoi and J. Dumezil clearly show the kinship between Abkhaz-Adyghe

and Nakh-Daghestanian languages, and they consider Kartvelian languages to be unconnected with them. There is also an opinion about kinship of all three groups. The dispute has not been resolved yet and it is difficult to solve until there are comparative grammars and etymological dictionaries of Nakh-Daghestanian and Abkhaz-Adyghe groups<sup>4</sup>.

23. Basque in the Pyrenees. The attempts to compare it with Caucasus languages have not been successful yet.

24—27. In ancient Anterior Asia there were many languages that did not belong to any family. We know about Sumerian language (southern Iraq), Hittite (Turkey), Elam and Kassite (the west of Iran) from cuneiform artifacts. Urartu country language (Eastern Turkey, Armenia) and Hurrian language of Mitanni country (Syria, Eastern Turkey) form the Hurrito-Urartu family.

28. The languages of Hamito-Semitic family are spread in the south-west of Asia and in northern half of Africa. Semitic, Egyptian, Berber, Cushitic and Chad languages belong to this family. Semitic languages are known since ancient times. These are Assyro-Babylonian, Ugaritic, Jewish, Phoenician, Aramaic (with its descendants - Syrian and modern Assyrian), Arabic and South Arabian languages. Semitic languages of Northern and Central Ethiopia (including Amharic) originate from the ancient Arabian.

Egyptian language (with its descendant - Coptic) has the longest written history in the world: from the beginning of the 4th millennium B.C. until the 18th century B.C.

Berber languages were spread all over North Africa to the west of Egypt. After the Arab conquest in the 7<sup>th</sup> and 8<sup>th</sup> centuries and consequent spread of Arabic language they have remained partly in Morocco, Algeria, Libya, and also there is a continuous array in Sahara (Tuareg).

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4 There are such dictionaries now. See A. K. Шаги́ров *Этимологический словарь ады́гских (черкесских) языков* Москва: "Наука", 1977, 1-2; and S. L. Nikolayev, S. A. Starostin *A NORTH CAUCASIAN ETYMOLOGICAL DICTIONARY*. Edited by S. A. Starostin ASTERISK PUBLISHERS Moscow 1994. - *A translator's note*.

Cushitic languages are spoken in Somalia, in Southern and Eastern Ethiopia (Cushitic languages are left only in a few villages in northern Ethiopia), on the western coast of the Red Sea (Sudan).

Chadic languages are Hausa and a number of minor ethnicities, south of Lake Chad (north of Cameroon, east of Nigeria, Republic of Chad). It's possible that these languages were spoken in Sahara and in those blessed times when it had not yet become a desert.

29—31. There are languages of other families to the south of Hamito-Semitic languages in Africa. There are arguments about the number of such families. The American scientist J. Greenberg unites these languages in three families: Nilo-Saharan (from the upper Nile to the west till the Republic of Mali), the Khoisan (Bushmen and Hottentot<sup>5</sup> languages) and the Niger-Congolese (the rest of a vast Africa's territory to sub-Saharan Africa). The last family includes Bantu group (southern half of Africa).

32—34. Apparently all the languages of Australia's native peoples form one family. Languages of Papuans of New Guinea are very poorly understood and do not have a genetic classification yet. The languages of American Indians are divided into many linguistic families.

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<sup>5</sup> The word "Hottentot" is now considered derogatory. The accepted ethnonym is Khoikhoi. – *A translator's note.*

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**Languages of Africa and the blizzard argument**

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a KUSHITIAN man



a BERBERIAN girl



descendant of the Ancient Egyptians



an Arab



These girls speak a Chadic language

Illustrated by A. Morozov.

\* Znanie-Sila (Knowledge Is Power), #7, 1969, pp. 26-28

...Thursday, 16 of August, Nikolay Ivanovitch woke up at 6:40. He ate meat salad with tomatoes and a cucumber for breakfast, drank a cup of coffee with sandwich, and then, after breakfast, smoked a cigarette.

Have you ever thought that we live inside the world history? For the simple events of Nikolay Ivanovitch's breakfast to happen and for the two sentences you've just read to be written, at least twenty great civilizations of past and present had to exist. Let's count:

1) and 2) Sumerian and Assyro-Babylonian civilizations: they introduced the division of day into 12 hours and of hour into 60 minutes. Their astral religion (worship of Sun, Moon and the five planets) is at the base of the seven-day week. Without Sumerians and Babylonians we wouldn't have "6:40", nor would we have Thursday.

3) Greek civilization, from which the name Nikolay (Nicholas) comes.

4) Roman culture: our calendar has Roman origins, and the month of August had been named for the emperor Octavian Augustus.

5) Ancient civilization of Canaan (3<sup>rd</sup>-2<sup>nd</sup> millennia B.C.) and the Phoenician civilization, descended from it (2<sup>nd</sup>-1<sup>st</sup> millennia B.C.) - had these not been existing, those sentences would have not been written with letters (maybe they could be written some other way). Russian and English (as well as Latin, Greek, Arabic and almost all alphabetic) scripts descend from the Canaanite-Phoenician writing system. Even now the letter R (Russian Р) retains a likeness to a head (Canaanite re'š), D (Russian Д) — to a tent door (Canaanite dalt), and O — to an eye (Canaanite ʕajn).

6) Israelite civilization of the 1<sup>st</sup> millennium B.C.: it is the origin of the name Yəhōḥānān, "Yahweh is gracious", from which the Greek Ioannes and Russian Ivan descend. This name became popular throughout Europe through a random circumstance: it was born by John the Baptist, one of the first preachers of the sect that later became known as Christianity.

7) Christian civilization – the great intermediary and disseminator. If not for the Christianity, among other things, names Nikolay and Ivan would not achieve popularity, and neither would the seven-day Sumero-Babylonian week become used everywhere.



8) Indo-European civilization (possibly 6<sup>th</sup>-4<sup>th</sup> millennia B.C.): most words and flections in those phrases are of Indo-European origins: Thursday ("четверг") derives from the Indo-European k<sup>w</sup>etwor, "four", ate – from the root ed "to eat" and so on. The Russian manner of linguistic thinking is Indo-European, too: in "After breakfast he smoked" the action (to eat in the morning) is denoted with a noun. This manner of objectifying actions and qualities (of, so to speak, settling the world with non-existent objects: length, flight, whiteness) is common with Indo-Europeans and some other nations, but is unknown to many, e.g., Native American peoples.

9) Paleo-European peoples – the mysterious peoples of Europe that lived there before the Indo-Europeans' arrival (from Asia Minor through Balkans and Danube basin. Some of Paleo-European peoples of Northern Europe were vastly different in their anthropological type from other peoples of the world: they were fair-haired people with blue or grey eyes, many of them (in the Eastern Europe) had inverted nasal spine. In our time these racial types (so-called "Atlanto-Baltic" and "White Sea-Baltic") are common in Englishmen, Germans, Scandinavians, Lithuanians, Letts, Slavs and Finno-Ugric peoples (the latter have mixed White Sea-Baltic and Northern Asian Mongoloid types). So our Nikolay Ivanovitch, especially if he is blond-haired or blue-eyed, has traces of the Paleo-Europeans in his genes. Their languages did not survive, but their cultural influence on our civilization is unquestionable: cucumbers, cabbage, rye and many other things are the heritage for the modern peoples from those ancient peoples of Europe. As you can see, the breakfast menu also has one or two things from the Paleo-European heritage.

10) Slavic civilization. It was the melting pot in which the Indo-European roots and flections assumed their new form together with the Paleo-European additions.

11) Traditional Russian civilization that existed in the pre-Peter Russia. Its heritage appears, for example, in the polite naming of people with patronymics (Nikolay Ivanovitch), as well as many subtle details and nuances that distinguish his manners and behavior from those of Northern Europeans. For example, the sandwich in the hands of our hero is thicker than an English sandwich: in Russia, we are used to eating more bread.

12) Modern common-European urban civilization, including the civilization of Russian cities. Nikolay Ivanovitch is one of its members, as are we all. Because of it, his breakfast itself (sandwich, coffee, salad), the fork in his hand, the chair he's sitting on, and all his environment (for example, telling time by clock, not by roosters) – all of these are the features of the common-European urban civilization. The breakfast in the style of different culture would look vastly different, like in a traditional Russian folk song: "...The room is full of children, they all sit on benches, eating porridge with butter. Porridge is buttered, spoon is painted..."

And that by no means is not all. Nikolay Ivanovitch's breakfast and our two phrases were influenced by the ancient Egyptians (they invented butter, and the Egyptian name for papyrus is contained in the word "papiroso" (cigarette); by the Cushites of Eastern Africa (coffee and the word "coffee"); by Indians (sugar in the coffee cup, numerals in our sentence); by Arabs (they brought the "Arabic" numerals from India to Europe); by Chinese (the cup is made from porcelain, and the cigarette – from paper); by Native Americans (tomatoes, tobacco); by Germans (the origin of the word "butterbrot" – sandwich); by Italians (they began to grow the American *tomatl*, and gave him the poetic name *pomi d'oro* ("golden apples")); by Provencals and French (the Provencal national dish *salada*, meaning "pickle" suited the Frenchmen's taste, and they distributed *salade* throughout Europe). Admittedly, the French people at the time of Rabelais thought of salad rather peculiarly. A 16<sup>th</sup> century proverb<sup>1</sup> says: "Qui vin ne boit après salade est en danger d'estre malade" – "He who doesn't drink wine after salad, risks falling ill"...

We live inside history. Every step we take, every gesture, every word, every smile is a historically developed mixture of traditions, languages, customs and civilizations from various eras and continents. The interest in history of civilizations is perfectly understandable, and when trying to unravel the mysteries of the origins of peoples, languages play a large part. This rather drawn out preamble was needed to tell about the linguists' attempt at figuring out one such mystery.

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1 This sentence is attributed to a "Leroux de Liney, a 16<sup>th</sup> century poet" in the original text. We could not find such a person; the proverb is also attributed to the poet Antoine Le Roux de Lincy, but he lived in the 19<sup>th</sup> century. – *Translator's note.*

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There was once upon a time a super ancient pastoral people. Its descendants – ancient Egyptians, Cushites, Semites – gave to the world the great culture of pyramids, laws of Hammurabi, Bible and Quran, the Hanging Gardens of Babylon, the cultures of coffee tree and date palm. The languages of Semites, Egyptians, Berbers, Cushites are related, meaning that they have common Afro-Asiatic origin. It means that there was a people that spoke the Proto-Afro-Asiatic language. But where did those people live, in what country or even continent? It is still a mystery. The historians cannot tell us. Could linguists help?

Very recently linguists have learned to see rather deep into history. Many words and roots can be traced for more than 10 000 years – probably up to the retreat of the last glaciation<sup>2</sup>.

Could these ancient words help to decipher the secret of Afro-Asiatic peoples? Could they suggest a new hypothesis to the historians? The prospect of using the language as a historical source is very enticing.

### From Africa or Asia?

Thus, we concern the Afro-Asiatic language family. There are five language groups in it:

1. Ancient Egyptian. Since 1822, when Jean-François Champollion published his famous "Lettre à M. Dacier", a great number of sources has been read: papyri, books of the dead, inscriptions on obelisks, temples and tombs. Today scientists know the Ancient Egyptian language so well that even the 5-volume dictionary by Erman and Grapow does not include all the words known. The Coptic language descended from Egyptian, and was spoken until the 7<sup>th</sup>-8<sup>th</sup> centuries A.D. After the conquest of Egypt by Arabs it started to be forced out by Arabic. By the 16<sup>th</sup> century it was extinct as a spoken language, but it survives to this day as the language of Christian liturgical service in Egypt.

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2 See more on that in article No. 3.

2. The Semitic group. In antiquity, Semitic languages were spoken by the peoples of South-Western Asia: on the banks of Tigris and Euphrates by Babylonians and Assyrians; to the West – by Aramaeans; in the Mediterranean – by Ugaritans, Phoenicians, Israelites; to the South – by Arabs and ancient South Arabians. 25 centuries ago the South Arabian Semites crossed the “Gates of Weeping” (Bab el Mandeb) strait and conquered the coast of modern Ethiopia, the northern half of that African country also speaks Semitic languages.

3. Berber languages were formerly spoken by all Northern Africa to the west of Egypt and up to the Atlantic coast. After the arrival in the 7<sup>th</sup>-8<sup>th</sup> centuries of the armies of Arabian caliphs and Islam, the Berber language starts to lose its ground. Now Berber speech is still heard in mountain areas of Morocco, in the depths of Algeria and in some oases. The Tuareg of Central Sahara have it left mostly intact.

4. Cushitic languages are spoken in the part of the continent which is called in English the Horn of Africa: in Somalia and Southern Ethiopia.

5. Chadic languages are spread in the Chad lake region, to the south of Sahara. Hausa, Kotoko, Musgum and other Chadic peoples live in northern Nigeria and Cameroon, as well as in western Chad Republic.

Thus, the Afro-Asiatic language family is now placed in South-Western Asia and Northern Africa. These languages are related, which means that they all descend from one ancestor language. So where did the people who spoke this Proto-Afro-Asiatic language live, in Africa or in Asia?

Scientists are divided in solving this problem. Proponents of the Asian hypothesis usually cite this fact: amongst all Afro-Asiatic linguistic branches the Semitic one has kept more ancient roots, grammatical forms and sounds than any other. Which of the five branches has ancient declensional endings? The Semitic one. In which languages all the guttural sounds, laryngeals, survived? In Semitic and Old Egyptian. But the Ancient Egyptians had already lost the primordial conjugational system, while the Semites preserved it. In short, if a competition was held amongst all the branches of Afro-Asiatic language family, the title of “Miss Antiquity” would be given to the Semitic branch by judges. Miss Antiquity lives in Asia, thus the ancestral land of Afro-Asiatic family is in Asia.

Is it convincing? Not really. The languages can be archaic, but must the ancestral land of a people always be the same place where this people live now? History has plenty of occasions when a people moved many thousand miles without changing its language. Ancient Turks had traveled from Yenisei and Xingjian to Turkey, but their language survived the journey relatively intact, so even now the Turkish language in Asia Minor and Balkans is very similar to Turkic languages of Siberia, Kazakhstan or Central Asia. Distance is not a threat to a language.

Meanwhile, the proponents of the African ancestral land have a different argument: of all five branches only one is linked to Asia, and the other four to Africa. Isn't it simpler to suggest that one branch moved from Africa to Asia, than to think that four different Afro-Asiatic peoples, out of their own volition, moved to Africa? Yes, it is simpler. But simplicity, in this case (and generally when dealing with historical problems), is not a proof. One should remember, when having this discussion, a curious phenomenon that could be called "beaten paths of migration". Indeed, in some regions of the Earth tribes and whole peoples migrated in certain "favorite" ways, one wave after the other, lasting thousands of years, sometimes in one direction, sometimes in both. It is, for example, the long-suffering Steppe Belt – Mongolia, Kazakhstan, Southern Russia, Ukraine. Scythians and Huns, Hungarians and Pechenegs, Polovtsians and Volga Bulgars, and Mongolians traveled it. Even in the 17<sup>th</sup> century Kalmyks used it to move from Mongolia to Volga. The Red Sea region also was a well-trodden path in ancient times. It connected Africa to Asia. In 18<sup>th</sup>-17<sup>th</sup> centuries B.C. the Hyksos came from Asia to the West, to Egypt, to be assimilated by the Egyptians later; in the middle of the 1<sup>st</sup> millennium B.C. South Arabians moved to Northern Ethiopia; in the 7<sup>th</sup> century A.D. the Arabs – to Egypt, and in the next centuries, wave after wave of Bedouin tribes and other Arabs came to Egypt, Eastern Sudan, Libya, Algeria, Tunis, Morocco... So maybe several waves of migrations happened here in the ancient times, too?

Thus, we see that both sides' arguments are not very strong. Now is the time to turn to comparative linguistics. Which languages are related to the Afro-Asiatic family? The great macro-family ("Borean" or "Nostratic") that contains Afro-Asiatic languages also includes Kartvelian languages (Georgian and others in Asia), Finno-Ugric languages (between Europe and Asia), Turkic languages

(Asia), Indo-European languages (once from Asia Minor)... So, all the relatives of Afro-Asians either used to live in Asia or live there now. That means that Afro-Asiatic languages themselves must have come from Asia.

The mental step is convincing, isn't it? But does it bring us to the final solution?

We cannot exclude from our list of ways of ancient migrations the one where one of the dialects of the Borean language moved from Asia to Africa. There, somewhere on the Nile or in the flourishing Sahara, this dialect had developed into the Afro-Asiatic language, then split into five branches, one of which moved back to Western Asia. Complex? Of course. But possible, and thus cannot be rejected straightaway.

So how can we determine where did these mysterious people live – in Africa or some other place?

### **The blizzard argument**

If the ancient Afro-Asians lived in Africa, their language only should contain words that are consistent with African climate. There should never have been words meaning “ice”, “blizzard”, “frost”. Let's see if it is true.

Take the Borean roots meaning something snowy or icy. What happened to them in the Afro-Asiatic family?

Let's start with the root *burə* “blizzard”. This Borean root is known to any Russian speaker, and what's more, in three different forms – Finno-Ugric, Turkic-Mongolian and Slavic (Indo-European). It is known even to those who never learned Finnish or Mongolian, as every form of the root came to the Russian language.

