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ABSTRACT

A discussion of Indo-European languages proposes that this language family is not genetically isolated but is distantly related to certain other language families of northern and central Eurasia, the Indian subcontinent, and the ancient Near East. The history of research into this macrofamily of languages, termed Nostratic, is reviewed, with notes on methodology, theory, and evidence gathered to date. Salient characteristics of Indo-European (laryngeals, root structure patterning, verb morphology, noun morphology, vowel-gradation, consonant patterns) are outlined, then examined in relation to other Nostratic languages. The probable homeland and dispersal of the Nostratic languages are considered, with comparisons made between languages within the family, with reference to previous research in the field. It is concluded that it is no longer reasonable to assume that Indo-European is a language isolate. Further research is recommended both at the level of Proto-Nostratic and within each daughter language. A substantial bibliography is included (201 items), and maps and charts illustrating phonological and morphological correspondences between languages are appended. (MSE)

# Indo-European and the Nostratic Hypothesis: History of Research, Current trends, and Future Prospects

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# INDO-EUROPEAN AND THE NOSTRATIC HYPOTHESIS: HISTORY OF RESEARCH, CURRENT TRENDS, AND FUTURE PROSPECTS

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## 1. Introduction

Distant (or long-range) linguistic comparison seeks to investigate the possibility that certain languages or language families, not previously thought to be genetically related, at least not "closely" related, might indeed be part of still larger groupings, which may be called "macrofamilies".

This paper will focus on Indo-European. The purpose is to show that Indo-European is not genetically isolated but, rather, that it is distantly related to certain other language families of northern and central Eurasia, the Indian subcontinent, and the ancient Near East. Where appropriate, issues concerning the other language families with which Indo-European is most likely related will also be discussed.

## 2. History of Research

From the very earliest days of Indo-European comparative linguistics, there have been speculations about the possible genetic relationship of Indo-European to other language families. Though, in the course of study, many striking similarities were noted between Indo-European and certain other language phyla, notably Uralic and Afroasiatic, truly convincing evidence of distant linguistic relationship was simply not brought forth. Indeed, much of the early work was not of high quality and did more to discredit the attempt to discover possible relatives of Indo-European than to help. Gradually, the intellectual climate, especially in the United States, became hostile to long-range comparison, and Indo-European remained an orphan with no known relatives.

In the first half of the last century, no less a figure than one of the founders of Indo-European comparative grammar, Franz Bopp, investigated possible relationship of Indo-European with Kartvelian (in 1846 and 1847) on the one hand and with Malayo-Polynesian (in 1840) on the other. In the mid-1860's, Rudolf von Raumer (in 1863) and Graziadio Ascoli (in 1864) claimed that Indo-European and Semitic were related. At about the same time (in 1869), Vilhelm Thomsen proposed relationship between Indo-European and Finno-Ugrian. This proposal was later (in 1879) explored in depth by the Estonian Nicolai Anderson and (in 1900) by the British phonetician Henry Sweet. Unfortunately, Anderson's work contained too many errors to be of lasting value. However, insightful and solid contributions were made concerning the possible relationship of Indo-European and Uralic during the current century by the Swedish Uralicist Björn Collinder. Towards the end of the last century (1873), the Semiticist

Friedrich Delitzsch investigated lexical parallels between Indo-European and Semitic. Then, at the beginning of this century, the Danish linguist Hermann Möller, in the course of several publications, attempted to show that Indo-European and Semitic might be related. Möller's work was later continued by the French linguist Albert Cuny, whose last publications date from the mid-1940's. Möller's and Cuny's efforts were generally not highly regarded by the scholarly community. One exception was Möller's student Holger Pedersen, who not only coined the term "Nostratic" but who also expanded the definition to include Indo-European, Semitic, Samoyed and Finno-Ugrian, Turkish, Mongolian, Manchu, Yukaghir, and Eskimo (cf. Pedersen 1931:337-338). In 1969, Linus Brunner published a detailed comparison of the Indo-European and Semitic vocabularies, and this was followed in 1980 by a wider comparison of languages undertaken by Kalevi E. Koskinen. We should note also that, though the investigation of problems relating to distant linguistic comparison was generally ignored by the vast majority of mainstream linguists, the field was never completely dormant — a small but persistent group of scholars (Pentti Aalto, Knut Bergsland, Václav Blazhek, Réné Bonnerjea, Karl Bouda, Bojan Čop, Heinz Fähnrich, Carleton T. Hodge, G. A. Klimov, D. H. Koppelmann, Saul Levin, Karl Menges, Roy Andrew Miller, Mikolas Palmaitis, Stephen A. Tyler, Ants-Michael Uesson, C. C. Uhlenbeck, to name but a few of the many scholars working on long-range comparison) has continued to work, throughout the better part of this century, on binary (or, in rare cases, wider) comparisons of various languages that are currently considered to belong to the Nostratic macrofamily. For comprehensive bibliographies listing publications dealing with distant linguistic comparison, cf. Hegedűs 1992, Landsberg 1986, and Bomhard-Kerns 1994:715-864.

Recently, beginning in the mid-1960's, the intellectual climate has slowly begun to turn around, and a growing number of linguists, especially in the former Soviet Union, have begun to turn attention toward investigating distant linguistic relationship. The revived interest was sparked by the work of Vladislav M. Illich-Svitych and Aaron B. Dolgopolsky, who first started working independently and, at a later date, through the efforts of their mutual friend Vladimir Dybo, cooperatively. Their work, though not without its own shortcomings, was the first successful demonstration that certain language phyla of northern and central Eurasia, the Indian subcontinent, and the ancient Near East might be genetically related. Following a proposal made in 1903 by Holger Pedersen, they employed the name "Nostratic" to designate this grouping of languages. In particular, Illich-Svitych, in the course of several publications, culminating in his posthumous comparative Nostratic dictionary, which is still in the process of publication, included Indo-European, Kartvelian, Afroasiatic, Uralic, Dravidian, and Altaic in his version of the Nostratic macrofamily. From his very earliest writings, Dolgopolsky also included Chukchi-Kamchatkan and Eskimo-Aleut.

Before his tragic death in an automobile accident on 21 August 1966, Illich-Svitych had planned to prepare a comparative Nostratic dictionary listing over 600 Nostratic roots and tracing their development in detail in each of the daughter languages in which they were attested. He had published a preliminary report on his work in 1965 entitled (in English translation) "Materials for a Comparative Dictionary of the Nostratic Languages (Indo-European, Altaic, Uralic, Dravidian, Kartvelian, Hamito-Semitic)". Working diligently, literally devoting all of his energy to the project, he had managed to

prepare the entries for approximately 350 roots. After his death, Illich-Svitych's work was prepared for publication by the dedicated efforts of Rimma Bulatova, Vladimir Dybo, and Aaron Dolgopolsky, with the result that the first volume of the dictionary appeared in 1971, containing 245 entries. A second, smaller volume appeared in 1976, listing entries 246 through 353 and ending with an index — this completed all of the material prepared by Illich-Svitych himself (by the time this volume appeared, Dolgopolsky was in the process of emigrating to Israel). Finally, the first fascicle of volume three appeared in 1981, containing entries 354 through 378, none of which were prepared by Illich-Svitych — it represents the collective efforts of a team of scholars.