The first form is Finno-Ugric. In Proto-Finno-Ugric, ancient initial voiced consonants became voiceless, and our root started to look like *pur*. This *pur* with the suffix -k- is contained in the Finnish word *purku* “blizzard”, and in languages of Karelians and Vepsians the same word sounds like *purku*, *purgu*, *purg*. Of course, any Russian speaker can recognize the word *purga*, which comes from Karelian or Veps.

In Old Mongolian the same root, but with the suffix -gan- is contained in the word *borugan* “blizzard”. From Mongolians the word came to Turks (*buragan*, and later in Turkic and Tatar – *buran*). The Russian word *buran* comes from Tatar or some other Turkic language.

We have also a proper Slavic, Indo-European word of the same root – *burya* “storm”. However, its meaning in Indo-European has changed – it’s not “wind with snow” anymore, only “strong wind”. If you think about it, it’s not surprising. Once, Indo-Europeans lived in relatively warm regions: the newest suggestions are that Common Indo-European was spoken long ago in Asia Minor, and then in the Balkans and Central Europe, from where the Indo-European family spread through gigantic territories from Ireland to India. So, Asia Minor. Technically, there are snowstorms (blizzards) there, especially in mountain regions, but in the western and southern parts the climate is warmer and the concept of blizzard should not be essential to the point of making a special word for it.

Let us now see what happened to the root in Afro-Asiatic languages. Have they retained the memory of ice crystals falling from the sky? It turns out, they have. In the language of the Berber people called Shilha, who live in the Atlas Mountains in Morocco, this root (in the form of *brur*) means rime (small hail). It could not be borrowed, because no peoples of Borean language family had existed anywhere in North-Western Africa (and Southern Spain) before Berbers. Thus, we can only assume that the root came from Common (Proto) Afro-Asiatic. If we compare the facts in different Afro-Asiatic languages, we come to the conclusion that in Common Afro-Asiatic the root *bur* should have the meaning of either wind with snow or wind with hail. Strong wind with hail could only exist in two regions that are known to have been settled by Afro-Asiatic peoples in historical times. It is either Western Asia or the mountains of North-Western Africa. Let’s remember this and go over to the other roots.

### Did the hoarfrost melt?

The Borean root *kirə* meant “hoarfrost, rime, frozen surface”. It is known in our Indo-European languages.

Let’s check if it retained its meaning in Afro-Asiatic languages. Yes! There it is in Semitic languages: Proto-Semitic *qarxu* meant “ice, frost”, it survived as an Assyro-Babylonian word *qarxu* “ice, frost”, and in Hebrew קָרַח (*qerach*), which means the same thing. The Semitic verb, the root of which consisted from the consonants q-r-s (from where come Arabic q-r-s, Aramaic and Syriac q-r-s), was used when speaking about water and meant “to freeze, to cover with ice”. If this root would have been to Africa before coming to Western Asia, it could not have retain this meaning.

### What about the ice?

We see the same picture with the Borean root *gelə* – “ice, ice crust”. Fully complying to the rules of historical phonetics, the same root in Indo-European looks like *ghel*, from where comes, among others, the Ukranian word *ozheled* “ice crust on trees, rain with snow”. In the Old Slavonic the word *zhledica* meant “black ice”, and *golot*’ meant “ice”. The same root can be found in Ancient Greek *chálaza* “hail”, and possibly in Latin *glacies* “ice”. It also exists in Finno-Ugric languages.

This root also turns out to retain its non-African meaning in Semitic languages: the Arabic word جليد (*jalid*) means “ice”, the corresponding Syrian word is *galído* – “hoarfrost”. When linguists deciphered the alphabet and language of the trade city of Ugarite (which was situated at the Syrian coast of the Mediterranean and destroyed in 1200 B. C.), it turned out that in this Ugarite language, too, the word written as *glθ* means “ice”.

Again, we see a root that could not come from Africa.



### **Crocodiles not found**

Let us now look at the problem from the other side. If this ancient people nevertheless lived in Africa, there should be words in its language that mean crocodile, elephant, giraffe, monkey and other animals indigenous to Africa.

But in comparing different African branches of Afro-Asiatic languages, linguists have not yet found a single Afro-Asiatic name for specifically African animals.

Egyptians and Cushites often used ancient roots to denote African animals. Egyptians called crocodiles *sbk*, from Afro-Asiatic *s-b-k*, which initially meant, it seems, a big fish. The Saho Cushites in North-Eastern Ethiopia called crocodiles *ilma*, which earlier meant (and still means now in other Cushitic languages) “big snake”. This is of no surprise. We, the Europeans, when meeting a new animal, also use old words known to us: we speak about sea lions, sea cows, hippopotami (which means “river horse” in Old Greek).

So, what do we have? There were words in Common (Proto) Afro-Asiatic that meant blizzard and ice, but, it seems, there were no words denoting crocodiles and elephants. We only can assume that ancient Afro-Asians lived in Asia.

By the way, this conclusion is pretty consistent with anthropological data. Out of five branches of Afro-Asiatic peoples three – Berbers, Egyptians and Semites – are of Southern European race, mostly of Indo-Mediterranean type. They are light-skinned dark-haired people with thin noses, thin or average lips, their beards grow well, their hair is wavy or straight, their skulls are mostly long (dolichocephaly). It is interesting that peoples of Western Asia that speak other, non-Afro-Asiatic languages, are of the same race and mostly the same type (Persians, Kurds, Azarbaijanians, Sumerians) or the types very close to it (Armenians, peoples of Caucasus, Turks). And that points to blood relations.

As for Cushite, their anthropological type (so-called Ethiopian) is of mixed Southern European / Negroidal descent. Chadic peoples also are of mixed descent (Negroids with prominent admixture of Southern Europeans).

So, the anthropological conclusions are the same as the linguistic ones.

Does it mean that the problem is solved once and for all? The historical study of this language group (especially of Cushitic, Berber, Chadic languages) is only beginning.<sup>3</sup> Who knows, what new facts we will learn tomorrow, after thoroughly

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3 We should not neglect mentioning the comprehensive path-breaking research of A. Dolgopolsky published only 4 years later: "Comperative Historical Phonology of the Cushitic Languages (in Russian), Moscow 1973 (publ. Nauka; 398pp). *Editor Tsippi Fleischer-Dolgopolsky's note.*

studying the origins and history of grammar of all languages from this vast family and of the languages of its neighbours? There are other, not yet used sources of information: studying ancient toponymy (especially names of rivers, lakes and dried-up basins), historical analysis of ethnographical data, archeology, after all. Only when all data is compiled and summarized, we will know if our solution to the problem is the right one.

But one thing is clear even now: when recreating the past life of the humanity, ancient pre-writing history of peoples, races and tribes, science must rely not only on pieces of broken crockery and Cro-Magnon skulls, but also on frail and immaterial monuments of the millennia past – words.

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**Alexander Militarev**, Moscow, January 2021

Aharon Dolgopolsky's book "Comparative Historical Phonology of the Cushitic languages" (1973) paved the way to – and marked the beginning of – a new stage in Afroasiatic studies based on the strict application of the comparative-historical method to immense material of African Afroasiatic languages. A. Dolgopolsky's book on the Cushitic languages (1973) inspired Igor Diakonoff to initiate a project of comparative and historical Afrasian (the term coined by A. Dolgopolsky) dictionary and gave a strong boost to comparative Afroasiatic studies in general.

For many years Aharon B. Dolgopolsky was at the forefront of these studies, which led to the hear-unanimous recognition by the scientific community of the Afroasiatic/Afrasian macrofamily – the only uncontestable one by now. His grandiose Nostratic Dictionary introduced huge lexical Afroasiatic data into scientific use.

As for the sophisticated dilemma of the Afroasiatic original homeland, there are still two polar positions on the subject: it was West Asia, the hypothesis expressed by A. Dolgopolsky (and being developed by A. Militarev) and East or North Africa (declared by several Africanists).

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## Why don't we call the cat "a cat"?

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Our journal decided to have a small symposium on the subject taken from a folk tale<sup>1</sup>. We wanted to know why the cat was called a cat, and so invited to the feast (resembling a “symposium”) several specialists that in one way or another study how words move in space and time.

The guests are: a young Polyglot, a Classical Philologist (who knows perfectly every work of every Latin and Greek author, B.C. or A.D.), a Biologist, an Archaeologist, a Cultural Historian, and several linguists: an Etymologist (presiding), a Slavacist, an Orientalist, an Africanist and an Egyptologist.

**Polyglot:** — Allow me to bring the honorary assembly’s attention to the fact that the names of cat are almost the same in different languages of Europe. In Slavic languages we can find Old Slavonic *kot’ka*, Russian, Polish and Czech *kot*, Ukranian *kit*. Germanic languages have: Danish *kat*, Swedish *katt*, German *katze*, English *cat*. The same picture is with Celts (Old Irish *katt*) and with Romance peoples: Spanish *gato*, Italian *gatto*. French *chat* is probably from the same source.

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\* Znanie-Sila (Knowledge Is Power), #12, 1973, pp. 35-36

<sup>1</sup> It is a part of a migratory subject appearing in various folk tales, including Mongolian and Indian, and known to the Russian reader from Samuil Marshak’s poem. In this instance, the married pair decides how to name their kitten by comparing different animals and natural events to each other and deciding finally that the cat is the strongest of them all. - *A Translator’s note*.

**Etymologist:**— You are very right, colleague. Latin *c* before *a* becomes *ch* in French. French *chat* undoubtedly comes from Latin *cattus* ‘cat’.

**Polyglot:**— Allow me to remind about the Greek *gata*.

**Classical Philologist:**— It's *gata* in Modern Greek. Byzantine literature had *katta*.

**Polyglot:**— Even better! We see a certain phonetic similarity. How can we explain it? It is plain to see that here we have a heritage of the ancient Proto-Indo-European language, the ancestor of every language we mentioned.

**Etymologist** (smiling condescendingly): — Young man! Let's not forget the laws of the phonetic development. Sounds that came from Proto-Indo-European changed in each of the European languages according to strict laws, for a long time known to science. For example, the sound that became *c* [*k*] in Latin and Greek always transformed to *h* in Germanic. Latin *cornu* (horn) corresponds to German and English *horn*, Latin root *cord-* and Greek *-kard* are related to *Herz* and *heart*.

But in German *Katze* and English *cat* the *k* stayed the same. Also, in Spanish and Italian we see *g* instead of *k*, which also means that the laws are broken. Your hypothesis doesn't explain these anomalies and thus cannot be accepted.

**Cultural Historian:** — Esteemed Polyglot, your hypothesis is not acceptable yet for another reason. My colleague, Archaeologist, can confirm that domesticated cat only appears in Europe in the 1<sup>st</sup> millennium A.D., thousands of years after the Indo-European languages had separated.

**Archaeologist:**— Indeed. Even in the Antiquity, until at least the 4<sup>th</sup> century A.D., there are no traces of domesticated cat in Europe. For example, in the Pompeii excavations under the layers of petrified ashes we have found the remains of horses, goats, cows, dogs, swine, but not even one domesticated cat.

**Biologist:** — It would be timely to mention that the domesticated cat in Europe is not a descendant of the European wildcat – *Felis silvestris* – but instead comes from an introduced species.

**Classical Philologist:** — There were no domesticated cats in Europe in the Antiquity. An Ancient Greek comical poem has a mouse describing how it is

most of all afraid of two animals – the hawk (*kirkos*) and weasel (*galéē*), but the weasel is scarier. Weasel, not cat. And what about that fable of Horace about a city mouse and a field mouse? The city mouse invited the field mouse to see the pleasures of the city life. They steal into the house, but suddenly they see a scary animal! Is it a cat? No, a dog! I think that in our culture or in any country where there are domesticated cats the fabulist would have mentioned a cat in this bit. Or another one: Greeks started children's tales with the words "Once upon a time there were a mouse and a weasel" instead of ours "a cat and a mouse".

**Polyglot:** — Pray, excuse me, but I clearly remember in Naples, in Museo Nazionale, a fresco from Pompeii (1<sup>st</sup> century A. D.) that depicted a cat. A cat in the 1<sup>st</sup> century A.D. How so?

**Archaeologist:** — But try to remember, please, what kind of cat it was and what it was doing?

**Polyglot:** — I think it was eating some bird. And yes, it did not really look like an ordinary cat to me.

**Archaeologist:** — That's because the fresco depicts a wild cat devouring a bird.

**Etymologist:** — All of you are right, friends, domesticated cat appears in Europe really late. But certainly there were wild cats? That means that the word "cat" or however it sounded back in the Proto-Indo-European could have meant a wild cat, and then later was transferred onto a domesticated species.

**Polyglot** (up in spirits): — It could very well be!

**Classical Philologist:** — Alas, it could not. If Latin *cattus* were of Indo-European descent, it would at least once appear in the extended collection of Latin literature we have starting from the 2<sup>nd</sup> century B. C.

Still, we cannot find this word anywhere: not in fiction, not in treatises on agriculture, animal farming, or history of nature. We never encounter it in innumerable Latin inscriptions of the time. It first appears only in texts from the 4<sup>th</sup> century A.D. onwards. The Greek literature also would tell us the word *katta* meaning a wild cat. But *katta* is used for the first time only in the Church History of Evagrius Scholasticus, a Byzantine writer (6<sup>th</sup> century A. D.), while depicting St. Simeon's childhood.

Once, when Simeon was still a boy, the citizens saw him walking through the street with a panther. He calmly led it by the collar and explained that "it is that *ailuros* which the rumor calls *katta*". In other words, he modestly tried to present a panther as a cat. But our interest lies not in the boy's heroics or his modesty, but in his peculiar manner of speech. Why are his sentences so complex? Why couldn't he just say "This is a cat"? It seems that at the time the domesticated cat was not yet a familiar animal, and its name has not yet obtained its citizenship in Literary Greek. There was another, more usual word – *ailuros*, which meant without distinction any small hunter of mice: weasels, martens, ermines, wild cats and new, domesticated cats, among others. That's why a simple phrase "that's a cat" had to be stated in such a complicated manner.

If the word appears in Latin and Greek so late, it cannot be a Proto-Indo-European one. Latin *cattus* and Greek *katta* are from another language.

**Polyglot** (somewhat disconcerted): — Well, I have to accept the defeat. It seems that the word came from the East. Indeed, cat is *qitt* in Arabic, *keci* in Turkish, *gädy* in Ossetian, *katu* in Armenian, *k'at'a* in Georgian, *ketu* in Avar, *gata* in Dargin, and so on.

**Etymologist:** — But from which language exactly could it come to Europe?

**Polyglot:** — Let's first find out where the cat was domesticated.

**Cultural Historian:** — First archaeological and literary evidence of domesticated cats belong to Egypt. There have been tens of thousands of cat mummies found there, as this animal was considered sacred.

**Polyglot:** — If Egypt is the proto-homeland of domestic cat, then the origin of the word must, too, be found in Egypt. From there it probably came to Europe through the Western Asia.

**Egyptologist:** — I am sorry to disappoint you, young man. Egyptian name for cat has nothing in common with the European one. It contained consonants *m*, *j* and *w*, and probably was read as *meow*. Several thousands of years ago cats meowed the same way as now.

**Orientalist:** — Respected Polyglot, you only use general listing of words from different languages. But languages exist not only in space, but also in time.

The question of "when" is not less important than the question of "where". Which eastern language has the first name for cat that is familiar to us? Syriac! Syriac language is a Semitic one. Starting roughly from the 3<sup>rd</sup> century A. D. it was spoken by the Christian population of Western Asia. Christian literature, as well as secular one, existed in this language until the 14<sup>th</sup>-16<sup>th</sup> centuries. Only in the last 600 years, as the local population gradually shifted to Arabic, it disappeared.

The first Syriac writing with the word *k'at'u* ("cat") to be properly dated is from the 6<sup>th</sup> century A. D. It means that the word appeared in Syriac simultaneously with Greek, or probably was borrowed from Greek into Syriac.

**Polyglot:** — So where then can we find the original source of the word "cat"?

**Africanist:** — Allow me to make my point. Domesticated cat comes from Africa, but there are no suitable words in the Eastern Africa, in Egypt. Maybe we can try to look for them in other African regions? I think that the root we're searching for can be found western to Egypt, in the land of Berbers. Now they live in separated communities amidst the Arabic-speaking population, which came to Northeastern Africa together with Islam, and their language is highly influenced by Arabic. But further in the south, in Sahara, the Arabic influence fades, and the Berbers living there (Tuaregs) speak a more pure Berber. So, in their language the word *tagda* "wild cat" survives (*ta-* is the feminine prefix, and the root *gd* with deep guttural *g* can be reconstructed to the Old Berber *qat*, which was the name for wild and, later, domesticated cats). Maybe the Latin *cattus* comes from this Berber word *qat*, as the Romans probably first met domesticated cats and the word for them in the Northern Africa, which they conquered by destroying Carthage. In Northeastern Libya both Arabs and Berbers still call the cat *cattus* – exactly like in Latin!