In the meantime, Dolgopolsky has continued to make important contributions to Nostratic studies, especially in a 1984 paper on Nostratic pronouns, and currently has material to support the reconstruction of just over 2,000 Nostratic roots. Unfortunately, only a small amount of this material has been published to date. Other Russian scholars have also done quality research into problems affecting Nostratic — mention should be made of the work of Alexandra Y. Aikhenvald, N. D. Andrejev, M. S. Andronov, Vladimir Dybo, Eugene Helimskij, Vjacheslav V. Ivanov, G. Kornilov, Oleg Mudrak, Vitaly V. Shevoroshkin, Sergej A. Starostin, V. A. Terent'jev, Vladimir N. Toporov, and V. L. Tsymburskij, among others. Though not Russian (but clearly someone who belongs to the "Moscow School"), special recognition must be given to the Czech scholar Václav Blazhek, who has published many important papers, most of which deal with the common Nostratic lexicon.

Beginning with an article that appeared in *Orbis* in 1975, Allan R. Bomhard published several studies, culminating in a 1984 book entitled *Toward Proto-Nostratic: A New Approach to the Comparison of Proto-Indo-European and Proto-Afroasiatic*, in which he tried to show that Indo-European and Semitic (later expanded to include all of Afroasiatic) might be distantly related. Reviews of this book as well as discussions with colleagues prompted Bomhard to expand the scope of his research to include other language families. This resulted in the publication in April 1994 by Bomhard of a joint monograph with John C. Kerns entitled *The Nostratic Macrofamily: A Study in Distant Linguistic Relationship*. It was Kerns who prepared the chapter dealing with Nostratic morphology. This book supplies a great deal of lexical evidence from the Nostratic daughter languages to support the reconstruction of 601 Proto-Nostratic roots. In a forthcoming article (to appear in 1995 in *Orbis*), Bomhard supplies material to support an additional 29 Proto-Nostratic roots. Bomhard continues to gather lexical data and plans future articles listing still more common Nostratic roots. It should be noted that Bomhard's views on Nostratic differ somewhat from those of Illich-Svitych (and others who follow his system) — the differences are discussed in §4 below.

Joseph Greenberg is currently preparing a two-volume work to be entitled *Indo-European and its Closest Relatives: The Eurasiatic Language Family*. The first volume will deal with morphology, and the second will deal with phonology and the lexicon. Greenberg includes Indo-European, Uralic-Yukaghir, Altaic (Mongolian, Chuvash-Turkic, and Manchu-Tungus), Japanese-Korean (Korean, Ainu, and Japanese-Ryukyuan), and Chukchi-Eskimo (Gilyak, Chukchi-Kamchatkan, and Eskimo-Aleut) in his Eurasiatic language family. Unlike Illich-Svitych and Bomhard, he does not include Kartvelian, Afroasiatic, nor Elamo-Dravidian — not because he believes that they are unrelated, but

because he believes that these three language phyla are more distantly related to Indo-European than are the others, which, along with Indo-European, form a natural taxonomic subgrouping. My own opinion is close to that of Greenberg. As I see the situation, Nostratic includes Afroasiatic, Kartvelian, and Elamo-Dravidian as well as Eurasiatic, in other words, I view Nostratic as a higher-level taxonomic entity. Afroasiatic stands apart as an extremely ancient, independent branch — it was the first branch of Nostratic to separate from the rest of the Nostratic speech community. Younger are Kartvelian and Elamo-Dravidian. It is clear from an analysis of their vocabulary, pronominal stems, and morphological systems that Indo-European, Uralic-Yukaghir, Altaic, Gilyak, Chukchi-Kamchatkan, and Eskimo-Aleut are more closely related as a group than any one of them is to Afroasiatic, Kartvelian, and Elamo-Dravidian, and this is the reason that I follow Greenberg in setting up a distinct Eurasiatic subgroup within Nostratic. Finally, Sumerian, if it really does belong here, is a separate branch, perhaps closest to Elamo-Dravidian. It must be noted here that I am still uncertain about the exact positioning of Kartvelian and Elamo-Dravidian. Clearly, the Kartvelian pronoun stems are more closely related to those found in Eurasiatic. On the other hand, it resembles Afroasiatic in its use of prefixes, for example. As for Elamo-Dravidian, its pronoun stems have about the same number of parallels with Afroasiatic as they do with Eurasiatic or Kartvelian. However, in both nominal declension and verbal conjugation, Elamo-Dravidian is closer to Eurasiatic than to Afroasiatic. My present thinking is that Kartvelian is probably closer to Eurasiatic than what I indicated in my book and that the differences are due to innovations within Kartvelian. An attempt at subgrouping is shown in Chart 1.

Interest in issues dealing with Nostratic has resulted in several recent conferences, the first of which was held in Moscow in 1972 to coincide with the publication of the first volume of Illich-Svitch's comparative Nostratic dictionary. This was followed by a series of gatherings in Russia. Another major conference was held in Ann Arbor, Michigan, at the end of 1988. Organized by Vitaly Shevoroshkin and Benjamin Stolz, this symposium brought together scholars from East and West. A series of volumes under the editorship of Shevoroshkin has been appearing as a result of this conference (published by Brockmeyer in Bochum, Germany). Shevoroshkin has also organized several smaller-scale, follow-up conferences. At the end of 1993, a workshop with the theme "The Second Workshop on Comparative Linguistics. The Status of Nostratic: Evidence and Evaluation" was organized at East Michigan University, Ypsilanti, Michigan. Papers from this workshop are now being prepared for publication (under the editorial auspices of Brian Joseph and Joe Salmons).

## 3. Methodology

Even though I have repeated the following points verbatim many times in previous papers, I still read irresponsible statements being made in the literature to the effect that Nostraticists do not use "traditional methods" or that they use a "weakened form" of the Comparative Method. Nothing could be farther from the truth. Therefore, I will once again state the methodological principles used in distant linguistic comparison

(this is a slightly revised and expanded version of the discussion of methodology found in my recent book [Bomhard-Kerns 1994:7-11]).

The founders of Indo-European comparative linguistics placed great importance on the comparison of grammatical forms, and this bias continues to the present day in Indo-European studies and has even been carried over into the study of other language families. However, this overemphasis on the comparison of grammatical forms is far too restrictive and was the reason that the Celtic languages, which have developed many unique features, were not immediately recognized as Indo-European. As noted over sixty years ago by Pedersen (1931:245):

> That agreement in the inflectional system is an especially clear and striking proof of kinship, no one denies. But it is only an anachronism in theory, which has no significance in actual practice, when such an agreement is still designated as the only valid proof. No one doubted, after the first communication about Tocharian..., that the language was Indo-European, though at that time virtually no similarities in inflection had been pointed out. Such similarities have since been shown, but even where they are almost obliterated, proof of kinship could be adduced from the vocabulary and from sound-laws. Hardly any one will assert that it would be impossible to recognize the relationship between, say, English and Italian, even without the help of other related languages or older forms of these two languages themselves, although agreements between the inflectional systems are practically nonexistent.
>
> From the modern point of view it must be said that proof of relationship between languages is adduced by a systematic comparison of languages in their entirety, vocabulary as well as grammar. The reason why earlier scholars felt they should disregard the vocabulary was that they knew of no method of systematic comparison in the field.

The approach to language comparison that I have followed in attempting to establish genetic relationship among the various Nostratic languages is derived, in part, from that advocated by Joseph H. Greenberg in the chapter entitled "Genetic Relationship among Languages" in his 1957 book *Essays in Linguistics* and, in part, from traditional methods of comparison and internal reconstruction. In my opinion, the combination of Greenberg's methodology and more traditional methods of comparison can inform and further one another. The principles established by Greenberg are as follows:

Greenberg notes that the only way to establish hypotheses about genetic relationship is by comparing languages. However, the problem is in knowing which languages to compare and in knowing what to compare since not all aspects of language are equally relevant to comparison. To be meaningful, comparison must strive to eliminate chance resemblances and to separate borrowings from native elements. This is often easier said than done; however, Greenberg lays out two main techniques for detecting borrowed lexical items. First, he notes that borrowing is commonly confined to certain semantic spheres (for example, cultural items) and certain grammatical categories (nouns far more often than verbs). Second, borrowed words can be distinguished from native vocabulary by expanding the range of comparison to include additional languages.

The simplest way to establish genetic relationship is by identifying a large number of similar morphs (or allomorphs) — especially irregularities — in similar environments in the languages being considered. Another significant indicator of probable genetic relationship is the presence of similar rules of combinability. Unfortunately, historical

processes over the passage of time bring about the gradual transformation and eventual elimination of such similarities. The longer the period of separation, the lesser the chances will be that similarities of morphological forms and rules of combinability will be found.

Fortunately, there remain other factors that can be helpful in determining possible genetic relationship. One significant factor is the semantic resemblance of lexical forms. Here, it is important to be able to establish recurrent sound-meaning correspondences for a reasonably large sample of lexical material. Lexical forms with identical or similar meanings have the greatest value. Next in value come forms that, though divergent in meaning, can convincingly be derived, through widely-attested semantic shifts, from earlier forms of identical or similar meaning. The chances that lexical resemblances indicate genetic relationship increase dramatically when additional languages are brought into the comparison and when these new languages also exhibit a very large number of recurrent sound-meaning correspondences. Greenberg has termed this method "mass comparison" (more recently, he has used the term "multilateral comparison"). He considers the comparison of basic vocabulary from a large number of languages from a specific, wide geographic area to be the quickest and most certain method to determine possible genetic relationship. To Greenberg, lexical data are of paramount importance in attempting to establish genetic relationship among languages, especially in the initial stages of comparison.

The basic principles underlying the Comparative Method may be summarized as follows: The first step involves the arduous task of data gathering, placing special attention on gathering the oldest data available. Once a large amount of lexical material has been gathered, it must be carefully analyzed to try to separate what is ancient from what is an innovation and from what is a borrowing. After the native lexical elements have been reasonably identified in each phylum, the material can be compared across phyla to determine sound correspondences. Not only must the regular sound correspondences (that is, those that occur consistently and systematically) be defined, exceptions must also be explained. Here, widely-attested sound changes (palatalization, metathesis, syncope, assimilation, dissimilation, etc.) provide the key to understanding the origin of most exceptions. In other cases, the analysis of the influence that morphology has exerted provides an understanding of how particular exceptions came into being. Some exceptions, though clearly related, simply defy explanation. All of these must be noted. The final step involves the reconstruction of ancestral forms and the formulation of the sound laws leading to the forms in the descendant languages, identifying the laws that have produced the regular sound correspondences as well as the exceptions. The same principles apply to the reconstruction of grammatical forms and rules of combinability and to the identification of the historical transformations leading to the systems found in the daughter languages. Invariably, it takes the dedicated efforts of several generations of scholars to work out all of the details. Here, we may cite the case of Indo-European — as even the most casual reading of Lehmann's new book (1993) on the *Theoretical Bases of Indo-European Linguistics* shows, after nearly two full centuries of investigation of what must surely be the most thoroughly-studied language family on the face of the earth, there still remain many uncertainties about the reconstruction of the Indo-European parent language. The following works are excellent introductions to

Comparative-Historical Linguistics: Arlotto 1972; Bynon 1977; Lehmann 1992 — more advanced are: Anttila 1989 and Hock 1991.

At this point, we may note that the description of the Comparative Method and Internal Reconstruction given by Schwink (1994:9) is virtually identical to the procedure outlined in the preceding paragraph:

> Let us now proceed to the nuts and bolts of reconstruction. Winter (1970:149) describes the comparative method in the following terms. First one carries out "inspection". This is looking at a number of languages for "a sufficient number of apparently recurrent correspondences". One should look at the oldest stages of languages, judge which languages have the most archaic features or residues (Lehmann 1990). Inspection is followed by "sorting" which involves a complete listing of the correspondences discovered although without interpretation (Winter 1970:149). Thereafter comes the reduction of the material to major correspondence classes. If there are irregularities in distribution, one looks for specific factors which may condition the difference. This is now an interpretive procedure. The label chosen for an entity of a major correspondence class should have "a maximum of similarity with the items labeled" (p. 152). In this selection, the question of archaicity of daughter languages will be taken into account. After assumption that the label represents some earlier stage of the languages being looked at, an attempt may be made to look at the labels of parts of systems.
>
> The comparative method does not produce temporal distinctions... It produces a proto-language which is a potpourri of features. It will be the job of internal analysis to sort out this proto-language.

As noted in the first paragraph, it was necessary to discuss these issues in order to address concerns that have been raised about the applicability of traditional methods of comparison to long-range comparison. It must be made perfectly clear that the same principles are just as applicable to long-range comparison as they are to any other type of linguistic comparison. The fact is, these are the only tools we have. Moreover, they work — their efficacy has been proven over and over again.

Furthermore, claims that these methodologies break down when one tries to apply them beyond a certain time limit, say 5,000 to 10,000 years ago, can be shown, without a shadow of doubt, to be false. One can cite, for example, the case of the aboriginal languages of Australia. Archaeological evidence indicates that Australia has been inhabited by human beings for approximately 40,000 years. Though there remain many unsettled questions, such as exactly when Proto-Australian was spoken (probably at least 30,000 years ago), or about how the different languages should be subgrouped, and so on, there can be no question that all extant languages belong to the same family (cf. Ruhlen 1987:188), and comparative work on these languages is continuing apace (cf. Dixon 1980). Another example that can be cited is the case of the Afroasiatic language family. Due to the extremely deep divisions among the six branches of Afroasiatic (Semitic, Egyptian, Berber, Omotic, Cushitic, and Chadic), which are far greater than those found, by way of comparison, among the earliest attested branches of Indo-European, the Afroasiatic parent language must be placed as far back as 10,000 BCE (cf. Diakonoff 1988:33, fn. 15), or perhaps even earlier, according to some scholars (Hodge [1993:99], for example, dates Proto-Afroasiatic [his Lisramic] at 13,000 BCE). This extremely ancient date notwithstanding, the major sound correspondences have been determined

with great accuracy (see especially Diakonoff 1992), excellent progress is being made in reconstructing the common lexicon (a new Afroasiatic etymological dictionary has just been published by Vladimir E. Orël and Olga V. Stolbova [1995]), and scholars are beginning to piece together the original morphological patterning, though progress here lags behind other areas.