**Etymologist:** — I like your hypothesis. You know, it can even explain these strange fluctuations between *k* and *g* (*cattus* and *gattus*) that we see in later Latin writings and in Romance languages (Spanish *gato*, Italian *gatto*!) The Old Berber sound *q* really was occupying a sort of middle position between Latin *k* and *g*. It is not surprising then, that some Romans heard the sound *k* in the Berber word, while others thought it to be *g*. Hence, the fluctuations.

Let us sum up. Every fact we have can only be explained by one hypothesis:

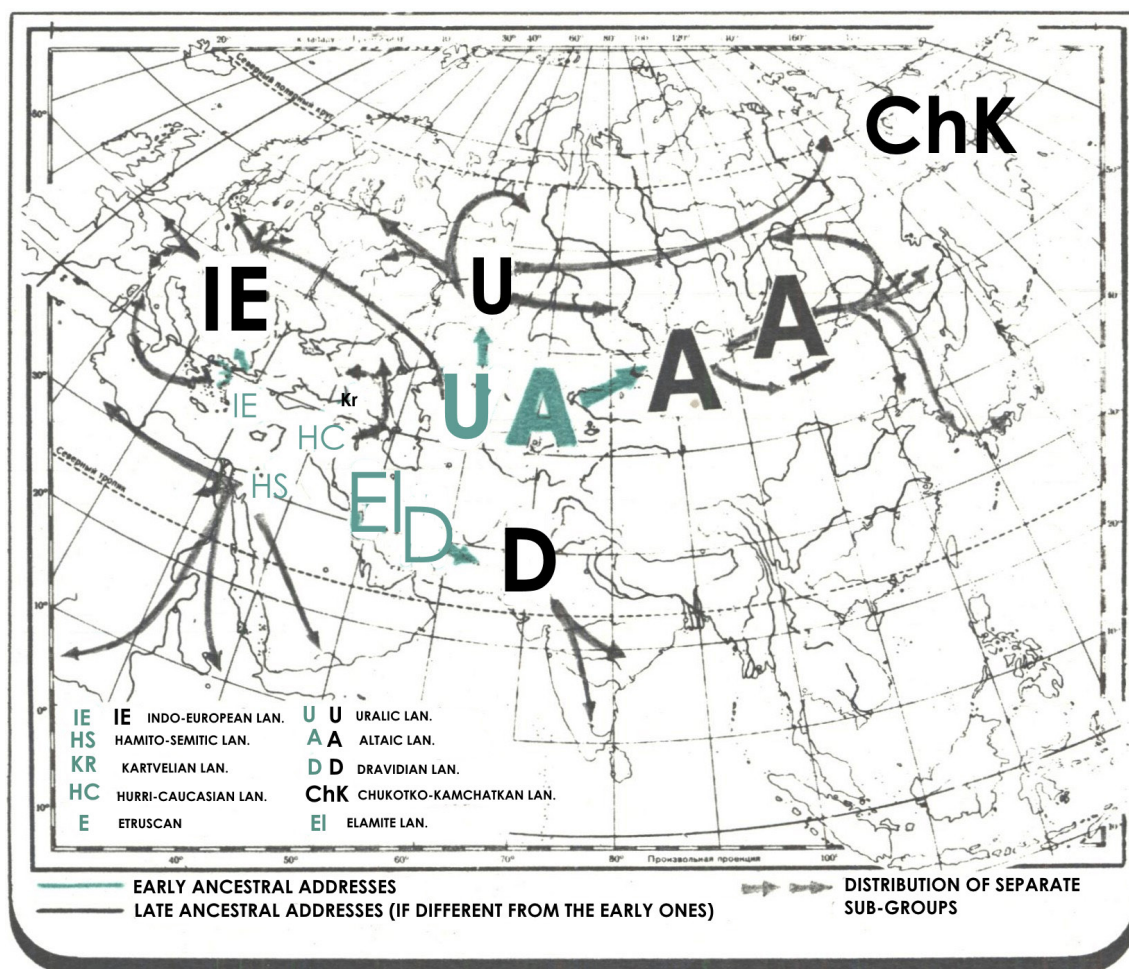
In the Northern Africa the Old Berber word *qat* meant “wild cat”, and then shifted to denote domesticated cats, too.

From Northern Africa this word came to Romans as *cattus* with a variant *gattus*. It happened in the 4<sup>th</sup> century A. D. or a little earlier.

It was loaned from them by the Byzantine Greeks, and then from the Greeks it came to the countries of Western Asia and Caucasus. Romans and Greeks gave the word for cat together with the cat itself to Germanic, Slavic, Celtic and other European peoples.



## Languages and the problem of ancestral land



**Ancient placing of the Nostratic languages  
and their further distribution.**

### What is Nostratic macrofamily

As we know, Russian, Ukrainian and Belarusian languages come from one ancestor – language of Ancient Russia, Old Russian. Old Russian is in turn related to Polish, Bulgarian, Czech, Serbo-Croatian and some other languages, so they all come from a common source – Proto-Slavic, language of ancient Slavs, which stayed unitary until the middle of the first millennium A.D. Proto-Slavic has a common ancestor with Baltic languages (Lithuanian, Latvian, Old Prussian), Latin (and its descendants – Romance languages), Proto-Germanic (ancestor of

\* Znanie-Sila (Knowledge Is Power), #6, 1975, pp. 15-19

German, English and Scandinavian languages), with Ancient Greek, Armenian, Iranian languages, with Ancient Indian and some other languages. That common ancestor of languages of Europe and some parts of Asia is called **Indo-European** (or **Proto-Indo-European**).

We have no written records left of this language, but the fact of Indo-European languages' kinship is a proof of its historical reality. By comparing words and roots of various Indo-European languages linguists have found out the rules of historical change of sounds in words (sound laws), in accordance to which words and roots of the ancestor language formed words now fill the pages of Latin, Ancient Greek, Sanskrit (Ancient Indian), Russian, German and other dictionaries. For example, the Indo-European numeral *\*k̑mtóm* “hundred” was a prototype of Latin *centum*, Sanskrit *śatam*, Gothic *hund*, German *hundert*, English *hundred*, Lithuanian *šimtas*, Russian *sto* and so on, and the Indo-European word *\*swékuros* “father-in-law” was an origin of Sanskrit *swásuras*, Greek *hekurós*, Albanian *vjehërr*, Latin *socer*, German *Schwäher*, Lithuanian *šėšuras* and Russian *svjókor*. And by knowing these sound laws, linguists acquire ability to make conclusions about the appearance of Proto-Indo-European language, its sounds, roots, words and grammar. So, linguists managed to penetrate up to about 8 thousands years in history.

But that was not the end of linguistic exploration of the past. During the recent decades the existence of even more ancient kinship of languages was strictly proved. As it turned out, Indo-European language itself has relatives – many other proto-languages of the Old World (and, of course, families which came from them), and also some isolated ones, which do not belong to Eurasian language families. All these languages are named by the term **Nostratic**.

Nostratic macrofamily unites the following language families: Indo-European, Semito-Hamitic (Semitic, Berber, Kushitic, Chadic languages and also Egyptian), Kartvelian, Dravidian, Uralic (Finno-Ugric, Samoyedic and Yukaghir languages), and also some language families and independent languages which are marked as Altaic languages: Turkic, Mongolian, Manchu-Tungus, Korean, Japanese, and, as it seems, Nivkh. Moreover, Etruscan, Elamite, Hurro-Caucasian language family (including Hurro-Urartian, Nakh-Dagestanian and Abkhaz-Adyghe languages) and Chukotko-Kamchatkan language family appear to show quite clear sings

of affiliation with Nostratic macrofamily. The kinship between Indo-European, Semito-Hamitic, Kartvelian, Dravidian, Uralic, Altaic languages now should be considered to be proved, because of establishment of sound laws, which describe the history of every sound on its way from the Proto-Nostratic ancestor language to previously named descendant languages. Discovering these laws is a credit of a remarkable Soviet linguist, V.M. Illych-Svitych (1934-1966).

Anybody interested in proofs of kinship of Nostratic languages, words comparison, history of separate roots and words and sound laws of Nostratic words change in descendant languages should refer to V.M. Illych-Svitych book "Opyt sravneniia nostraticheskikh iazykov" (v.1, Moscow, 1971) , and also to popular science articles. The most recent of these: an article by author of these lines in annual magazine "Nauka i chelovechestvo" for 1971-1972 years and an article by E.Helinski in "Znanie – sila", #10 for 1973

Here we will talk about another matter: **how should we reflect and understand the fact of Nostratic languages' kinship against the background of history of mankind?**

### Three questions

Linguists are asked the same questions every time they talk about the Nostratic languages' kinship:

- **When** did the nation or ethnicity that spoke the Proto-Nostratic ancestor language exist?
- **Where** was that language and that nation located?
- **How** could it be that one language appears to be the ancestor of almost all languages of a great area from Atlantic to Pacific oceans, from Arctic to India and Africa savannas?

Of course all these questions cannot be answered solely by linguistics, they need to be solved using archaeology, anthropology, ethnography...

Research on this problem has only just begun, and science is far from any definitive answers yet. But there are some considerations and assumptions, which we can express now. They are going to be the subject of this article.

## Languages and the ancestral home problem

### **Time on cultural history clock**

So, when? Perhaps our reader is waiting for an answer with an exact date – in some millennium B.C..

I am sorry to disappoint you, but we cannot specify any exact millennium yet: we still do not have a reliable method to measure millennia by means of language<sup>1</sup>.

The only thing we can do now is to use some other time measurement – not millennia, but cultural epochs. Archaeologists divide the history of culture into the following phases: Lower Paleolithic, Upper Paleolithic (its beginning is approximately simultaneous to appearance of modern human - Homo sapiens), Mesolithic, Neolithic, Eneolithic (Copper Age), Bronze Age, Iron Age.

We should notice that for various regions and nations the same astronomic time corresponds to different archaeological time: while some have already joined Eneolithic or Bronze Age, others were still in Mesolithic.

For every region of Earth we need a separate dating. According to British archaeologist J. Mellaart, in Anterior Asia the Mesolithic began by the turn of 11<sup>th</sup> millennium B.C., Neolithic – in the beginning of 9<sup>th</sup> millennium B.C., Copper Age – in the beginning of 6<sup>th</sup> millennium B.C., Bronze Age – in the beginning of 4<sup>th</sup> millennium B.C.<sup>2</sup>. So it seems that in Western Europe and Siberia the Neolithic began with a delay of 5-6 thousand years comparing to Anterior Asia. At least, this is what Soviet archaeologist P.M. Dolukhanov, who studied that matter, thinks.

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1 Those of our readers who already read the interesting article by E. Helimski in “Znanie – sila” #2, 1974 must be surprised: how about glottochronology, this “linguistic clock”? Unfortunately, this method is completely unsuitable for enormous periods of time which we are interested in.

2 Other archaeologists offer different dates, but the differences are usually within a thousand years.

## Epoch through the telescope of vocabulary

Let us try to take a glimpse at life of the Nostratic proto-language speaker. For that purpose we will use an etymological dictionary, where Proto-Nostratic words and their meanings are reconstructed<sup>3</sup>.

We definitely see an image of a primitive hunter. Here he follows the *trail* (**\*goki**) of an *animal* (**\*gujrä**), and when he *throws* (**\*vitsja** or **\*vitskA**) a spear or dart, he attempts to hit the *target* (**\*t'ap'A**) and he is afraid to *miss* (**\*mentA**) it. He hunts *antelope* (**\*gurχa**), *deer* (**\*'ili**), *boar* (**\*ʁorA**), *wild bulls* (we know names for two types of them: **\*p'ek'E** and **'chorA**), *wild ram* (**'uchA**).

Our hunter's knowledge in animals' anatomy included those organs and tissues of an animal that had household or culinary value. He knows *rib* (**\*k'ats'A**), *bone* in general (**\*"och'a**), *skull* (**\*k'ap'A**), a variety of *sinews* (**\*sonHE**, **\*SirA**, **\*"ark'u**), used for threads and ropes (and by his descendants – for strings). There was a special designation for *bone marrow* and *liver* (**\*maksA**), a specific term for *bile* (**\*pishA**). Of course, bile was especially important – as they had to know how to remove it in process of splitting a carcass in order not to spoil the taste of *meat* (**\*momsja** or **\*Homsja**).

The Nostratic proto-language speakers were fishers, too. They had several names for *fish*: **\*didgu**, **\*k'ola**. Their luxurious table was adorned by *caviar* (**\*t'urA**).

Except of hunting and fishing, ancient human were also gathering edible plants. They *gathered* (**\*k'Arp'A**) *berries* (**\*marA**) and some *grains* (named as **\*χit'nA**). They had a special term for *gathering wild plants* (**\*dzukE**).

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3 To transcribe certain sounds of Proto-Nostratic and some of its descendants using Latin alphabet, we had to invent **special orthography rules**. The apostrophe (') is used to denote the glottal stop (like in beginnings of German words before vowel), and a consonant letter with an apostrophe is a consonant sound with glottal stop (for example, Georgian k' in the word k'atsi "human"). The quotation mark (") will denote a voiced consonant that is created by the epiglottis not fully closed. We'll write the corresponding voiceless consonant, that sounds like a deep guttural kh, using the Greek letter χ. Other consonants with "more-back-than-usual" articulation are depicted in different ways: q and ʁ are back (uvular) k and g. In Arabic ʔ, ɖ, ʂ and ʐ are t, d, s and z pronounced with the body of tongue moved back. Letters ö and ü are read like in German, as well as ä, used to depict a more open e than the letter e. Uppercase letters are a confession of lack of knowledge. If we don't know whether it was k, q or g – we write K; if it is an unknown front vowel (i, e or ä) – we will write E. Another foreign letter we're using is θ. It denotes the same sound as th in the English word thin.

Words with meanings *to conjure, to treat* (\***arpa**) and words designating *spells, magic songs and other magic actions* (\***kiHA**, \***milA**, \***sjarnA**) indicate the nature of spiritual life.

In Table 1 you can see the transformation of Nostratic words in modern or recently existed languages.

**Table 1**

Meaning	Nostratic word	Some descendant words
To harvest (pick) fruits	k'ArpA	Latin <i>carpo</i> "I pick (fruits), harvest". English <i>harvest</i> . Georgian <i>k'rep</i> "to collect (fruits, flowers)".
A berry (blackberry?)	marA	Greek <i>moron</i> "blackberry, mulberry". Russian <i>moroshka</i> "cloudberry" (from Finno-Ugric languages). Finnish <i>marja</i> "berry". Evenki <i>moron go</i> "cloudberry".
Harvest of wild edible plants	DzukE	Old Mongolian <i>jügüri</i> "millet". Korean <i>chyk</i> "millet". Old Turkic <i>iegür</i> (from <i>jegür</i> ) "millet". Chuvash <i>sjagar</i> "bread". Estonian <i>sügis</i> "autumn". Dravidian <i>chuka</i> "harvest season".
To perform magic, to heal	arpa	Finnish <i>arpa</i> "lot, magician's stick", <i>arva</i> "tell fortune". Old Turkic <i>arba</i> "to perform magic, to tell fortunes". Hungarian <i>orvosh</i> "medic" (from Old Turkic <i>arbysh</i> "magician"). Hebrew <i>yirpa</i> "he will heal", <i>rophe</i> "medic".
To conjure, to sing (magical chants)	kiHA	Avestan <i>gâthâ</i> "religious hymn, magical chant". Lithuanian <i>giedoti</i> "to chant". Mansi <i>kej</i> "to shout incantations".
To pray, to conjure	milA	Russian <i>molit'</i> "to beg, to pray" «Lithuanian <i>melsti</i> "to beg, to pray" Hittite <i>mald-</i> "to pray" Old Mongolian <i>milaqja</i> "to bless, to consecrate"
Skull	k'ap'A	Latin <i>caput</i> "head" <i>captain</i> <i>capital</i> <i>cap</i> Sanskrit <i>kapāla</i> "skull" Svan <i>k'ak'äp</i> "skull" Arabic <i>qafan</i> "back of the head"

What can we take away after analyzing the Proto-Nostratic words? When, at which epoch did that language exist?

We definitely know one thing: the Common Nostratic language existed before Neolithic. Our reader possibly remembers from S. Arutunov's and A. Khazanov's article "What is Neolithic revolution?" ("Znanie – sila" #10, 1974), that Neolithic was a dramatic turn in society's life – with all the remarkable innovations as pastoralism and agriculture, pottery and others.

In the lists of known Proto-Nostratic roots (there is about a thousand of them now) there are no names for domestic animals, nor are there for cultivated plants, nor for any concepts which originated with agriculture or pastoralism ("to sow", "to plow", "to harness" and so on). And there are no names for clay pots.

Agricultural and pastoral words differ a lot in the Proto-Nostratic and Proto-Indo-European languages: in the Proto-Indo-European there are words for a heifer, a lamb, a millstone, and verbs with meaning to sow and to plow.

When you flip through a dictionary of Indo-European roots, you see life of herders, who know agriculture quite well, too. And Proto-Nostratic dictionary just gives us an image of a primitive hunter, fisher and gatherer.

So, it's not Neolithic yet. How about a more precise dating? Is it Mesolithic already, or the Ancient Stone Age – Paleolithic?

It is a bit hard to answer, partly because archaeologists haven't yet offered us a credible list of recognizable language concepts that appeared in Mesolithic.