One last point needs to be made: Reconstructed languages should be thought of as real languages in every sense of the term. Of course, our reconstructions are, in a sense, purely formulaic, and one can only hope to approximate, not fully recover, all of the features of the actual proto-language. Nevertheless, our reconstructions can be surprisingly accurate, as can be seen, for instance, when reconstructed Proto-Romance is contrasted with so-called "Vulgar Latin". When we undertake the task of trying to recover the salient features of this or that proto-language, we must be very careful not to reconstruct anything that is not characteristic of language in general: our goal should be to strive for reality in our reconstructions (cf. Labov 1994:17). The prudent use of the insights gained from linguistic typology can be extremely valuable in helping to arrive at realistic reconstructions. Now, a few more conservative linguists have questioned the propriety of using typological data in Historical-Comparative Linguistics, their main argument running somewhat along the lines: "since we cannot possibly know all of the languages that currently exist or that have ever existed, we cannot say that such and such a type was impossible, unnatural, or has never existed" — that is to say, our "database" of linguistic systems will always be incomplete. Of course, there is no arguing with this line of reasoning. However, these linguists miss an important point: form all of the data that have been collected to date — from an extremely large sample of the world's languages — there emerge consistent, regular patterns that are repeated over and over again. There are, to be sure, rare types — typological isolates, so to speak —, but these are less important (though no less interesting) from a statistical point of view. It is the regular patterning that has emerged from the analysis of the data from a great number of languages that is most important to Historical-Comparative Linguistics. These data are important in two respects: (A) they provide a control against which our reconstructions can be evaluated and (B), when part of a system has been reconstructed, they provide a means to deduce what the rest of the system might have been like, that is to say, they can be used as a discovery procedure by making use of "implicational universals". Concerning the consistent, regular patterning that has been observed, it should be noted that the basis for some of this patterning is human physiology, and, in such cases, we can speak of true universals. Given this regular patterning, it is disturbing when our reconstructions contradict it, as in the case of one form of the traditional reconstruction of Proto-Indo-European, for instance. To say merely that "Indo-European was a unique type" or some such statement only means that the person making such a statement chooses not to confront the issues involved. We should not hesitate to use every means at our disposal to help us arrive at realistic reconstructions. To be sure, we should be fully cognizant of the work of our predecessors and adhere closely to the time-honored methodologies — the Comparative Method and Internal Reconstruction — that have served Comparative-Historical Linguistics well since the days of Bopp, Rask, and Grimm. However, we must not stop here — we must also make full use of recent advances in phonological theory that have broadened our understanding of sound change,

of new insights gained from typological studies, and our proposals must be consistent with the data. For an superb overview of the relevancy of typological studies to diachronic linguistics, cf. Schwink 1994.

In attempting to determine whether or not particular lexical items from the various language families might be related, I have made extensive use of Carl Darling Buck's *A Dictionary of Selected Synonyms in the Principal Indo-European Languages* as a control for the semantic development of the proposed lexical parallels. It may be noted that, in examining the lexicons of Kartvelian, Afroasiatic, Uralic-Yukaghir, Elamo-Dravidian, Altaic, and Sumerian, I have observed that semantic shifts similar to those described by Buck for the Indo-European languages are found over and over again in these other language families as well.

## 4. Critique of Moscovite Views on Nostratic

Let me begin by stating unequivocally that I have the highest admiration for what Moscovite scholarship (especially the work of V. M. Illich-Svitych and A. B. Dolgopolsky — some of the work done by other Russian scholars is not on the same level) on Nostratic has achieved. Their research has opened up new and exciting possibilities and given Nostratic studies new respectability. However, this does not mean that I agree with everything they say. I regard their work as a pioneering effort and, as such, subject to modification in light of advances in linguistic theory, in light of new data from the Nostratic daughter languages, and in light of findings from typological studies that give us a better understanding of the kind of patterning that is found in natural languages as well as a better understanding of what is characteristic of language in general, including language change.

Let us begin by looking at phonology. In 1972 and 1973, the Georgian scholar Thomas V. Gamkrelidze and the Russian scholar Vjacheslav V. Ivanov jointly proposed a radical reinterpretation of the Proto-Indo-European stop system. According to their reinterpretation, the Proto-Indo-European stop system was characterized by the three-way contrast glottalized ~ voiceless (aspirated) ~ voiced (aspirated). In this revised interpretation, aspiration is viewed as a redundant feature, and the phonemes in question could also be realized as allophonic variants without aspiration. A similar proposal was made by Paul J. Hopper at the same time (Hopper [1973] and in a number of subsequent publications — these are listed in the references).

This new interpretation opens new possibilities for comparing Proto-Indo-European with the other Nostratic daughter languages, especially Proto-Kartvelian and Proto-Afroasiatic, each of which had a similar three-way contrast. The most natural assumption would be that the glottalized stops posited by Gamkrelidze and Ivanov for Proto-Indo-European would correspond to glottalized stops in Proto-Kartvelian and Proto-Afroasiatic, while the voiceless stops would correspond to voiceless stops and voiced stops to voiced stops. This, however, is quite different from the correspondences proposed by Illich-Svitych. He sees the glottalized stops of Proto-Kartvelian and Proto-Afroasiatic as corresponding to the traditional plain voiceless stops of Proto-Indo-European, while the voiceless stops in the former two branches are seen as corresponding

to the traditional plain voiced stops of Proto-Indo-European, and, finally, the voiced stops to the traditional voiced aspirates of Proto-Indo-European. Illich-Svitych then reconstructs the Proto-Nostratic phonological system on the model of Kartvelian and Afroasiatic, with the three-way contrast glottalized ~ voiceless ~ voiced in the series of stops and affricates.

The mistake that Illich-Svitych made was in trying to equate the glottalized stops of Proto-Kartvelian and Proto-Afroasiatic with the traditional plain voiceless stops of Proto-Indo-European. His reconstruction would make the glottalized stops the least marked members of the Proto-Nostratic stop system. Illich-Svitych's reconstruction is thus in contradiction to typological evidence, according to which glottalized stops are uniformly the most highly marked members of a hierarchy. The reason that Illich-Svitych's reconstruction would make the glottalized stops the least marked members is as follows: Illich-Svitych posits glottalics for Proto-Nostratic on the basis of one or two seemingly solid examples in which glottalics in Proto-Afroasiatic and/or Proto-Kartvelian appear to correspond to traditional plain voiceless stops in Proto-Indo-European. On the basis of these examples, he assumes that, whenever there is a voiceless stop in the Proto-Indo-European examples he cites, a glottalic is to be reconstructed for Proto-Nostratic, even when there are no glottalics in the corresponding Kartvelian and Afroasiatic forms! This means that the Proto-Nostratic glottalics have the same frequency distribution as the Proto-Indo-European plain voiceless stops. Clearly, this cannot be correct. The main consequence of Illich-Svitych's mistaken equation of the glottalized stops of Proto-Kartvelian and Proto-Afroasiatic with the traditional plain voiceless stops of Proto-Indo-European is that he is led to posit forms for Proto-Nostratic on the basis of theoretical considerations but for which there is absolutely no evidence in any of the Nostratic daughter languages. (For a discussion of markedness theory and its implications for historical-comparative linguistics, cf. Gamkrelidze 1978 and 1981.)

What about those examples adduced by Illich-Svitych which appear to support his proposed correspondences? Some of these examples admit alternative explanations, while others are questionable from a semantic point of view and should be abandoned. Once these examples are removed, there is an extremely small number (no more than a handful) left over that appear to support his position. However, compared to the massive counter-evidence in which glottalized stops in Kartvelian and Afroasiatic correspond to similar sounds (the traditional plain voiced stops) in Proto-Indo-European, even these residual examples become suspect (they may be borrowings or simply false cognates).

Another major shortcoming is in Illich-Svitych's reconstruction of the Proto-Nostratic vowel system, which, according to him, is essentially that of modern Finnish. It simply stretches credibility beyond reasonable bounds to assume that the Proto-Nostratic vowel system could have been preserved unchanged in Finnish, especially considering the many millennia that must have passed between the dissolution of the Nostratic parent language and the emergence of Finnish. No doubt, this erroneous reconstruction came about as a result of Illich-Svitych's failure to deal with the question of subgrouping. The Uralic-Yukaghir phylum, of which Finnish is a member, belongs to the Eurasiatic branch of Nostratic. Now, Eurasiatic is several millennia younger than Afroasiatic, which appears to be the oldest branch of the Nostratic macrofamily. Therefore, Afroasiatic must play a key role in the reconstruction of the Proto-Nostratic vowel system, and the Uralic-

Yukaghir vowel system must be considered a later development that cannot possibly represent the original state of affairs.

## 5. Evidence for Nostratic

The following evidence provides the basis for setting up a Nostratic macrofamily:

1. First and foremost, the descendant languages can be shown to share a large common vocabulary. In an article published in 1965 Illich-Svitych listed 607 possible common Nostratic roots, but only 378 have been published to date in his posthumous comparative Nostratic dictionary. It should be noted that there are differences between the etymologies proposed in 1965 and the items included in the later dictionary: first, some of the items listed in 1965 do not appear in the dictionary; next, minor changes have been made to several of the earlier etymologies. Dolgopolsky currently claims to have just over 2,000 common Nostratic roots, but only a small sampling of this material has been published to date. In the joint monograph by myself and John C. Kerns, entitled *The Nostratic Macrofamily: A Study in Distant Linguistic Relationship*, I supply a great deal of lexical material (approximately 25,000 cited forms) from the Nostratic daughter languages to support 601 common Nostratic roots. It should be mentioned here as well that Greenberg is currently preparing a book entitled *Indo-European and Its Closest Relatives: The Eurasiatic Language Family*, in which a large amount of lexical material will be discussed, though Greenberg's Eurasiatic is not the same as Nostratic.

2. As is to be expected, the various branches of Nostratic investigated to date exhibit regular sound correspondences (see Table 1 for details), though, it should be mentioned, there are differences in interpretation between Illich-Svitych and Dolgopolsky on the one hand and myself on the other.

3. Finally, a moderate number of common grammatical formants have been recovered -- many of these are listed in Illich-Svitych's comparative Nostratic dictionary; see also the chapter on Nostratic morphology by John C. Kerns in Bomhard-Kerns (1994:141-190).

Notable among the lexical items uncovered by Illich-Svitych, Dolgopolsky, and myself is a solid core of common pronominal stems (these are listed below in Table 2, though only the stems represented in Indo-European are given — the Proto-Nostratic reconstructions are given according to my system; for information on other pronoun stems, cf. Dolgopolsky 1984). These pronominal stems have particular importance, since, as forcefully demonstrated by John C. Kerns (1985:9-50), pronouns, being among the most stable elements of a language, are a particularly strong indicator of genetic relationship (Ruhlen 1994:92-93 makes the same point). Kerns (1985:48) concludes (the emphasis is his):

> The results are overwhelming. We are forced to conclude that the pronominal agreements between Indo-European and Uralic, between Uralic and Altaic, and between Indo-European and Altaic, did not develop independently, but instead were CAUSED by some UNIQUE historical circumstance. In short, it is extremely unlikely that the three pronominal systems could have evolved independently.

The conclusion seems inescapable that the consistent, regular phonological correspondences that can be shown to exist among the Nostratic daughter languages as well as the agreements in vocabulary and grammatical formants that have been uncovered to date cannot be explained as due to linguistic borrowing or mere chance but can only be accounted for in terms of common origin, that is, genetic relationship. To assume any other possibility would be tantamount to denying the efficacy of the Comparative Method. This does not mean that all problems have been solved. On the contrary, there remain many issues to be investigated and many details to be worked out, but the future looks extremely exciting and extremely promising.

## 6. Indo-European

Before looking into how comparison with other Nostratic languages can shed light on a few selected problem areas within Indo-European, it would be useful to discuss some salient characteristics of Indo-European. Morphologically, Proto-Indo-European was a highly inflected language — except for particles, conjunctions, and certain quasi-adverbial forms, all words were inflected. The basic structure of inflected words was as follows: *root* + *suffix* (one or more) + *inflectional ending*. A notable morphophonemic characteristic was the extensive use of a system of vocalic alternations ("Ablaut" in German) as a means to mark morphological distinctions (it may be noted that similar patterning is found in Kartvelian). For nouns and adjectives, three genders (masculine, feminine, and neuter), three numbers (singular, dual, and plural), and as many as eight cases (nominative, accusative, genitive, dative, locative, ablative, instrumental, and vocative) have been reconstructed. The traditional reconstruction of the Proto-Indo-European verbal system (cf. Szemerényi 1990:245) sets up two voices (active and middle), four moods (indicative, subjunctive, optative, and imperative), and as many as six tenses, though only three (present, aorist, and perfect) can be posited with certainty. Syntactically, Proto-Indo-European seems to have had many of the characteristics of an SOV language, though there must, no doubt, have been a great deal of flexibility in basic word order patterning.

It is doubtful that all of the features described in the preceding paragraph were ancient — it is indeed possible to discern several chronological layers of development, and several scholars have attempted to delineate the various stages of development (cf., for example, Adrados 1992, Georgiev 1984, Rasmussen 1987 and 1989, and Shields 1982 [summary on pp. 94-97]). Typically, three stages are posited (so Adrados and Georgiev — Shields posits five), the first stage (Stage I) invariably being "non-inflectional", the second (Stage II) having a simple inflectional system, and the third (Stage III) having a highly-developed inflectional system. Stage I, "non-inflectional", finds no support in cognate Nostratic languages. Indo-European is a member of the Eurasiatic branch of

Nostratic, and all indications are that Proto-Eurasiatic had an agglutinating morphological structure, from which the Proto-Indo-European inflectional system developed. The earliest form of Proto-Indo-European that can be recovered may be assumed to have had a simpler inflectional system than what is found, for example, in Old Indic (Vedic and Classical Sanskrit) or Classical Greek, both of which have expanded upon the earlier system. Hittite and the other Anatolian languages (Hieroglyphic and Cuneiform Luwian, Palaic, Lycian, Lydian) may be assumed to have separated from the main speech community at a very early date, before the morphological system had fully developed the morphological structure ancestral to later stage languages such as Latin, Old Indic, Greek, etc. Thus, the Anatolian languages reflect the simpler morphological system of early Proto-Indo-European. A note of caution: Hittite has clearly innovated as well and may even have lost some features.