And still we can understand by some indirect signs that it was not Mesolithic, but the very end of Upper Paleolithic - «final Paleolithic», as archaeologists say. We shall not look thoroughly at all the arguments, which led us to that point, we will consider only one. As it turns out to be, at the turn of Mesolithic and Neolithic one of descendants of Common (Proto) Nostratic – Proto-Semito-Hamitic – has already existed in Anterior Asia. And that it went quite far away from its Common Nostratic ancestor language. Meanwhile, in this area Mesolithic didn't last long – for two millenniums only, if not less. As we know from other languages' history, twenty centuries are not enough to accumulate such strong differences. More time is needed for that.

Other signs speak in favor of that theory. Archaeologists report that in this area bow and arrows appear not earlier than Mesolithic – and Proto-Nostratic vocabulary does not have names for bow and arrows. In the final table in Paleolithic dog domestication is not over yet, and in Nostratic language dog and wolf are named by the same word *\*k'ujne*.

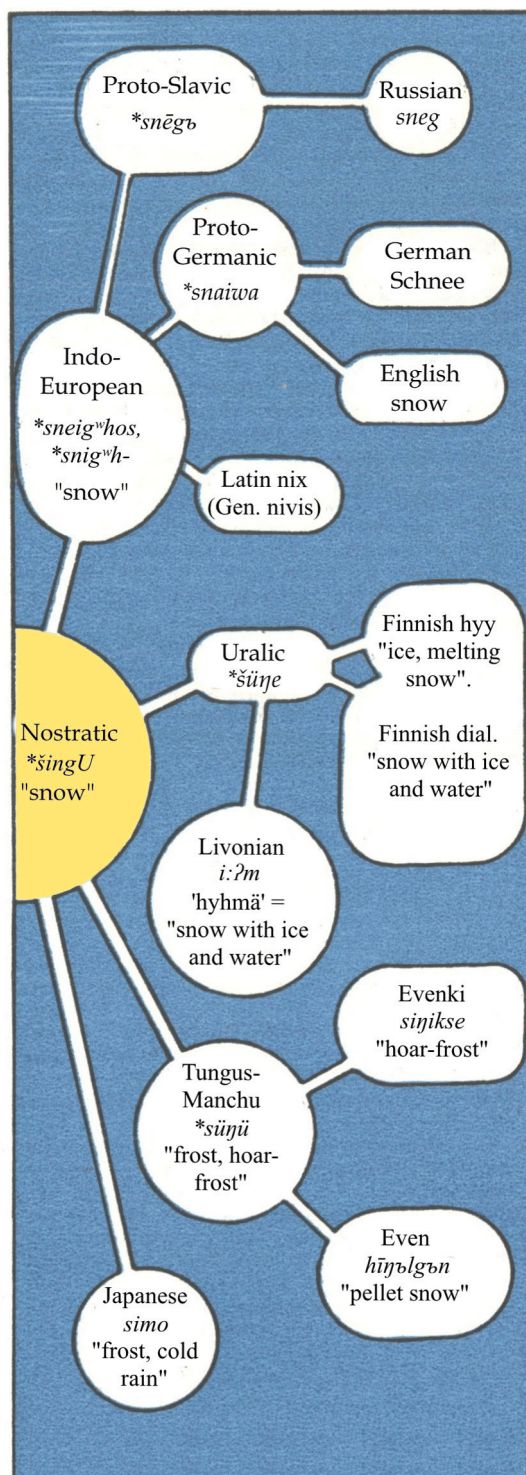
So it seems that Common (Proto) Nostratic belongs to the stage of history of culture known as Upper Paleolithic. As we have mentioned above, Mesolithic in Anterior Asia began in 11<sup>th</sup> millennium B.C.. Nostratic language had to divide before that. Still, it is yet unknown how long before. As the Polish language would express it, *kilkanaście tysięcy lat* – “severalteen” thousand years: that dating seems most likely to be true.

**Where?**

Now let us begin to search for the area, where the Proto-Nostratic language was spoken. In other words, as 19<sup>th</sup>-century linguists would say, we will search for the ancestral home. There are several sources of information; here are two of them which are most important:

1. Words from Common Nostratic vocabulary. If any proto-language has words for giraffes and hippos, it can not originate in Tundra, as no one knows about giraffes in Tundra. By studying Proto-Nostratic vocabulary we get to know which natural phenomena, animals, plants and other things were known on the required territory.

**Table 2**





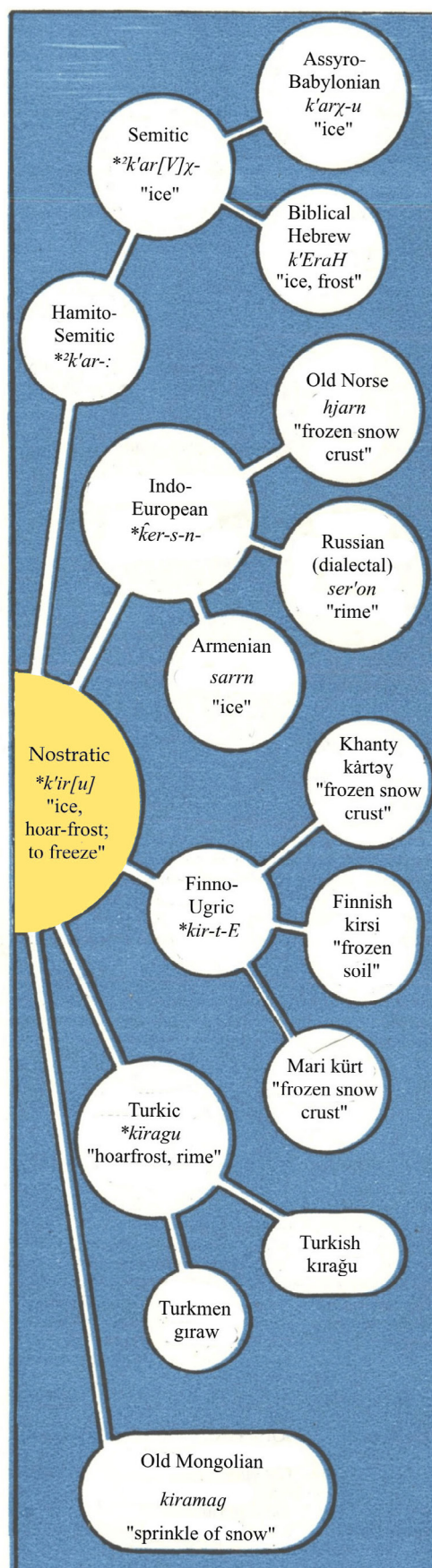
2. Geographical setting of descendant languages. For every descendant language (Proto-Indo-European, Proto-Uralic and others) we have to find out where is the most ancient area in which it was spoken. Of course, by “the most ancient” we mean only as far in the past as science can take us. And then we map these ancestral homes and make conclusions based on their position.

### Snow and hyenas

So, let's begin. Nostratic vocabulary is our primary information source. We find words with meaning "snow" (Table 2), "ice" (Table 3), "to freeze", "blizzard" in it. It means that speakers of that Nostratic language were familiar with snow, ice, etc. Therefore, we have to exclude tropical regions, like India, Indochina, Africa from Nostratic ancestral home candidates.

Here I anticipate a possible objection: "how is that! after all, snow and ice are known in Africa, for example in Algeria and Morocco, especially in Atlas mountains". Yes, they are. But let us think about it in some other way: most of Nostratic languages are situated in Asia. Assuming the ancestral home was in Africa, Turks' ancestors, Proto-Kartvelians, Proto-Uralic habitants had to get from Africa to Asia somehow. There were no

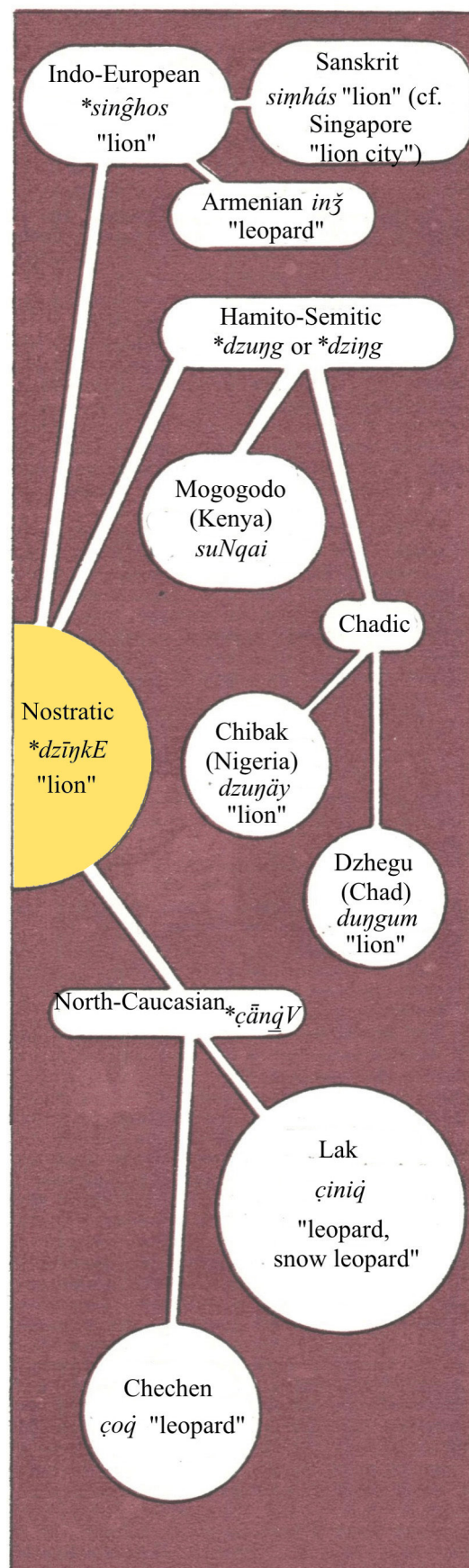
Table 3



ships and boats at that time, and the Suez isthmus is (and was during the discussed period) the only overland way from Africa to Asia. Even if the ancestral home was in Morocco, descendant languages had to move through the valley of the Nile and the Suez isthmus. And climate in that area is too warm for ice and snow, both nowadays and in past (at least since Upper Paleolithic). If the ancestral home's location was in Africa (even in Atlas mountains), the ancient words for snow and ice would have been lost during the movement of descendant languages through Egypt. And yet, they exist. It means that Africa can not be an ancestral home. Now we go further and try to narrow down the list of possible contenders.

Let's look through a list of Proto-Nostratic animals' denominations. Among them we find in particular **antelope, lion, leopard, hyena**. These animals are not known in the forest of middle Europe and Siberia (and they were not known during the considered millenniums). It is important to pay attention to hyena – it is known (now and in the past) in Africa and India (which are already excluded from candidates' list), and in other possible regions – in Anterior and Central Asia and in ancient China. Now we have narrowed the

Table 4



possible search. Let us try to narrow it even more, and consider plants. **Fig tree** is important among Common (Proto) Nostratic plant names. Wild fig trees grow in **Anterior Asia and southern part of Central Asia**. They also can be found on Southern Europe peninsulas – but unfortunately there are no hyenas. There is also a name for pistachio tree in the Proto-Nostratic language. It is known only in **Anterior Asia and south of Central Asia**.

So, only Anterior Asia (from Meditarrean Sea to India borders and from Caspian Sea to Arabian Sea) and south of Central Asia (that is Turkmenistan and flat part of Uzbekistan) meet all the criteria. We have to continue the search of Nostratic ancestral home within this area.

### **Address book of the descendant languages**

<b>Language</b>	<b>Late ancestral home</b>	<b>Early ancestral home</b>
Indo-European	Balkan Peninsula	Asia Minor
Tyrsenian (Etruscan)	East of Asia Minor or neighbouring islands	Somewhere in Asia Minor
Kartvelian	Transcaucasia	Transcaucasia
Hurrian-Caucasian	Armenian Highlands, North-West of Iran, Azerbaijan	North of the Western Asia
Hamito-Semitic	West of the Western Asia	West of the Western Asia
Elamite	South-West of Iran	Some region of Iran
Dravidian	North-West of Hindustan (Pakistan)	Some region of Iran
Uralic	Urals or Transurals	Middle Asia (Aral Sea region?)
Altaic	Steppes of Southern Siberia and Mongolia (later also Manchuria)	Middle Asia
Chukotko-Kamchatkan	North-Eastern Asia	?

### Brief comments on the address book

It's a pity that one article is not enough to describe how late and early addresses had been set for descendant languages. Every line of the address book should have a separate big article dedicated to it.

Here we will only tell briefly that the late ancestral home (on the eve of division into descendant languages) of each proto-language is determined by methods that are already familiar to us: analysis of the proto-language words and study of the geographical spread of descendant languages.

We would need other sources of information to search for earlier ancestral home. For example, archaeologists have revealed that the ancient culture corresponding to the Proto-Uralic language came to Ural from south, from the Aral Sea region. Proto-Uralic vocabulary confirms that. For example, Proto-Uralic name for a *moose* (tevä) came from ancient designation of a *camel* (täbä, as it is preserved in Turkic), and Uralic names for bird cherry, ermine, hazel grouse, ski and other plants, animals and everyday items typical for Ural and Trans-Ural forests turned out to be borrowings from some local languages.

In order to find the address of the proto-language, we need to know the words that came to it from other languages. Here are two examples.

Apparently, in Proto-Indo-European there were a lot of borrowings from ancient Semitic languages (Indo-European words *cenm* “seven”, *hacmep* “star”, *mapoc* “bull”, *вейно* “wine” and some others). It means that ancient Indo-Europeans and Semites were neighbors. This consideration, together with archaeological and other sources of information, highlights the address of the most ancient Indo-Europeans: Anterior Asia.

Here is another example. In ancient Altaic languages there are many words from languages of eastern and northern Anterior Asia parts: from Elamite (*кик* “sky” > Turkic *кек* “sky”), Sumerian (*дингур* “god” > Turkic *тенгури*; *тенгри* “god”, “sky”, Mongolian *тенгри* “sky”) and so on.

This fact, with many others (for example, the results of anthropological analysis of ancient Southern Siberia and Western Mongolia inhabitants' skulls, who

apparently were Caucasians — immigrants from the West) leads us to assume that Altaic languages speakers used to live somewhere near Anterior Asia, in particular, in Central Asia.

### **What do the map and address book show**

So, according to the map and the address book, in ancient time almost all the branches of Nostratic language tree are found either in the Near East (Asia Minor, Iran, Middle East) or in the immediate area (Transcaucasia, Central Asia).

How could that be explained? The only reasonable explanation: the ancestral home was approximately in that area. Any other address of the Nostratic ancestral home (Italy or Korea, for example) is not suitable: we would have to look for some magical power that made all the descendant nations move in one direction - to Anterior and Central Asia. So we accept Anterior Asia as the location of ancestral home as a working hypothesis, unless such magical power is found.

### **Language and Neolithic Revolution.**

And, finally, the third question: why?

How did it happen that one language turned out to be the ancestor of almost all languages of Eurasia (and also parts of Africa in addition)? We would need a serious historical reason for such phenomenon.

And there is such a reason. Its name is "the Neolithic revolution". The Neolithic revolution, which brought farming, animal husbandry, improved tools and ways of hunting and fishing. All these provided people with more reliable and abundant sources of food and caused a strong population growth - "the first demographic explosion" as experts of primitive history often say. Hence, the need for migrations and resettlements appeared.

Obviously, people migrated to other territories - from areas where the Neolithic revolution did already occur to other areas where population density was much lower, inhabited by backward Mesolithic hunters and gatherers only.

As mentioned above, Anterior Asia experienced the Neolithic revolution several millennia earlier than other territories. This explains the settlement of the Neolithic tribes from Anterior Asia in different directions: to the northwest to Europe, to the southwest to Africa, to the east to India, to the north and northeast to the Middle and North Asia.

Of course, moving tribes mixed with ancient inhabitants of areas where they arrived. And in many cases was observed even a "relay race of languages and cultures": Neolithic culture and related languages were transmitted not only from ancestors to descendants, but also "simply" from neighbors to neighbors.

Hence there is a rather huge anthropological diversity among the current "native" speakers of Nostratic languages: in addition to the southern Caucasians (common for Anterior Asia), these languages are spoken also by mixed Caucasian-Negroid nations of Ethiopia, Northern Nigeria and others, and black population of South India, and blue-eyed blond people in Northern Europe, and Mongoloids of Siberia, Mongolia, Korea and Japan.

“But how could it be?”, you may ask. "The Proto-Nostratic language has just been associated with the end of the Paleolithic and suddenly - Neolithic?! It's a contradiction!"

There is no contradiction<sup>4</sup>. The history of Nostratic language tree through the ages can be represented this way:

**Final Paleolithic.** Nostratic language is united, and its native speakers live in some area in Anterior Asia. We do not know yet where, exactly.

**Mesolithic.** The Nostratic language falls apart into a number of related descendant languages that spread to different parts of Anterior Asia and possibly also penetrate to the south of Central Asia.

**Neolithic and later epochs.** Descendant languages are widely disseminated over the expanses of the Old World: Indo-European languages cover almost the whole of Europe, some Semito-Hamitic languages penetrate to the northern half of Africa, Dravidian occupies a significant part of India.