Let us now look at Indo-European and address the question of what is to be gained by comparing Indo-European with the other Nostratic languages. The following gains may be mentioned as being among the most important: (A) a better understanding of the laryngeals, (B) a better understanding of root structure patterning, (C) a better understanding of the origin of verb morphology, (D) clarification of issues surrounding the origin and development of nominal declension, (E) a better understanding of the origin and development of vowel gradation, and (F) support for the Gamkrelidze, Hopper, and Ivanov reinterpretation of Indo-European consonantism. We may now look at each one of these in more detail:

A. **Laryngeals:** According to Kurylowicz and those who follow his theories (such as Sturtevant and Lehmann, among others), Indo-European is assumed to have had four laryngeals, which may be symbolized as $*H_1$, $*H_2$, $*H_3$, and $*H_4$ (Kurylowicz writes $*\underline{e}_1$, $*\underline{e}_2$, $*\underline{e}_3$, and $*\underline{e}_4$). Other scholars posit only three laryngeals, denying the existence of $*H_4$, and, still others posit as few as one laryngeal or as many as twelve. For the sake of argument, we will stick with the four laryngeals posited by Kurylowicz. Now, of the other Nostratic branches, only Afroasiatic has a full set of laryngeals. Though Semitic is traditionally assumed to have had six laryngeals, the Afroasiatic parent language most likely had only four, namely, a glottal stop /ʔ/, a voiceless laryngeal (or glottal) fricative /h/, and voiceless and voiced pharyngeal fricatives /ħ/ and /ʕ/. Extremely good correspondences can be established between Afroasiatic and Indo-European, and, as a result, it is now possible to establish the probable phonetic values of the laryngeals: we can confirm that $*H_1$ was a glottal stop /ʔ/ and $*H_4$ was a voiceless laryngeal fricative /h/ as originally suggested by Sapir, Sturtevant, and Lehmann, while $*H_2$ was probably the voiceless and voiced multiply-articulated pharyngeal/laryngeal fricatives /ħ͡h/ and /ʕ͡ɦ/, and $*H_3$ was probably originally identical to $*H_2$. That is to say that there is no evidence from the other Nostratic languages to support positing $*H_3$ distinct from $*H_2$ in Indo-European. Note that both of these two laryngeals have the same reflex in Hittite, namely, *ḫ-* (initially) and *-ḫ(ḫ)-* (medially). The only reason that two separate laryngeals were set up in

Indo-European by Kurylowicz in the first place was to account for several cases of nonapophonic *o. However, these examples can be accounted for much better by assuming that this single, combined $*H_2$ and $*H_3$ changed a contiguous original *u to *o along the lines of what is found in modern Arabic dialects. (It should be noted here that /ħ̲h/ and /ʕ̲ɦ/ are to be derived from earlier voiceless and voiced pharyngeal fricatives /ħ/ and /ʕ/ respectively — for details on the development of the laryngeals in Indo-European, cf. Bomhard-Kerns 1994:47-56; for a good introduction to the Laryngeal Theory, see Lindeman 1987; see also Keiler 1970 and Winter [ed.] 1965.)

B. **Root structure patterning:** In a work published in 1935 entitled (in English translation) *Origins of the Formation of Nouns in Indo-European*, the French Indo-Europeanist Emile Benveniste (1935:147-173) carefully analyzed the patterning of roots in Indo-European and was able to discern the underlying principles governing that patterning. Now, comparison of Indo-European with the other Nostratic branches, especially Kartvelian and Afroasiatic, allows us to refine the theories of Benveniste and, in so doing, to trace the development of root structure patterning from the earliest times down to the appearance of the individual daughter languages. The most ancient patterning may be assumed to have been as follows:

1. There were no initial vowels in the earliest form of pre-Indo-European. Therefore, every root began with a consonant.

2. Originally, there were no initial consonant clusters either. Consequently, every root began with one and only one consonant.

3. Two basic syllable types existed: (A) *$CV$ and (B) *$CVC$, where $C$ = any non-syllabic and $V$ = any vowel. Permissible root forms coincided exactly with these two syllable types.

4. A verbal stem could either be identical with a root or it could consist of a root plus a single derivational morpheme added as a suffix to the root: *$CVC$-$VC$-. Any consonant could serve as a suffix.

5. Nominal stems, on the other hand, could be further extended by additional suffixes.

In the earliest form of Indo-European, there were three fundamental stem types: (A) verbal stems, (B) nominal and adjectival stems, and (C) pronominal and indeclinable stems.

The phonemicization of a strong stress accent disrupted the patterning outlined above. The positioning of the stress was morphologically distinctive, serving as a means to differentiate grammatical categories. All vowels were retained when stressed but were either weakened (= "reduced-grade") or totally

eliminated (= "zero-grade") when unstressed: the choice between the reduced-grade versus the zero-grade depended upon the position of the unstressed syllable relative to the stressed syllable as well as upon the laws of syllabicity in effect at that time. Finally, it was at this stage of development that the syllabic allophones of the resonants came into being.

The stress-conditioned ablaut alternations gave rise to two distinct forms of extended stems:

Type 1: Root in full-grade and accented, suffix in zero-grade: **CVCC-*.

Type 2: Root in zero-grade, suffix in full-grade and accented: **CCVC-*.

When used as a verbal stem, Type 1 could undergo no further extension. However, Type 2 could be further extended by means of a "determinative". Further addition of a determinative or suffixes pointed to a nominal stem. According to Benveniste, a "suffix" was characterized by two alternating forms (**-et-/*-t-*, **-en-/*-n-*, **-ek-/*-k-*, etc.), while a "determinative" was characterized by a fixed consonantal form (**-t-*, **-n-*, **-k-*, etc.).

In its beginnings, ablaut was merely a phonological alternation. During the course of its development, however, Indo-European gradually grammaticalized these ablaut alternations.

Indo-European had constraints on permissible root structure sequences. In terms of the radical revision of the Indo-European consonant system proposed by Gamkrelidze, Hopper, and Ivanov, these constraint laws may be stated as follows:

1. Each root contained at least one non-glottalic consonant.

2. When both obstruents were non-glottalic, they had to agree in voicing.

The Indo-European root structure constraint laws thus become merely a voicing agreement rule with the corollary that two glottalics cannot cooccur in a root. Comparison of Indo-European with the other Nostratic branches indicates, however, that the forbidden root types must have once existed. Two rules may be formulated to account for the elimination of the forbidden types:

1. A rule of progressive voicing assimilation may be set up to account for the elimination of roots whose consonantal elements originally did not agree in voicing: $*T \sim *B > *T \sim *P$, $*B \sim *T > *B \sim *D$, etc.

2. A rule of regressive deglottalization may be set up to account for the elimination of roots containing two glottalics: $*T' \sim *K' > *T \sim *K'$, etc. This rule finds a close parallel in Geers' Law in Akkadian.

According to Gamkrelidze, Bartholomae's Law is a later manifestation of the progressive voicing assimilation rule, applied to contact sequences.

In a number of works, John Colarusso has explored typological parallels between Indo-European and Northwest Caucasian. In an article published in 1992 entitled "Phyletic Links between Proto-Indo-European and Proto-Northwest Caucasian", he attempted to show that these two language families were in fact genetically related. One of the areas explored by Colarusso was stem formation. After discussing Benveniste's theory of the Indo-European root, he suggests that at least some Indo-European roots might be better explained if the first part is analyzed not as a morpheme but rather as a preverb, while the enlargements are seen not as enlargements but rather as roots, similar to the patterning observed in Northwest Caucasian. While Colarusso's theories about a genetic relationship between Indo-European and Northwest Caucasian have not met with acceptance, his views on stem formation merit further research.

C. **Verb morphology:** Comparison of Indo-European with Uralic reveals many striking similarities in verb morphology and allows us to ascertain the ultimate origin of the athematic verb endings: they can be nothing else but agglutinated personal pronouns. The earliest forms of the athematic endings were most likely as follows (for details, cf. Bomhard 1988; see also Villar 1991:244-252):

| Person | Singular | Plural |
|---|---|---|
| 1 | *-*m* | *-*me* |
| 2 | *-*t* | *-*te* |
| 3 | *-*s*, *-*Ø* | *-*se* |

Compare the following system of personal endings, which are assumed to have existed in Proto-Uralic (cf. Hajdú 1972:40 and 43-45):

| Person | Singular | Plural |
|---|---|---|
| 1 | *-*me* | *-*me* (+ Plural) |
| 2 | *-*te* | *-*te* (+ Plural) |
| 3 | *-*se* | *-*se* (+ Plural) |

These endings survive in Elamite as well, especially in the 2nd and 3rd persons (by the way, the 1st singular ending, *-h*, is, of course, related to the 1st singular perfect ending *-*Ae* of traditional Indo-European, which is found, for example, in Luwian in the 1st singular preterite ending *-ḫa*, in Hittite in the 1st singular ending *-ḫi*, and in Greek in the 1st singular perfect ending -α; this ending may also be related to the Kartvelian 1st person personal prefix of the subject series, **xw-* [Gamkrelidze-Machavariani 1982:85 reconstruct **w-*, however], as suggested by Ivanov and Palmaitis) — compare, for example, the conjugation of *hutta-* "to do, to make" from Middle Elamite (cf. Reiner 1969:76; Grillot-Susini 1987:33):

| Person | Singu | Plural |
|---|---|---|
| 1 | *hutta-h* | *hutta-hu* (< *h* + *h*) |
| 2 | *hutta-t* | *hutta-ht* (< *h* + *t*) |
| 3 | *hutta-š* | *hutta-hš* (< *h* + *š*) |

Traces of the 2nd singular ending are also found in Dravidian — McAlpin (1981:120) reconstructs Proto-Elamo-Dravidian 2nd person ending **-ti* (> Proto-Elamite **-tə*, Proto-Dravidian **-ti*). This is a significant archaism, since it bears no apparent resemblance to the common Elamo-Dravidian 2nd person personal pronoun stem, which McAlpin (1981:114-115) reconstructs as **ni* and which is clearly an innovation (cf. Dolgopolsky 1984:87-88 and 100; Dolgopolsky posits Proto-Elamo-Dravidian **nün*, which he derives from **ṭün* through assimilation).

Finally, we may note that traces of these endings can be found in the Altaic languages too, as in the Turkish agreement markers *-(I)m* (1st singular) and *-Ø* (3rd singular verbal) or *-(s)I(n)* (3rd singular nominal). In Proto-Turkic, the 1st singular possessive suffix was **-m*, while the 3rd singular was **-s* (cf. Sinor 1988:725). According to Sinor (1988:725), the 1st singular possessive suffix was also **-m* in Proto-Tungus, and the 2nd singular was **-t* — the 3rd singular possessive suffix, on the other hand, was **-n*, which mirrors what is found in Sumerian (see below).

The 2nd singular ending **-t* is preserved in Hittite. This was later replaced by what had been the 3rd singular, namely, **-s*. In his 1962 book entitled *Indo-European Origins of the Celtic Verb. I: The Sigmatic Aorist*, Calvert Watkins discusses the extensive evidence from the Indo-European daughter languages for an original 3rd singular ending in **-s*. It was Watkins who also showed that the 3rd singular indicative was originally characterized by the fundamental ending *zero*. The **-n-* found in the 3rd plural was a relic of the 3rd person ending found in Tungus and Sumerian. The development of the 3rd singular ending **-t* was a later change, though this still occurred fairly early since it is found in Hittite and the other Anatolian daughter languages — this **-t* was added to the 3rd plural ending **-n-* at the same time, yielding the new ending **-nt-*. The most recent change must have been the development of the so-called "primary" endings, which were built upon the so-called "secondary" endings by the addition of the deictic particle **-i* meaning "here and now", as shown by Kerns and Schwartz in their 1972 book on Indo-European verb morphology. It may be mentioned that this deictic particle has a Nostratic origin, coming from a widely-represented proximate demonstrative stem meaning "this one here".

The comparison with Uralic also shows that the earliest Indo-European had two conjugational types: (A) a determinative (objective) conjugation, which was characterized by the 3rd singular in **-s* and which was used with transitive verbs, and (B) an indeterminative (subjective) conjugation, which was characterized by the 3rd singular in *zero* and which was used with intransitive verbs. This is identical to what is assumed to have existed in the Uralic parent language.

After all of the changes described above had taken place, the resulting Proto-Indo-European athematic endings were as follows (cf. Brugmann 1904:588-594; Burrow 1973:306-319; Szemerényi 1990:356-357):

| | I. Primary | | II. Secondary | |
|---|---|---|---|---|
| Person | Singular | Plural | Singular | Plural |
| 1 | *-*mi* | *-*me* | *-*m* | *-*me* |
| 2 | *-*si* | *-*te* | *-*s* | *-*te* |
| 3 | *-*ti* | *-*nti* | *-*t* | *-*nt* |

Note: The 1st person plural endings have different extensions in the various daughter languages: *-*mes(i)*, *-*mos(i)*, *-*men(i)*, *-*mon(i)*.

D. **Noun morphology:** According to John C. Kerns (Bomhard-Kerns 1994:172-173, §3.5.3), Proto-Nostratic may have had three nominal declensions: (A) the *first declension*, corresponding to the neuter heteroclitic declension in Indo-European; (B) the *second declension*, corresponding to the other neuter paradigms in Indo-European, and (C) the *third declension*, a variation of the second wherein a definite-accusative singular was marked by the termination *-*m*. Kerns states that the accusative had no special marker in the first two declensional types. He also notes that the accusative singular ending *-*m* is found in Proto-Uralic and is also widely-represented in Dravidian languages (where it has become -*n* as in Greek, for example, within Indo-European [for the full set of Proto-Dravidian case endings, see below]). Kerns reconstructs the following singular case endings for Common Uralic (cf. also Collinder 1960:282 and 1965:54-57; Hajdú 1972:41):

| | |
|---|---|
| Nominative: | *-*Ø* |
| Accusative: | *-*m* |
| Genitive: | *-*n* |
| Dative-Lative: | *-*n$^{y}$V* (palatalized *-*n* followed by a front vowel) |
| Locative: | *-*na* |
| Ablative: | *-*ta* and *-*δa* |

Kerns believes that the above endings, "with a few reservations", can also be attributed to Proto-Nostratic (here, I would substitute "Proto-Eurasiatic" for "Proto-Nostratic" — Kerns himself uses "Eurasiatic" in his 1985 book).

At this point, it is interesting to compare the case endings (properly, tightly bound postpositions) reconstructed for Proto-Dravidian by Zvelebil (1977:33):

| | |
|---|---|
| Nominative: | *-*Ø* and, possibly, *-*m*/*-*n* with non-personal substantives |
| Accusative: | *-*(V)n* |
| Genitive: | *-*in* (adnominal); *-*atu* (pronominal); *-*ă̆* (possessive) |
| Dative: | *-*(k)ku* |

| | |
|---|---|
| Instrumental: | *-ān/*āl |
| Ablative: | *-in (?) |
| Locative: | *-uḷ; *-in/*-il (?); *-kaṇ |
| Sociative: (Comitative) | *-ŏṭu or *-(t)-ŏṭu < *tŏṛV (?) |

This system can be derived from an earlier, simpler system, as is shown by comparison with Elamite (cf. McAlpin 1981:108-112). Clearly, several of the endings must have had a common origin (such as the genitive ending *-*in*, the ablative *-*in*, and the locative *-*in*[/*-*il*]). McAlpin (1981:111) reconstructs the following case endings for Proto-Elamo-Dravidian:

| | | |
|---|---|---|
| Nominative: | | *-Ø |
| Accusative: | | *-(V)n |
| Adessive/ | | *-əkkə |
| Purposive (Dative): | | (?) |
| Genitives: | | |
| 1. | Possessive: | *-a |
| 2. | Adnominal: | *-in |
| 3. | Oblique/ Locative | *-tə |