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<sup>4</sup> We should mention that Neolithic Revolution was a prolonged process. Despite its name, it started as far back as in Mesolithic, if not at the end of Paleolithic.

That language, from which Uralic languages were developed, comes to Urals and Trans-Urals, and from there its descendants spread throughout Eastern Europe and Western Siberia. The oldest Altaic languages together with the immigration waves of Caucasian population (Afanasevo and Andronovo cultures), sweep through the steppes of South Siberia and Mongolia, and later become languages of local Mongoloid population and penetrate even further - into Siberian taiga, Amur region, Manchuria, Korea, and at the beginning of the first millennium fall into Japan.

This is how the working hypothesis looks. And in the future, when new facts are revealed, the hypothesis can be clarified and expanded, and maybe revises.

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## Scripts of the planet

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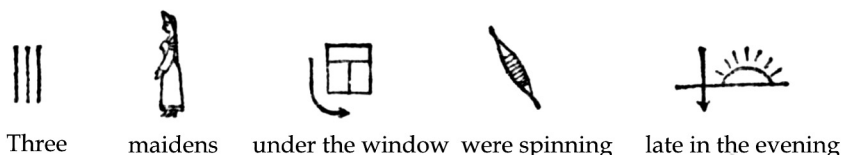
See the inserted last color appendage here (page 84 containing a large scheme): we schematically depicted different writing systems with different colors.


Yellow with black shading means writing systems consisting of syllabic symbols, logograms and semantic determinatives (for example, the Chinese hieroglyphics). Orange with red shading (as in Hittite cuneiform) means that there are syllabic and syllabo-vocalic symbols, and also heterograms.

But what exactly do these clever words, like logograms, heterograms, polyconsonantal symbols etc., exactly mean?

1. LOGOGRAMS. Each symbol denotes a whole WORD of vocal speech, or a ROOT OF A WORD (sometimes even a word combination). LOGOGRAMS can differ:

a) IDEOGRAMS. Every symbol corresponds to a CONCEPT. If the Russian language were written in ideograms, the first lines of The Tale of Tsar Saltan by A. Pushkin would look like something like this:



The symbol  stands here for the word maiden. Of course, the same symbol could be read as “lady”, or “girl”, or “kid”. The written phrase under the symbol (painting) does not correspond directly to a phrase of vocal speech.

b) MORPHEMIC SYMBOL. A symbol corresponds to a root. You can imagine what a huge number of different symbols we'd need to have in order to write everything by them! Obviously, such script would be very hard to learn.

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\* Nauka i Zhizn (Science and Life), #4, 1966, pp. 88-97 and pp. 6-7 of the color insert.



But it is easier if morphemic symbols are compound. For example, in the Chinese writing system, many hieroglyphs are made up from more than one element. One may point at the meaning (meaningful/semantic determinative), the other can hint at the sound of a syllable (the phonetic symbol).

The 柑 hieroglyph in Chinese is pronounced gān and it means “orange”.

The element on the right, 甘, denotes how it sounds: cf. 泔 gān “rice water”, 埴 gān “clay vessel”, 蚶 hān “clam”. The left element 木 (“tree”) hints at the meaning, making it possible to discern between 柑 gān meaning “orange” and 泔 gān “rice water” (where the determinative is (three drops of) “water”).

Morphemic symbols can also be found in our writing system: №, §, %.

2. SYLLABIC SYMBOL. Corresponds to a syllable. The Japanese language has two syllabic alphabets – katakana and hiragana. Usually the root of a word is written in hieroglyphs; flections, function-words and foreign words are written in one of the syllabic alphabets. The word “Russia” (Rossiya) is written like this in Japanese:

ロシア  
ro si ya

3. SYLLABO-VOCALIC SYMBOLS. The name HAMMURABI is written like this in Akkadian:

𒄠	𒄠𒀭	𒄠𒀭	𒄠𒀭	𒄠𒀭	𒄠𒀭
"human" determinative	Ha	am	mu	ra	bi

The syllable Ham- is written using symbols HA-AM. Each symbol means a part of a syllable including the vowel. Such symbols are called SYLLABO-VOCALIC. Sometimes a syllable may use up to three syllabo-vocalic symbols, like HAS, the second syllable in the Hittite word ISHAS “master” (in writing – is-ha-a-as).

4. POLYCONSONANTAL SYMBOL. In Egyptian, the name of the god Harmose, or Harmasi, was written like this:

𓇨 𓇧 𓇧  
hr ms s


As you can see, the Egyptians only wrote consonants and ignored vowels. Also, one symbol could denote two (sometimes three or even four) consonants in one continuity. We'll call such symbol a POLYCONSONANTAL one.

5. CONSONANTAL LETTERS. These denote consonants. Vowels generally are not depicted in consonantal script.

6. PHONEMIC ALPHABET LETTERS. In phonemic alphabets, different letters mean vowels as well as consonants. Such system is used by all European nations, including the Russian alphabet.

7. HETEROGRAMS. You know that “i. e.” written in English, means “that is” (but itself is an abbreviation of the Latin “id est”); similarly, “e. g.” (exempli gratia) means “for example”.

Such spellings, the heterograms, played a very large part in cuneiform (Akkadian, Hittite, Urartian etc.) and in Pre-Islamic scripts of Iranian peoples: the words were written in Aramaic, but read and understood in Iranian languages.

8. SEMANTIC DETERMINATIVES. The symbol itself is not pronounced, but clarifies or confirms the meaning of a word. Egyptians wrote the  “woman” determinative after every word used for a woman.

Our writing also has something a little similar to semantic determinatives: black borders around the names of dead people, capital or big letters for names, of some special importance.

So, as you can see on the scheme (page 78), the scripts of our planet can be roughly, approximately divided into several types. The first type includes writing systems (Japanese, partially Chinese etc.) that are based on denoting syllables (reference color – yellow). Some other, of the second type (Phoenician, Arabic, Hebrew etc.), use the consonantal principle, when consonants are written down while vowels mostly do not appear; these scripts are colored gray. Yet another type of scripts, the third one (e. g., European), uses distinct letters for consonants and vowels; these scripts are depicted with the blue color. At last, the fourth type of scripts (of India, South-Eastern Asia, Ethiopia, Korea – the brown color), is based on writing both syllables and sounds. We will call them PHONEMO-SYLLABIC.

Both phonemic and syllabic structure of a word is fully depicted in writing. All phonemes (consonants and vowels) are written with special symbols, and at the same time the symbols of one syllable are usually combined into one complex symbol. Such structure is fully sustained in Tibetan and Korean scripts. In scripts of Ethiopic and Indian origin it is disturbed by the fact that the consonant at the end of a word (or a syllable) is written like a separate vowel: Indic U-pa-ni-sha-d, Amharic A-ddi-s A-be-ba.

At the same time, we can observe another way to divide these writing systems. Some of them (usually the most ancient ones) contain logograms (symbols for whole words and roots). These are the scripts that are commonly called hieroglyphic: Chinese, Egyptian, Sumerian, Mayan etc. Newer writing systems have almost no logograms. We depicted this difference with gray surface color with black lines for writing systems containing logograms.

Of course, all sorts of blendings and transitional cases are possible. Let us take cuneiform (orange color): it is similar to syllabic scripts, but, besides syllabic symbols, we can find there syllabo-vocalic symbols (denoting parts of syllables like ta+am=tam), logograms, heterograms, and determinatives. Let us take the Egyptian script, where there are consonantal and polyconsonantal symbols, logograms and semantic determinatives. Because of it, we had to paint some scripts (Ugaritic, Persian and more) in stripes.

When looking at the “branches” and “twigs” of our “tree”, don’t forget this: not one scheme can convey the whole vivid diversity of the real history of writing..



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## Overview of the Nostratic research - excerpts and summary (updated to 1972)

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### Aharon Dolgopolsky



**Aharon Dolgopolsky** (b. 1930) is a linguist with a Ph.D. in philology. His father was an engineer. A. Dolgopolsky worked in the First Moscow Pedagogical Institute of Foreign Languages, and after that in the AS USSR Institute of the Russian Language. Since 1965, he works in the AS USSR Institute of Linguistics.

Dolgopolsky began his research with a comparative-historical study of Latin and the Romance languages. Since 1958, he was studying the distant relationships of the Old World language families. In 1964, at the VII International Congress of Antropological and Ethnographic Sciences, he made a report on supposed relations between Indo-European, Uralic, Altaic (i.e. Turkic, Mongolic, Manchu-Tungus), Kartvelian, Hamito-Semitic<sup>1</sup> and some other languages. This language group is now commonly called Nostratic, or Borean. In the report, more than 150 Nostratic roots were cited. Since 1963, Dolgopolsky worked together with prominent Soviet linguist Vladislav Illich-Svitych (1934—1966), who studied the same issue. Illich-Svitych managed to establish historical laws of comparison between the sounds of Indo-European, Uralic, Turkic, Mongolic, Manchu-Tungus, Kartvelian, Hamito-Semitic and Dravidian languages, and to deduce formulas by which these sounds changed from Nostratic state to the descendant languages. Thus, comparative-historical phonetics of the Nostratic languages was born. This discovery made the Nostratic hypothesis into a scientific theory. Phonetic laws found by Illich-Svitych can be seen in more than 600 common roots and grammatical exponents.

After Illich-Svitych's death, Dolgopolsky continued the study of comparative-historical phonetics of the Borean (Nostratic) languages and started to

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\* Nauka i Chelovechestvo (Science and Humanity), 1971-1972, pp. 106-119  
This article summarizes and expands all previous articles. It presents the Nostratic research achievements up to early 70's.

1 Preferred term now is "Afroasiatic". – *Translator's note.*

reconstruct the history of their grammar. Still when working together, both linguists found out that, to further Nostratic linguistics, it is of considerable importance to sort out the history of some of the sub-families, in particular, the Cushitic and Chadic branches of the Hamito-Semitic family in Africa. Thus, Illich-Svitych started comparative-historical research of the Chadic languages (Hausa and others, in the northern Nigeria and Cameroon and in the Chad Republic), and Dolgopolsky did the same with the Cushitic languages (Somalia, Ethiopia and neighboring lands). In the year of 1973 Dolgopolsky completed his monograph entitled “Comparative Phonetics of the Cushite Languages” (written in Russian), in which the history of sounds and roots of these languages is fully reconstructed. (The comparative-historical research of the Chadic languages is still being completed. Editor's remark, March 2021).

In this article, we describe the recent findings of those linguists who concern themselves with distant inter-linguistical relations. In recent years (early 70th), they managed to establish the statement that our Indo-European languages (languages of Europe, Iran and Northern India) are in ancient relations with Finno-Ugric, Turkic and other languages of Northern Asia, as well as with the Southern Caucasian (Kartvelian), Hamito-Semitic, and some other languages. These relations were suggested long before, but only now this suggestion can be proved using formulas of historical sound changes from “Nostratic” or “Borean”, the common ancestor of the modern Northern and Western Eurasia languages, to its descendants: Indo-European, Finno-Ugric, Turkic, Hamito-Semitic, etc.

The formulas of the historical sound changes (so-called “sound laws”) play for comparative linguistics the same role that equations play for physics. Only when the hypothesis is expressed through the precise language of equations which describe the facts observed, only then a physicist can consider it a serious theory. The same is seen in our science: relation between languages is only seriously grounded, when there are precise formulas of sound correspondences between the languages, formulas of historical sound changes, which can explain the origin of hundreds of roots, flexions etc. Finding such formulas in Borean languages opens remarkable possibilities for historical linguistics and related sciences.

But before we talk about the latest discoveries in this field of study, let's point out some facts already well-known to linguists.

## Language relations

Languages of the world, as it is known, are incorporated in groups and families of related languages. Russian, Polish, Czech, Bulgarian, Serbian and some others comprise the Slavic group of languages; German, English, Norse and others belong to the Germanic group; Lithuanian and Latvian together with (extinct) Old Prussian are the Baltic group. Most of the languages of Europe (the Slavic, Baltic, Germanic, Celtic, Romance languages, Greek and Albanian) together with Armenian, the Iranian, Indic (Indo-Aryan) and ancient Hittite-Luwian languages of Asia Minor comprise the Indo-European language family. There are other language families in the world: Uralic (the Finno-Ugric and Samoyed languages), Turkic, Mongolic, Kartvelian, Hamito-Semitic and many others.

What do people mean when they say that two languages are related, that they belong to the same family? Languages are called "related" when they have common origins. For example, French, Spanish, Portuguese, Italian, Romanian and some other languages are grouped into the Romance family because they all descend from their one common ancestor, Latin. Russian, Polish, Serbian and others descend from the language of ancient Slavs – so-called Proto-Slavic, or Common Slavic, which has not survived in written form, but which we can describe, reconstruct its sounds and forms by comparing the Slavic languages with each other. Hindi, Bengali, Marathi and other languages of Northern and Central India (as well as Sinhalese in Sri Lanka and Gypsy<sup>2</sup>) comprise the Indo-Aryan group, because they all descend from the Old Indo-Aryan language (we know its literary form as Sanskrit). So if we say that Greek, Latin, the Slavic, Indo-Aryan and other languages comprise the Indo-European family, this sentence is equivalent to the statement that they descend from the common ancestor, i.e. have common origins.

Only then languages can be considered as related, when there are facts, which only the hypothesis of their common origins can explain. Which facts are they?

First of all, they must have a significant number of related roots. Roots of one language are compared to the roots of the other, similar in meaning and having

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2 Mostly called Romani. – *Translator's note.*

regular phonetic correspondences in both languages. The English d regularly corresponds to the German t, the Russian д, the Latin f, the Greek th, the Old Indo-Aryan dh:

Meaning	Eng.	Germ.	Rus.	Latin	Greek	Indo-Aryan
«daughter»	daughter	Tochter	дочь		thügatér	
«door»	door	Tür	дверь	forēs	thürā	
«smoke»			дым	fūmus	thūmos	dhūmos
«mead»	mead	Met	мед <sup>3</sup>		methü	madhu
«to put»	do	tu (n) <sup>4</sup>	де (ть)	fuc (ere)	thē-	dhā-

Regular sound correspondences between related languages come from the sound laws, historical changes of sounds.

Each language in each period of its history has its own sound laws: Old German changed dh to d, Greek changed dh to th, and Indian left it as dh. Therefore, a correspondence was born: Old German (and English) d = Greek th = equals Old Indo-Aryan dh.

That is why languages must be compared “in a proper way and thoroughly, meaning not only by sounds, but also by the firm laws of proper phonetic changes”, as the academician, researcher of the Finno-Ugric and Caucasian languages A. Sjögren wrote in 1830.

But regular phonetic correspondences in roots are not enough to prove relation. There also must be related roots that could not be explained by borrowing from one language to another. Linguists know which kinds of words are often borrowed from other languages, and which usually are not. For example, words of material and spiritual culture are borrowed easily, like names of clothes, cultured plants, religious concepts etc. Situation is completely different with personal pronouns, words with meanings like “ear”, “tooth”, “leg”, “water”, “to eat”, “to drink”, “to go” and so on. Such words do not allow borrowing, and if they are related in some languages, then it means that there is relationship between/among these languages.

3 Meaning „honey“, not the beverage made with it.

4 The old meaning «to put» changed to a wider «to do»



An important argument in favor of relation can be the case (casus) and personal flections, as well as other grammatical elements. If old grammatical affixes (prefixes, suffixes and flections) have survived in some languages, it becomes much easier to prove their relationship. But sometimes the ancestor language did not have affixes, or its descendants have lost them. For example, in English, almost all old Indo-European flections have disappeared. In such cases, only roots of the words can help us study the issue of language relationships.

By comparing related languages and establishing phonetic correspondences between them, by finding out facts about phonetic laws that caused changes in ancient roots, linguists can reconstruct in detail the features of the ancestor language: its phonemes, characteristic tones and roots. In particular, many achievements have been made in reconstruction the Proto Indo-European language.

### Can the language families be extended?

Look at the map 1. There are more than 20 language families and isolated languages in Eurasia only. Can there be some ancient relations between at least some of them? Can the language families be enlarged?

Linguists have long ago noticed incredible similarities between the pronouns in Indo-European, Uralic, Mongolic and some other families (see table).

Russian (Indo-European family)		Mordvinic (Uralic family)		Yukaghir		Mongolian		Chukchi	
Sg.	Pl.	Sg.	Pl.	Sg.	Pl.	Sg.	Pl.	Sg.	Pl.
menja	m <sup>5</sup> -	mon	min'	met	mit	minü	manu	gy-m	muri
me		I	we	I	we	me	us	I	we
t'ebja	-t'e <sup>5</sup>	ton	t'in'	tet	t'it	ch'inü	tanu	gy-t	turi
of you		you	you	you	you	of you	of you	you	you

5 Ancient plural pronouns have survived in some Indo-European languages as verbal flections.

Or we can compare interrogative pronouns which mean “who?”: Indo-European \*k<sup>w</sup>- (Russian кто, Latin quis), Uralic \*ku (Finnic kuka, Mordvinic ku), Turkic kum, Mongolian keh, Yukaghir kuh, Itelmen (the Chukotko-Kamchatkan family) ke, Kafa (an Hamito-Semitic language from the Kushite group in Ethiopia) kōn. Some other phonetic similarities in other words have been noticed.

Still, to prove relationship between language families was almost impossible before linguists learned to reconstruct the ancestor languages of each family. The Proto-Indo-European language system was reconstructed by philologists in the 19<sup>th</sup> century, with phonemes, roots, suffixes, flexions and word-forms. In the last decades, similar work has been done on the Uralic ancestor language, as well as Kartvelian, Manchu-Tungus and so on. Now, instead of comparing the modern Indo-European languages with the modern Uralic, Manchu-Tungus and others, linguists can compare ancient Common Indo-European with Common Uralic, Proto-Kartvelian, Proto-Manchu-Tungus and so on.

This makes the problem considerably easier: if the languages are related, they must have been closer to each other in their ancient condition than they are now. There is now a practical way of scientific study of distant relations between many language families of Eurasia and Northern Africa.



Soviet scientist  
V. Illich-Svitych  
(1934 - 1966)

An exceptional Soviet scientist V. Illich-Svitych has conducted some revolutionary research in this field. He did the most important part of the task by establishing the phonetic correspondences system between the Indo-European, Uralic, so-called Altaic (Turkic, Mongolic, Manchu-Tungus), Kartvelian, Hamito-Semitic and Dravidian languages.

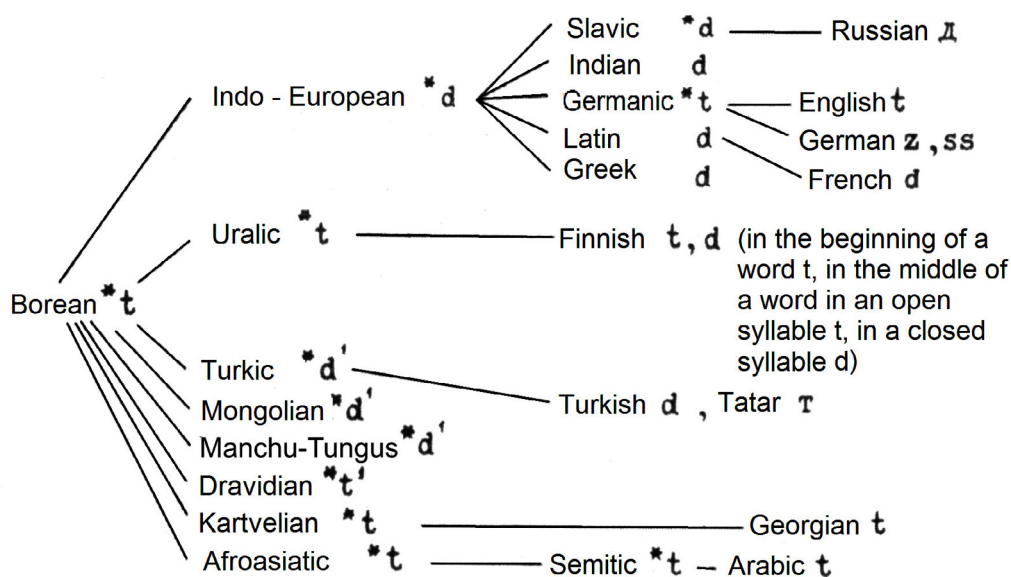
These phonetic correspondences are found in hundreds of common Nostratic (or Borean) roots: more than 600 are cited in the “Materials for the Dictionary of Nostratic Languages” by Illich-Svitych, and the studies of the author of this article show that it is not an exhaustive list.

Let’s consider basic phonetic correspondences developing from the consonants of the Borean original.

## Primary consonant correspondences

Borean	Indo-European	Uralic		Turkic	Mongolic	Manchu-Tungus	Dravidian	Kartvelian	Hamito-Semitic	
		In the beginning of a word	Between vowels	In the beginning of a word						
	*p	*p	*p	*pp	*0	*φ	*p	*p	*p, *p	*p, *p
	*p	*p, *b	*p	*p	*p (?)	*φ	*p	*p	*p	*p
	*b	*bh	*p	*w	*b	*b	*b	*p	*b	*b
	*t	*t	*t	*tt	*t	*t	*t	*t	*t	*t, *t
	*t	*d	*t	*t	*d	*d	*d	*t	*t	*t
	*d	*dh	*t	*δ	*j	*d	*d	*t	*d	*d
before	*k	*k̂	*k	*kk	*k	*k	*x	*k	*k	*k, *k
*a, *e,	*k	*ĝ	*k	*k	*ĝ	*k	*k	*k	*k	*k
*i	*g	*ĝh	*k	*γ	*k	*g	*g	*k	*g	*g
before	*k	*k	*k	*kk	*k	*q	*x	*k	*k	*k, *k
*a	*k	*g	*k	*k	*g	*q	*k	*k	*k	*k
	*g	*gh	*k	*γ	*k	*g	*g	*k	*g	*g
before	*k	*k <sup>w</sup>	*k	*kk	*k	*q	*x	*k	*k <sup>w</sup>	*k <sup>w</sup> , *k <sup>w</sup>
*o, *u	*k	*g <sup>w</sup>	*k	*k	*g	*q	*k	*k	*k <sup>w</sup>	*k <sup>w</sup>
	*g	*g <sup>w</sup> h	*k	*γ	*k	*g	*g	*k	*g <sup>w</sup>	*g <sup>w</sup>
	*q	*ĥ, *h, *h <sup>w</sup>	*0	*k	*0	*0	*0	*0	*q, *q <sup>w</sup>	*q, *q <sup>w</sup>
	*ʹ	*ĥ, *h, *h <sup>w</sup>	*0	*0	*0	*0	*0	*0	*0, *q	*ʹ
	*w	*w, *u	*w	*w	*b, *0	*b, *0	*b, *0	*v, *0	*w	*w
	*l	*l	*l	*l	*j	*l	*l	*n	*l, *r	*l
	*r	*r	*r	*r	*j	*l	*l	*n	*r	*r
	*n	*n	*n	*n	*j	*n	*n	*n	*n	*n
	*m	*m	*m	*m	*m, *b	*b, *m	*b, *m	*m	*m	*m
	*s	*s	*s	*s	*s	*s	*s	*č	*s <sub>1</sub>	*š
	*ś	*s	*ś	*ś	*s	*s	*s	*č	*s	*š
	*š	*s	*š	*š	*s	*s	*s	*č	*š	*š

If we take one row of the table, for example, the row number 5, \*t, we can depict the information it contains as a scheme:



All these above show the situation in the beginning of a word. Phonetic development is more complex in the middle of a word.

### Explanations of symbols and signs

\* is a sign of reconstruction. “Indo-European \*k̂” means “the Indo-European sound from which Latin c (i.e. k), Greek k, Lithuanian š, Slavic \*s (from which arrived Russian c), Old Indo-Aryan ś, Germanic h etc. - are regularly derived, and which, according to linguists, should probably have sounded similar to Russian palatalized к (кь)”;

< is the sign “derived from” (Latin qu < Indo-European \*k<sup>w</sup>);

> is the sign “changes into” (Indo-European \*k̂ > Russian c)

### Consonants:

c is ts, ʒ is dz (like the second consonant in Japanese ɸʊʒijama “Mount Fuji”), x is kh, like in Scottish English loch “lake”;

q, g are strongly back, deep k and g (like the first sound in Tatar Qaʒan “Kazan”);

w is the English w;

j is the sound like that of iota, or like y in English yellow;

γ is fricative g (like in Arabic al-Mayrēb “Maghreb, Morocco”);

δ is fricative d (like th in English this);

θ is fricative t (like th in English thick);

φ is fricative f, i.e. bilabial f (like the first consonant in Japanese φu’zijama “Mount Fuji”);

š is sh, č is ch, ž is j;

´ above consonants (ń, ś etc.) is a sign of palatal character (more or less the same as softness in Russian); there is a separate sign with the same meaning in Proto-Indo-European: k̂, ĝ, ĝh, ĥ are palatal k, g, gh, h;

c, č, , ḳ, p̣, ṭ, q̣ are glottalized c, č, k, p, t, q, i.e. consonants which are pronounced with closed vocal chords, like in the Georgian word C̣q̣aḷṭubo “Tsqaltubo” (a region and a town in Georgia);

ş, ŋ in the Indo-Aryan languages are sh and n pronounced with the tongue bent back. The same pronunciation in the Dravidian language is spelled differently: ṭ is cerebral t (with the tongue bent back).

g<sup>w</sup>, k<sup>w</sup>, g<sup>w</sup>h, h<sup>w</sup> are the labialized sounds, i.e. those that are pronounced with the lips rounded and partially closed, like when pronouncing w;

' is the glottal stop (like in German ein with proper German pronunciation); this glottal stop in many languages (Semitic, German, Nostratic) plays the role of a consonant, though it may appear without a vowel;

ç is a voiced consonant made by closing the walls of the pharynx, similar to a groan. Arabs say it in the beginning of words like ʿAdān “Aden” or ʿĪraq “Iraq”;

ħ is a voiceless consonant, a pair to the voiced ç. It sounds similar to a very deep guttural kh. Arabs say it in the name Muḥāmmā;

0 is a lack of consonant (zero sound).

Vowels:

ā, ō etc. are long a, o etc.;

ä is front a (like in English man), ö and ü like German ö and ü;

å is labialized a (very open o);

Λ is a vowel of unknown qualities in the reconstructed roots, used when it is clear that it was in the root, but not clear, which vowel it was.

Ä is an unknown front vowel (ä, e or i);

Capital letters are used in reconstructions when we cannot, based on the data we have, discern between two close sounds. Borean consonants \*k̄ and \*q̄ have merged in all their descendants, except the Kartvelian. Thus, the root \*Ḷulä “kin”, which has not survived in the Kartvelian languages, is written with capital \*Ḷ, which means \*k̄ or \*q̄. When the reconstruction is dubitable, the letter is put into square brackets.

Notes for the scheme at the top of page 86

Our Indo-European \*d is derived from the same Borean sound (nominally written as \*t), that Uralic \*t, Manchu-Tungus \*d, Kartvelian \*t, Hamito-Semitic \*t etc.

If we take the Borean root, which means “two” and is reconstructed as \*to’Ä, and apply to it the now-discovered formulas of change from Borean to Indo-European, we automatically get Early Indo-European dweh<sup>w</sup> and Late Indo-European \*dwō. Indeed, Borean \*t changes into Indo-European \*d, Borean \*o (there is more to explain about vowels) into Indo-European \*we (or, under certain conditions, into \*eu), glottal stop \*’ after \*o first changes into Indo-European \*h<sup>w</sup> (the so-called rounded laryngal), and then \*h<sup>w</sup>, according to the Indo-European phonetic laws, disappears, turning the previous vowel into \*ō. Final Borean Ä should disappear completely. Thus we have Indo-European \*dwō. And if we apply formulas of changes from Proto-Indo-European to Proto-Slavic, we will get Slavic \*dъva and then Russian два. Accordingly, in Latin it becomes duo, in Old Greek düō (with düo as a variant), in Sanskrit dva, in Proto-Germanic \*twō, from where comes the English two. In the Uralic language the same Borean root only survived with the original numeral suffix \*-ńće: Uralic \*to-ńće “the second” is the ancestor of Finnish toinen “the second”, Estonian teine and so on. The same

travel can be made to the Korean tu “two”, to the Manchu-Tungus \*d’ö (from where the Evenki дүю̄р [ju:r] “two”, дүчи [jutɕi] “two-year-old”, Udege дү [ju:] “two” etc. come), to the Kartvelian \*tqu = (in the Georgian words t̄qubi “twins” and t̄quci “a couple of nuts or fruits grown together”).

It is worth noting that the Christian name Φομα (Thomas) is derived from the same root \*to’Ä. It goes like this: Borean \*to’Ä “two” > Hamito-Semitic \*tu’ — “two” > Semitic derived word \*tu’m-u “twins”, from which in Aramaic (the spoken language of Palestine of the 1<sup>st</sup> century A.D.) tō’mā “twin”. This word was used as the Aramaic personal name Tō’mā, in Greek transcription Θωμας (Thōmā-s), in Russian Φομα (where the Greek θ is regularly transcribed/pronounced as φ). The meaning of this name was, of course, known to the Gospel writer, who wrote about the apostle Thomas: Thomas... ho legomenos Didūmos «Thomas... also called the Twin» (John 20, 24).

The same rules of the \*t development can be also seen in the roots like \*wetΛ “water” and \*itΛ “to eat”, which are depicted on the schemes on pages 110 - 113, as well as in other roots.

Every row of the table is a simplified and somewhat primitive notation of the firm rules of changes from Borean sounds to the corresponding sounds in the descendant languages. These rules, described more fully, can be found in specialized literature, primarily in the works of Illich-Svitych.

We did not include vowels, because their history is more complicated. But, to orientate oneself more easily through ancient roots, it is useful to know some things about vowels as well.

We can reconstruct the vowels a, o, u, e, i, and probably ä in the Borean language. They are relatively well-preserved in the eastern descendants: Uralic, Dravidian and some Altaic languages (Mongolian, Manchu-Tungus).

In the western languages – Indo-European, Kartvelian, Hamito-Semitic – there occurred a morphological vowel interchange, so-called ablaut. In Indo-European, for example, every \*e was interchanging with \*o or with zero sound: in some verb forms (e.g., in so-called Praesens) \*e was used, in other forms and derived ones from this original \*e (e.g., in Perfect and some types of nouns) it became \*o,

yet in other forms it became zero (the root vowel disappeared): \*bhendh, \*bhondh, \*bhṇdh. Traces of such interchange can be seen in the forms of German strong verbs (binden, band, gebunden) or in Russian couples like *vezы* [v'ezu] — *voz* [voz] (“I carry” – “cart”) and *teky* — *tok* (“I flow” – “flow”).

What happened to the Borean root in Indo-European? First of all, the second syllable vowel was lost. Secondly, the first syllable vowel changed. Usually, any vowel of the first syllable became \*e, which interchanged with \*o and zero (\*e/\*o/ zero). But in some circumstances, Borean \*i, \*e and \*ä turned into \*ei/oi/i, and \*u and \*o changed to eu/ou/u/we.

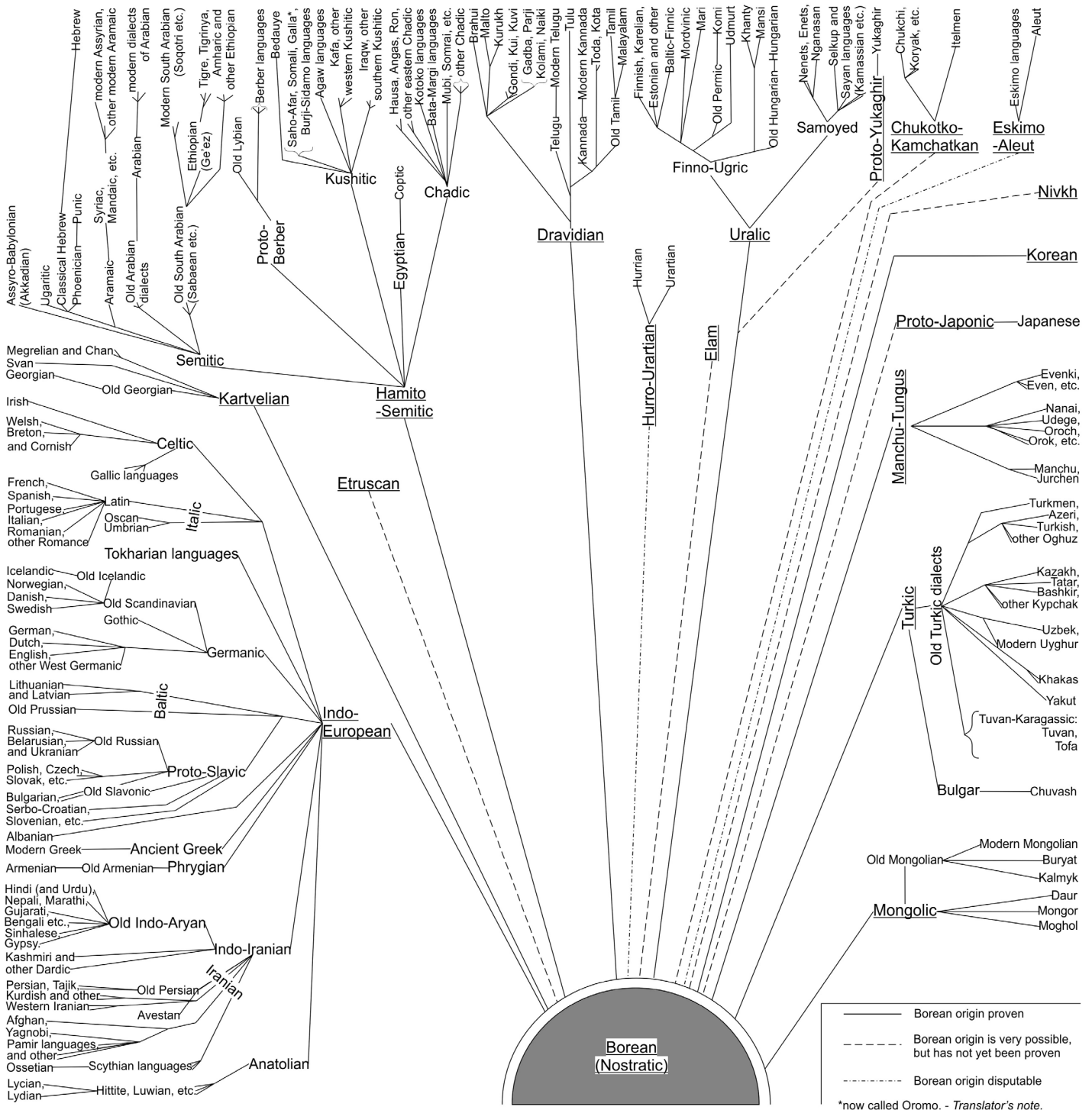
Besides those languages, for which phonetic correspondences formulas were found, there are some less studied languages of Borean descent, like Yukaghir and the Chukotko-Kamchatkan languages at the extreme north-west of Asia, Japanese, Korean, and probably Nivkhi (on Amur and at Sakhalin).

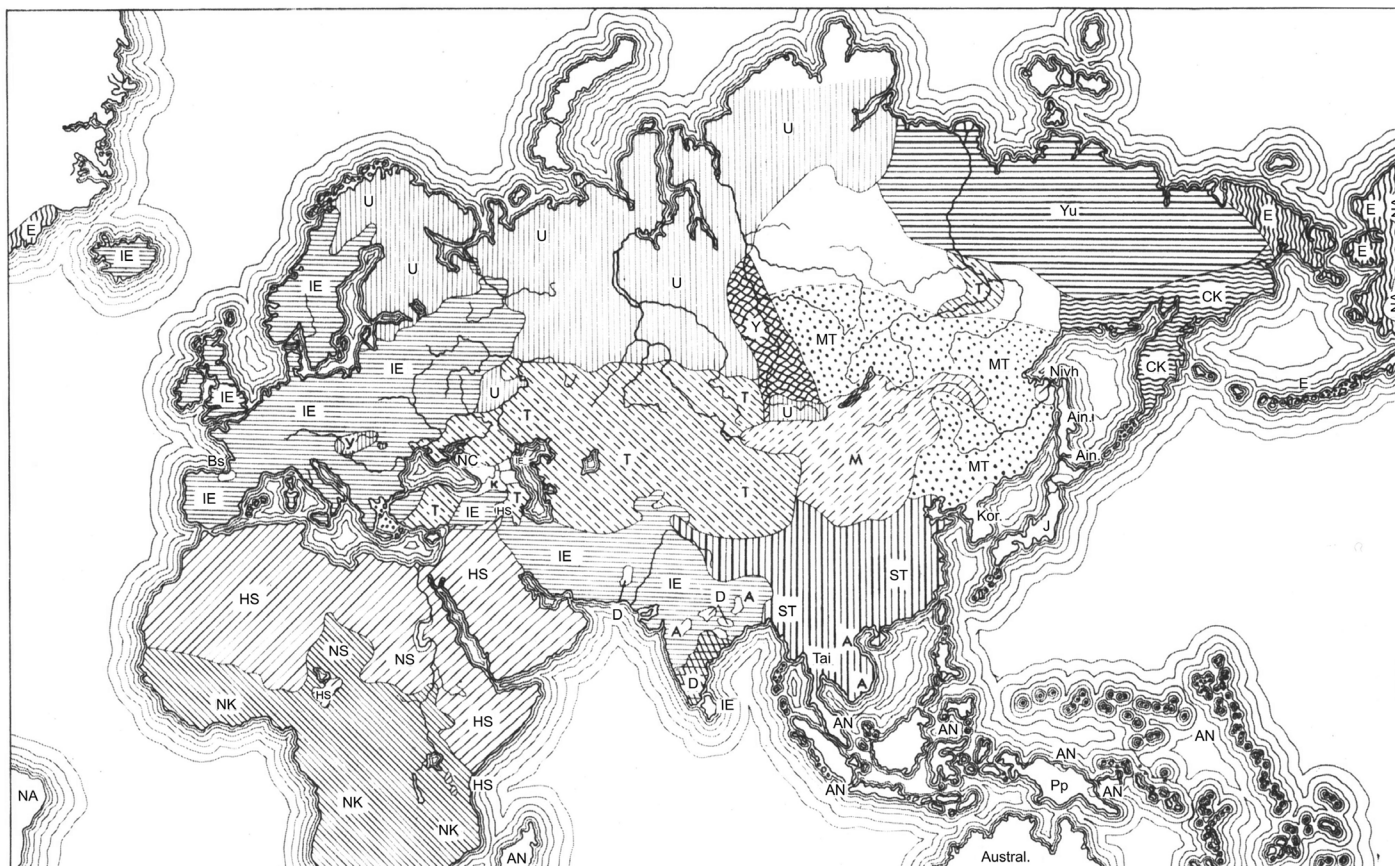
Borean roots and grammatical markers can be seen also in some ancient languages, which are only known to us in a small amount of writings, which are not yet deciphered fully: the Elam language at the south-west of Iran and the Etruscan language (Italy).

Prof. Georg Jaukyan has tried to show, that not only Urartian, but also Hurrian (languages of the cuneiform monuments of Eastern Turkey, Armenia, Northern Syria, which are close to each other) are related to the Indo-European and Kartvelian. There are suggestions built on evidences of Borean origins of Eskimo-Aleut languages. Not clear is the position of the languages of the Northern Caucasus (Abkhazo-Adyghean and Nakho-Dagestanian) is not clear, but there is an amount of suggestions declared by many linguists of these languages being connected to the Kartvelian languages.



Schematic depiction of relations between the languages of the Borean family



**Map No. 1****Ancient world languages (15th - 16th centuries)**

These are language families of the Old World in 15<sup>th</sup>-16<sup>th</sup> centuries, i.e. before the great movements of people of the latest century (Russian settlement on Volga, Ural and Southern Siberia; movements of Europeans to America and Australia; Yakut development on Lena; ethnic processes which resulted in near extinction of Yukaghir, the Yenisei languages and Itelmen in Kamchatka, and so on).

The main language families of the world:

IE — Indo-European family: Slavic, Baltic, Germanic, Celtic (ancient languages of the Gauls - developed into modern Irish, Scottish, Welsh and Breton), Latin and the Romance languages descending from it, Greek, Albanian, Armenian, Iranian (Persian, Tajik, Kurdish, Afghan, Pamir languages, Ossetic and others), Indo-Aryan (Northern and Central India, Pakistan, Nepal, Sri Lanka);

U — Uralic family: 1) Finno-Ugric: Finnish, Karelian, Estonian, Mordvinic languages, Mari, Udmurt, Komi, Hungarian, Khanty, Mansi; 2) Samoyedic:

Nenets, Enets (the lower reaches of Yenisei), Nganasan (Taimyr Peninsula), Selkup (Yenisei), the extinct languages of the Upper Yenisei (Kamassian, Koybal etc.);

Yu — the Yukaghir language (or the Yukaghir language family; most of them have gone extinct, there are only two dialects left in Kolyma and the coast);

CK — the Chukotko-Kamchatkan languages: Koryak (Northern Kamchatka) and Chukchi (now at Chukotka), Itelmen (Kamchatka);

E — Eskimo-Aleut languages: Aleut (Aleutian islands) and Eskimo (Chukotka, Alaska, Northern Canada, Greenland);

T — Turkic languages: Tuvan, Khakas, Altai, Yakut, Kirghiz, Kazakh, Uzbek, Uyghur (Xinjiang), Turkmen, Azeri, Turkish, Tatar, Chuvash, Bashkir etc.

M — Mongolic languages (Mongolian, Buryat, Kalmyk etc.);

MT — Manchu-Tungus: Evenki and Even in Siberia, Nanai, Ulch, Udege and others on Amur, Manchu etc.;

Kor. — Korean;

J — Japanese and Ryuku (at Ryuku islands);

Nivh — the Nivh language in the lower reaches of Amur and at Sakhalin;

D — Dravidian languages: Tamil, Malayalam, Kannada, Telugu and others in Southern India, the Gonda and Ora languages and some other enclaves in Central India. The Dravidians, it seems, came to India from the north-west: one Dravidian language, Brahui, survives to this day in Western Pakistan and Afghanistan. The famous culture of Mohenjo-daro and Harappa (in the Indus valley), which was destroyed by the Indo-Europeans who came from the west, was, as many linguists think, a Dravidian one;

K — Kartvelian languages: Georgian, Mingrelia (Western Georgia), Lazi (Northeastern Turkey and Southwestern Adjara), Svan;

HS — Hamito-Semitic languages: 1) Semitic: Akkadian (Assiro-Babylonian), Arabic, Hebrew, Phoenician, Aramaic, the Ethiopian languages (incl. Amharic) and others, 2) Egyptian, 3) Berber languages (Tuareg languages in Sahara, Berber in Morocco, Algeria and Libya; 4) Kushite – a strip on the western coast

of the Red Sea (Beja), in most of Ethiopia (except the northern regions, occupied by the Semite languages, which came from Southern Arabia in the beginning of the 1<sup>st</sup> cent. B.C.), in Somalia, Northern Kenya, and some enclaves in Tanzania (the Iraqw group) 5) Chadic languages: Hausa and others in the Chad lake region (Northern Nigeria, Northern Cameroon etc.);

NC — Northern Caucasian languages: 1) Abkhazo-Adyghean: Abkhaz, Abaza, Adyghe, Kabardino-Cherkess, Ubykh, 2) Nakh (Chechen and others) and Dagestanian languages;

NS — (Nilo-Saharan) languages and NK (Niger-Kordofanian<sup>6</sup>, including Bantu and "Bantu-like" languages) cover most of Africa. Also, in the south and west of Africa the Khoisan languages of Bushmen and Hottentots<sup>7</sup> are situated;

ST — Sino-Tibetan<sup>8</sup> languages: Chinese, Tibetan, Burmese etc.;

A — Austroasiatic languages: Munda (enclaves in India), Mon-Khmer (Khmer in Cambodia, Vietnamese, etc.) and others;

Tai — Tai languages (Thai in Thailand, Laotian in Laos, Zhuang in Southern China and others);

AN — Austronesian (Malayo-Polynesian<sup>9</sup>) languages: 1) Indonesian languages in Indonesia, Malaysia, in the Philippines and Madagascar, 2) Polynesian languages (on the vast territories in the Pacific from New Zealand to the Hawaiian islands and Easter island), 3) Melanesian languages at the northern coast of New Guinea and neighboring islands;

Pp — Papuan language families in New Guinea;

Austral. — Australian language family (Australian Aboriginal languages);

Ain. — the Ainu language in Sakhalin, the Kuril islands and Hokkaido;

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6 In English literature called Niger-Congo. – *Translator's note.*

7 The word "Hottentot" is now considered derogatory. The accepted ethnonym is Khoikhoi. – *Translator's note.*

8 Literally "Chinese-Tibetan". – *Translator's note.*

9 Malayo-Polynesian are considered a subgroup of Austronesian. – *Translator's note.*

Y — Yenisean language family; Yenisean languages were still numerous in the 17<sup>th</sup> century, but now only Ket survives;

Bs — the Basque language;

NA — numerous language families of Native Americans

### **How, where and when?**

The question asks itself: when and how such a wide relationship could have appear? Which great historical processes of the far millenia were its cause? This is still unknown to us. To paint a historical picture of the origins of Borean peoples, a picture of migrations and language shifts between the peoples, a great work of archeologists, anthropologists, ethnographers and linguists is needed. For now, we can only make assumptions.

One possible hypothesis is shown on map 2 (further on in page 105). According to it, after the last glacial period ended and the climate started to become warmer (i.e. more than 10 thousand years ago, in the Mesolithic), several peoples migrated from Western and Southern Asia to Siberia and Europe, distributing their cultures and languages. One of these cultural-ethnic waves (probably the last one) is linked to the spreading of the Borean languages.

Why the last one? Because in some other case that territory would contain several other languages instead of Borean: when a language "successfully" spreads across some territory, its previous languages are pushed out or destroyed, though sometimes influencing the "winner" language. In this "winning" language, some pronunciation patterns may survive inherited from the "defeated" language, as well as grammatical schemes and models, even some words. In the best case the defeated languages can remain in some isolated territories, for example, mountains. It is obvious that Borean languages are not in this state.

We cannot tell now, how many linguistic and ethnical waves had happened before the spread of the Borean languages; but it is known that Siberia had been sometime earlier (but, it seems, already in the Mesolithic era) the stage of the great migration of the Amerindian peoples through the Beringian land-bridge

(still land at the time!) to America, as well as settlement of peoples from Central Asia in there, means in Siberia (anthropologically of the Northern Mongoloid race, which is characterized by the presence of a special fold of the upper eyelid and a narrower eyeshape, like of which can be seen in modern Mongols, Evenkis and Chukchis). If we look at map 1 once again (page 98), we can see that nowadays the speakers of Borean languages are anthropologically and racially different, with different origins. There are Southern Caucasoids – black-haired people with dark eyes: the Greeks, the Persians and many other peoples of the Indo-European family, as well as Kartvelian, Semithic, Berber, some Dravidian peoples. There are many mixed anthropological types, like the mix of the Southern Caucasoids (black-haired with dark eyes) with the Northern ones (light-eyed blonde-haired peoples), which is seen almost universally in Western, Eastern and Northern Europe.

There are mixed Southern Caucasoid with Negroid peoples (speakers of Cushitic and Chadic languages in Africa), as well as Southern European-Veddoid (part of Dravidians, especially in Southern India) and Caucasoid-Mongoloid (Turkic peoples of Southern Siberia, most Finno-Ugric peoples). There are also “pure” Mongoloids (speakers of Mongolic, Manchu-Tungus languages, Yukaghirs, Chukchis, Koreans, Japanese, Nivkhs and others) and "pure" Northern Caucasoids (Scandinavians). How this anthropological diversity can be combined with linguistical kinship?

There is actually nothing surprising about that. It is important to understand that spreading of languages and physical settlement of people are two completely different things. Languages can spread not only with their speakers; they can also transfer from one ethnos to another, which had been occupied, started to get cultural influence or put under the situation where it was necessary to use the alien language. As a result, people of different ethnic origins start speaking the same language or two related languages. We often see a “relay” spreading of a language: people A influenced people B, mixing with it only insignificantly, but still replacing its language; then the people B, who speak now language A, similarly influence people C. Thus, in the C land they speak A, though there might not be any direct descendants of the original speakers of A.

Similar processes were happening when the Turkic languages were spreading from the modern Kazakhstan and Xinjiang to Central Asia, where they conquered

and assimilated Caucasoid peoples, that had before spoken Iranian languages; and from there to Anatolia, where the Turks, now in a large part descended from the "turkified" Iranians-Caucasoids, conquered and assimilated numerous local population of the Byzantine Asia Minor (with that inherited language from Kazakhstan and Xinjiang). As a result, anthropologically distant nations can speak very closely related languages, like the Turks and the Kirghizians.

The Armenian language originates, as the researchers think, from Phrygian, an ancient language from the Balkans. At the same time, the Armenians themselves do not have anything to do with the Balkans. The explanation is simple: after the Phrygians had migrated from the Balkans to Asia Minor, their language widely spread across the native peoples; and when in the Hellenistic period the Phrygians were assimilated by the Greeks, only those who lived in the Armenian Highlands, the descendants of Hayasians and Urartu, continued to preserve the Phrygians' language.

Situations like these can be seen in the history of many language families of the world; it is natural to suggest that the spread of the Borean languages had happened in a similar way. It seems that the Borean languages, spreaded to Siberia with some ethnic migrations, were widely accepted by the native Mogoloid population there. Similarly, the Indo-European languages were acquired by the Northern Europeans after entering Europe.

The oldest territory of the Borean ancestor language (its "ancestral land") should probably be found in Western Asia, a vast region ranging from India to Anatolia and from the Caucasus to Persian Gulf. This assumption is supported by various arguments: the meanings of the ancient roots as well as the fact that many descendant languages' ancient homeland is situated in this particular region. Kartvelian languages inhabit Transcaucasia; Proto-Indo-European probably originated from the area of Anatolia (there are Proto-Indo-European borrowings from the Western Asian languages; Etruscan, Hamito-Semitic, Elam and Dravidian (which is linked to Elam and probably delved into India from the northwest – all these are connected to this area. The only languages that were not born here are the Ural-Altai languages and the languages of Northwestern Asia, linked to them. Maybe the Ural-Altai wave, which has some peculiar connections with Dravidian, moved from Iran and Central Asia to the north, northeast and east.

To reiterate, these are all sophisticated conjectures. Their validity can only be proved or disproved by a further study, which should be conducted by anthropologists, ethnographers, archaeologists and linguists together.

Another dilemma is the date of existence of the Borean linguistic community (or its last period) – more than 10 thousand years ago, in the Mesolithic era. This date is based on analysis of the meanings of common Nostratic roots. There is for example the root meaning "a fishing net" – \*ṭul[γ]Ā, from where comes the Uralic \*tulka "fishing net" (>Komi тыв "fishing net" etc), the Kartvelian root txewl- "to fish with a net" (Georgian txevl-), Manchu-Tungus \*tölä- "to set a net, a trap" (> Manchu, Nanai, Udege тулэ [tule] "to set a net, a trap") and the Hamito-Semitic \*ṭul'- "fishing net" (which we see in Egyptian, where phonetic laws produced a big change of the root: \*ṭul'- > \*dul'- > \*djul'- > \*djur'- \*dju' > dju'- > zu' "to fish"; and in the ancient Ethiopian language Ge'ez, where the phonetics of the old root remained, but the meaning changed: it became not a "net", but a "cloth, wrap", something reminding maybe a veil, and the verb antoi'a means "to cover with cloth"). The root means "fishing net", and we know from archaeology that the fishing net was invented in the Mesolithic era.

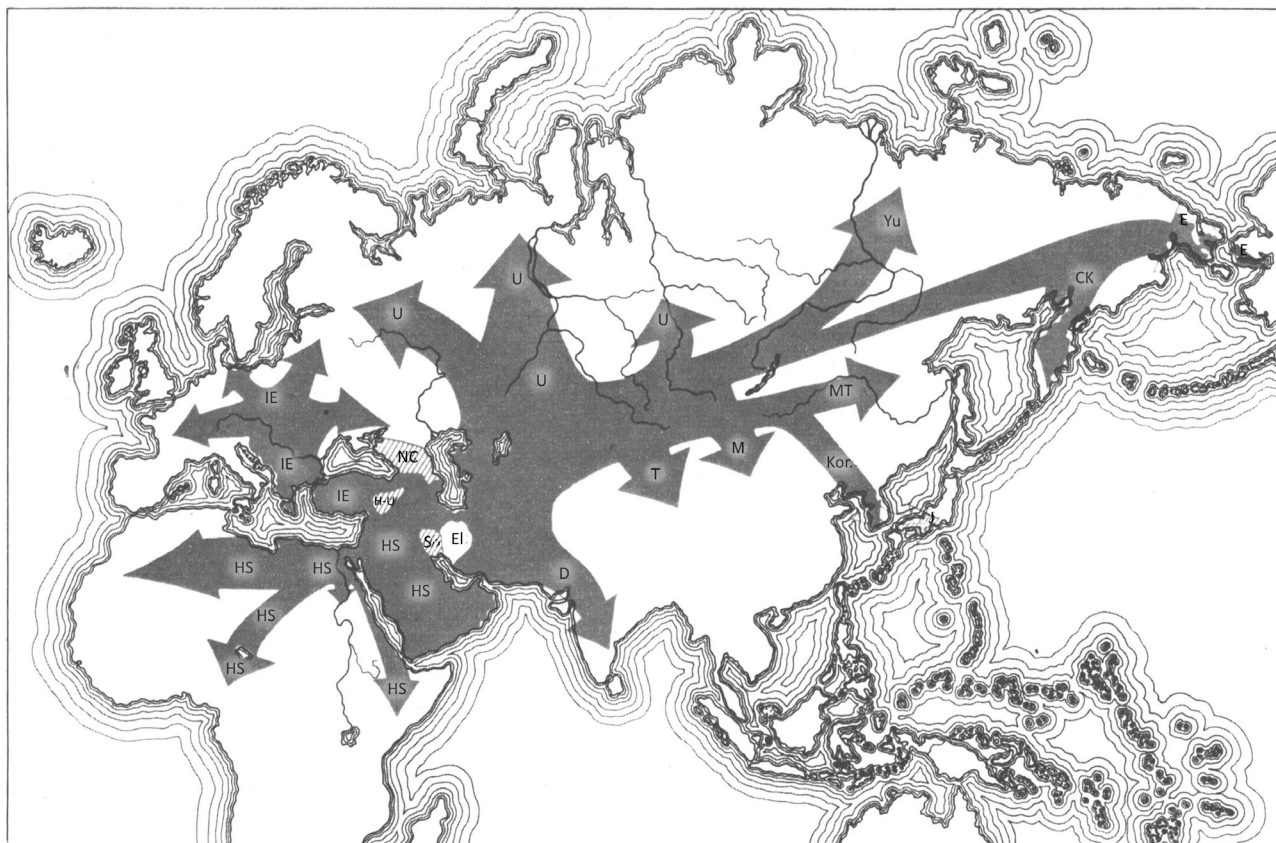
On the other hand, there are no roots in the Borean lexicon belonging to the fields of pottery and animal farming; both these issues developed in the Neolithic era. Though, we should assume that the date we're searching for, is not earlier than the start of the Mesolithic era and not later than its end, somewhat in the middle of Mesolithic. Besides that, there are roots in the Borean vocabulary which point at a colder climate than that of "front" Western Asia: there are names for ice, for blizzard, several words for snow (evidently, for the different types of it).

This could be explained by suggesting that the glacier had not yet totally receded and climate was not yet warming at the time when "Common Borean" existed, which supports the idea that it was around 10 thousand years ago.



**Map No. 2**

**One possible conjecture concerning the ways of the Borean languages' spread in the world of antiquity.**



NC – the Northern Caucasian languages

MT – the Manchu-Tungus languages

K– the Kartvelian languages

Kor. – the Korean language

H-U – the Hurro-Urartian languages

J – the Japanese language

S – the Sumerian language

Yu – the Yukaghir language

El. – the Elam language

CK – the Chukotko-Kamchatkan languages

IE – the Indo-European languages

E – the Eskimo-Aleut languages

U – the Uralic languages

D – the Dravidian languages

T – the Turkic languages

HS – the Hamito-Semitic languages

M – the Mongolic languages

Three Borean roots and their embodiment in the descendant languages, including their scripts. The meaning of the Nostratic/Borean root - always on the top left side

I	*palA "many"	pil 1	Ⴑ Ⴑ Ⴑ Ⴑ Ⴑ Ⴑ Ⴑ Ⴑ Ⴑ Ⴑ 2	PLVS 3
	पुरु Πολύ 𐍆𐌶𐌳𐌰 viel 4	paijo пүлә 5	ᠤᠯᠡ ᠵᠢᠯᠢᠭᠦ 7 8	ᠰᠤᠨᠠᠭᠤ ᠰᠤᠨᠠᠨᠰᠤ ᠰᠢᠨᠢᠨᠠᠭᠤ ᠰᠢᠨᠢᠨᠠᠭᠤ 9 10 11
II	*šEwA "to give birth"	ႱႱႱႱႱ 1	ሃዐሩ 2	सूनुः sūnus SNHNS 3
	шыве 3	सू 4	सविता 5 7	ᠰᠢᠨᠢᠨᠠᠭᠤ ᠰᠢᠨᠢᠨᠠᠭᠤ ᠰᠢᠨᠢᠨᠠᠭᠤ 6
III	*kaṛä "bark" ႱႱ ႱႱႱႱ	ႱႱႱႱႱ 1	ܩܪܘܡ 2	:OC kúrōró 3 4
	चर्म CORIVM कोड़ा 5 6	kuore 8	кору кыра 9	хэрэ-ктэ 11 12

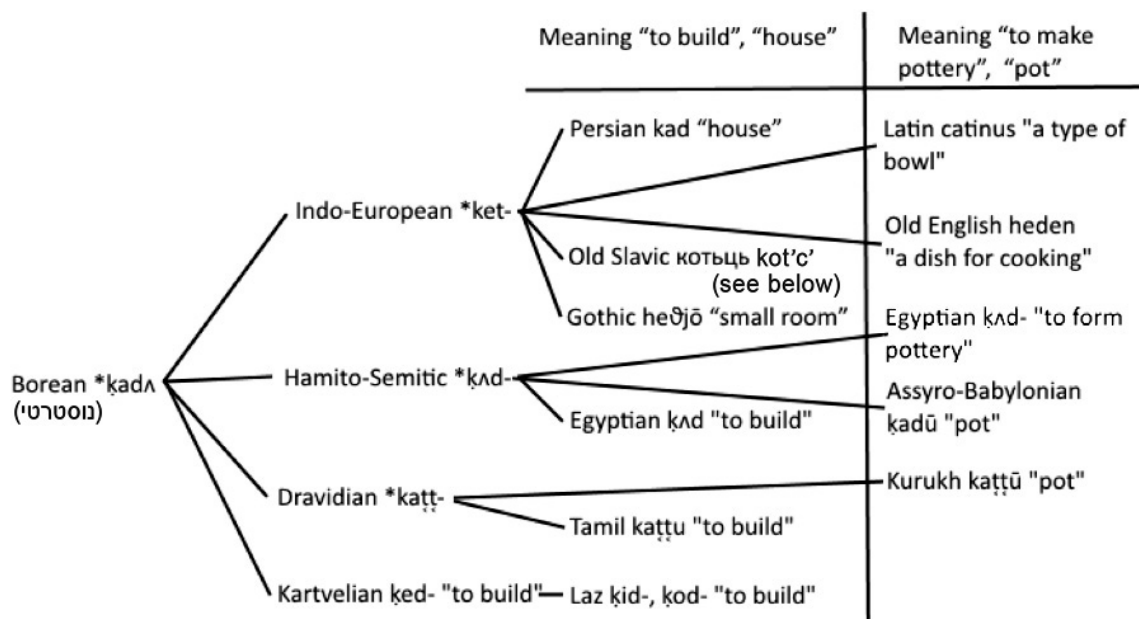
**I** 1. Angas (a Chadic language in Nigeria) pil “very”. 2. Georgian u-pro “more”, pr-iaid “very”. 3. Latin plus “more”. 4. “Many” in the Indo-European languages: Sanskrit puru, Greek polü, Gothic filu, German viel. 5. Finnish paijo “many”, Khanty pülä “pretty many”. 6. Yukagir pojuo “many”. 7. Mongolian üle “enough”. 8. “Too many, excessive” in the Mongolic languages: Old Mongolian ülegü (< \*jüle-gü), in 14<sup>th</sup> century Chinese script hülegü, Mongor juliu. 9. Manchu fulu “too, many”, Nanai pula “excess”. 10. Nivkhi pil “big”. 11. “Many” in the Dravidian languages: Tamil, Kannada pala, Telugu palu

**II** 1. Georgian švili “son”. 2. Old Georgian šwa “gave birth”. 3. Mary шыве “progeny”. 4. Sanskrit sū “to give birth”. 5. Sanskrit savitar “parent”. 6. “Son” in the Indo-European languages: Sanskrit sūnuḥ, Lithuanian sūnus, Old Slavic сынъ [syn], Gothic sunus, Old Norse sunuz, Old English sunu. 7. Shinasha (a Cushitic language in the Western Ethiopia šun – “to give birth”).

**III** 1. Georgian kerki “bark”. 2. Aramaic ḵorūm “bark, skin”. 3. The word a-γrum “rind” (root γrm) from the Berber Tuaregs of Sakhara. 4. The word kúrōró “shell” in the Mubi language of the Chadic group. 5. Sanskrit čarman “skin, hide”. 6. “Bark” in Latin and Old Russian. 7. Finnish kuore “bark”. 8. The verb “to peel, to skin” in the Uralic languages: Mansi кор [kor] and Selkup кыра [kyra]. 9. The word qāz “bark” in 11<sup>th</sup> century Turkic language (z < \*ř). 10. Old Mongolian kōrū-sūn “peel”. 11. Nanai хэрэ-ктэ [khere-kte] “skin”. 12. Japanese kara “shell, husk”.

### Ancient roots and the ancient civilizations.

One can imagine how much we can learn about the history of ancient cultures by studying Borean roots, for example, those that stand for production processes and their results. Such a study has not yet been conducted. But some things draw attention even now. Let us take, for example, the Borean root \*kadΛ. The words derived from it in the descendant languages are used in two meanings seemingly unconnected: 1) “to build” 2) “to make vessels, pottery”:



How can such different meanings be combined in one root? By studying carefully the words with it, we can find traces of yet another meaning – “to weave”. E.g., in Serbo-Croatian the word «kotaц» [kotats] means a pen enclosed with wattle, as well as a wattled dam. In a Russian dialect the word «коты» [koty] stands for a weaved fishing net. In Tamil (from the Dravidian family) the word kaṭṭu means not only “to build” but “to bind”, “bundle, package, bag” as well.

This meaning “to weave, to twine, to bind” is the original meaning of the root \*kad-. Such development (“to weave” – “to make pottery” and “to weave” – “to build”) won’t surprise us if we use archaeological data. Pottery is a relatively late invention (early Neolithic). The Neolithic clay pot historically comes from the Mesolithic basket coated with clay. On the other hand, the main type of Proto-Neolithic (from the 9<sup>th</sup> millenium B.C.) dwellings of Western Asia also developed from wattled buildings. Here’s what the archaeologist S. Semenov writes in his book “Development of technology in the Stone Age” (Moscow, 1968): “In the Western Asia Mesolithic epoch hunters and gatherers mostly dwelled in caves

and under rock overhangs. The art of dwelling appears here in the Proto-Neolithic era. In Zagros Mountains in the Zami Chemi village there are remnants of oval and round dwellings... . Supposedly their structures were made from a reed wattle coated with clay”. Thus, the linguistic data confirms archaeology. So far it can only confirm, but in the future, one can think, it may supplement it.

It is also of interest to study the Borean terms of kinship. We can pick up information on the societal structure and on family and marriage relationships from them, in the time of Borean languages speakers' community. Let us take, for example, the root \*kälu (see the scheme, in page 110).

As we can see, in various descendant languages this root sometimes stands for “wife of a brother”, sometimes “sister of a husband”, sometimes “wife of a son” or “wife of the father’s younger brother”, or “bride”, and in Kartvelian (and later in Georgian) – just “woman”. The ancient meaning of the root should be close to all these meanings at once. But who can at the same time be a husband’s sister, a relative’s (brother’s, son’s, uncle’s) wife, a bride (a potential wife) and something close to “a woman” as a generic unit? The only degree of kinship to conform to all these meanings is “a woman from another phratry (another matrimonial class)”.

There is a widely accepted hypothesis in modern ethnography that in tribe/clan society a dual clan system of matrimonial and family relationships was in use: every clan A was tied to another clan B in such a way that men of clan A only married women of clan B, and the men of clan B only married the women of clan A. For a man from clan A a woman of clan B is \*kälu (to use the Borean root as a term). Then daughter-in-law, sister-in-law, uncle’s wife are all instances of \*kälu. At the same time, \*kälu is potentially a wife (thus, “bride”). When that system was destroyed, the root \*kälu could expand its meaning and become the name of a woman in general, as it happened in Kartvelian.

We can find other Borean terms from the field of the clan society: \*kudä “man from another matrimonial class”, \*miñΛ “junior \*kälu, younger woman from another matrimonial class”. There are also terms (semantically not quite clear) which could stand for the members of the same matrimonial class (a man – \*taHjΛ, a woman – \*natJΛ). There is a word for clan itself: \*külä.

Hypotheses about the structure of clan system were until now made using the data of ethnography, folklore, mythology. If linguists will now manage to trace the

history of the terms of kinship and some other types of words for ten millenia back, they, too, could participate in the difficult task of reconstructing the distant past.

Finding laws of historical sound development in the Borean languages can help to lift the veil over another enigmatic field: the history of grammatical categories' formation. How and when did cases (casus), tenses, numbers etc. appear? Any modern grammar of any language contains elements from different time layers. In Russian there is a category of reflexiveness (УМЫВАЛ-СЯ [umyvʌl-sʲɪ], "he was washing himself"), a category which only is a thousand years old or less. This -ся came from the pronoun сА ("self/himself") in the Old Russian language.

Some categories, on the opposite, come from remote antiquity, inherited from Proto Indo-European (spoken 6–7 thousand years previously). Some of them (adjective category, neuter gender) appeared in the Indo-European languages, and explanations of these appearances can be found in comparative-historical grammar of the Indo-European languages. Some are even much older. For example, by inner comparison of the Indo-European languages we can't explain the origins of most cases (casus), numbers, verb conjugation. Nostratic linguistics can be here of help. For example, Indo-European singular personal endings of verbs \*-mi, \*-si, \*-ti (\*edmi > ем [jem] "I eat", \*edsi > ешь [jeshʲ] "you eat", \*edti > ест [jest] "he eats", come from Borean pronouns \*mi "I", \*ti (later \*ši) "you", \*tʌ "that, it".

<b>Borean</b>	<b>Indo-European</b>	<b>Russian</b>	<b>English</b>
*'itʌ mi	*edmi	ЕМ	I eat
*'itʌ ti	*edsi	ЕШЬ	You eat
*'itʌ tʌ	*edti	ЕСТ	He eats

Borean origin of the masculine and neuter gender categories, of the plural number, of many cases (casus) in the descendant languages becomes more and more apparent. Indo-European, Uralic, Kartvelian and other affixes (prefixes, suffixes, flections) are derived mostly from separate Borean words.

One can hope that a thorough analysis and comparison of the grammatical systems of all related languages to the Borean/Nostratic macrofamily will allow to draw in near future a picture of the development of grammars of the languages located in most parts of Eurasia and Northern Africa, a development which lasts during more than a hundred centuries. Here we should mark that the "Nostratic Dictionary" (2008) by A.Dolgopolsky does include the grammar of the Nostratic macrofamily.

**Schemes of four Nostratic/Borean roots discussed in the article:  
Nostratic/Borean origin, branching out to families, and reflection in  
descendant languages.**