To fill out the picture, let us look at the case endings reconstructed for Proto-Indo-European by Szemerényi (1990:169):

| | Singular | Plural | Dual |
|---|---|---|---|
| Nominative: | *-s, *-Ø | *-es | |
| Vocative: | *-Ø | *-es | *-e, *-i/*-ī |
| Accusative: | *-m/*-m̥ | *-ns/*-n̥s | |
| Genitive: | *-es/*-os/*-s | *-om/*-ōm | *-ous (?), *-ōs (?) |
| Ablative: | *-es/*-os/*-s; *-ed/*-od | *-bh(y)os, *-mos | *-bhyō, *-mō |
| Dative: | *-ei | *-bh(y)os, *-mos | *- , *-mō |
| Locative: | *-i | *-su | *-ou |
| Instrumental: | *-e/*-o; *-bhi, *-mi | *-ōis *-bhis, *-mis | *-bhyō, *-mō |

Missing from this table is the thematic nominative-accusative neuter singular ending *-*m* — this form is to be derived from the accusative singular ending. The *-*bh*- and *-*m*- endings found in several of the concrete cases are usually considered to be late additions, and some have even questioned whether or not they should even be posited for the Indo-European parent language. They are not found in Hittite. No doubt, these endings were originally adverbs that were

gradually incorporated into the case system, with some daughter languages choosing *-*bh*- and others choosing *-*m*-. They should not be reconstructed as case endings at the Proto-Indo-European level. In like manner, the genitive plural probably arose from the accusative singular, while the genitive singular and nominative singular endings in *-*s* must have had a common origin — these endings later spread from the genitive singular to the ablative singular. The dual was a late addition, while the plural originally had a reduced set of endings compared to what was found in the singular — this is the picture that emerges when the Hittite and other Anatolian data are brought into consideration. We may note here that the Proto-Uralic ablative ending *-*ta* and the Proto-Elamo-Dravidian oblique/locative ending *-*tə* are most probably related to the Indo-European ablative *-*ed*/*-*od* (the phonetics are uncertain here).

In his book *Indo-European Prehistory*, Kerns (1985:109-111) devotes considerable attention to describing an oblique-*n* marker, which he claims is a major component in Indo-European heteroclitic stems, and he elaborates upon his ideas in his treatment of Nostratic declension in Bomhard-Kerns (1994:173-179, §3.5.3.1). He notes that this oblique-*n* is the source of the -*n* found in the genitive, ablative, and instrumental case endings in Dravidian — it is also found in the genitive, dative-lative (palatalized before a front vowel), and locative case endings in Uralic. Kerns even finds traces of this oblique-*n* in Eskimo and Japanese. Thus, this is an ancient feature preserved only vestigially in the daughter Nostratic languages.

E. **Vowel gradation:** The development of vowel gradation is extremely complicated and would require far more space to discuss than is allotted for this paper. Therefore, I will only deal with several key points. Ever since Hirt, it has been assumed by many scholars that early Indo-European went through a stage of development characterized by phonemic stress and that this stress caused the weakening and/or loss of the vowels of unaccented syllables, that is to say that the stress was responsible for the development of the quantitative ablaut alternations. Furthermore, according to this theory, it is assumed that, at a later date, stress became phonemically non-distinctive and was replaced by an accent system characterized by phonemic pitch and that this pitch accent was responsible for the development of the qualitative ablaut alternations. Kurylowicz, however, argued that the qualitative ablaut alternations were ancient and preceded the changes brought about by the phonemicization of a strong stress accent. Comparison with the other Nostratic languages, especially Kartvelian, indicates that Kurylowicz was correct. Indo-European inherited the qualitative ablaut alternations from Nostratic. In a recent paper entitled "The Prehistory of the Indo-European Vowel System in Comparative and Typological Perspective", Greenberg (1990) supplies convincing evidence in support of this view. The phonemization of a strong stress accent in early Indo-European brought about a complete restructuring of the inherited vowel system. The same thing happened in Kartvelian, by the way. Another important point concerns the early prehistory of the *$e$ ~ *$o$ ablaut gradation. In an article published in 1965, Pulleyblank tried to show that this

gradation series should be reinterpreted as a *ə (*schwa*) ~ **a* gradation. It looks as though Pulleyblank came pretty close to the truth, though only for the oldest period of development. We may note that this older system is partially preserved in Hittite, where *ə appears as *e* (or *i*) and **a* is preserved as such. The development of *ə to **e* is fairly easy to explain: **e* may be assumed to have been the normal allophone of *ə under stress. A typological parallel may be observed in the Northwest Caucasian languages Ubykh and Circassian, where ə becomes *e* under stress. For the latest period of development, namely, the period directly before the emergence of the non-Anatolian daughter languages, the traditional system of five long and short vowels is surely correct. Finally, there is little indication that Nostratic had phonemic long vowels. Therefore, long vowels may be assumed to have arisen solely in Indo-European proper.

According to Greenberg (1990), traces of an earlier system of vowel harmony can be discerned in Proto-Indo-European.

F. **Indo-European consonantism:** There are internal inconsistencies in the traditional reconstruction of the Indo-European stop system that make that system highly improbable from a typological point of view — these include: (1) the low frequency of occurrence, if not total absence, of the traditional voiced labial stop **b*; (2) the fact that the traditional voiced stops (**b*, **d*, **g*, **g*$^{w}$) are only infrequently found in pronouns and inflectional affixes; (3) the unexplained root structure constraint against the cooccurrence of two voiced stops in a root; and (4) the typological problems caused by positing a three-way contrast in the series of stops of (plain) voiceless ~ (plain) voiced ~ voiced aspirated, thus (to use the dentals for illustration): **t*, **d*, **dh*. In order to address these problems, Thomas Gamkrelidze and Vjacheslav Ivanov, on the one hand, and Paul Hopper, on the other, independently proposed, in 1972 and 1973 respectively, a radical reinterpretation of the Indo-European stop system. According to Gamkrelidze, Hopper, and Ivanov, the traditional plain voiced stops are to be reinterpreted as glottalized stops (that is, ejectives). Furthermore, according to the version of the theory proposed by Gamkrelidze and Ivanov, the traditional plain voiceless stops are to be reinterpreted as voiceless aspirates, while the traditional voiced aspirates are to remain unchanged. In this revised interpretation, aspiration is viewed as a phonemically redundant feature, and the phonemes in question could also be realized as allophonic variants without aspiration. Strong support for this theory is provided by comparison of Indo-European with Kartvelian and Afroasiatic, both of which have a three-way contrast, in the series of stops and affricates, of voiceless (aspirated) ~ glottalized ~ voiced. According to my views on Nostratic, though not according to the views of Illich-Svitych and Dolgopolsky, the Indo-European glottalized stops (the traditional plain voiced stops) correspond exactly to glottalized stops in Kartvelian and Afroasiatic, while the voiceless (aspirated) stops in Indo-European correspond to identical sounds in Kartvelian and Afroasiatic, and the voiced (aspirated) stops of Indo-European correspond to voiced stops in Kartvelian and Afroasiatic. It should be noted that the voiced aspirates were probably a late development in Indo-European, and this series may

be assumed to have originally been characterized by plain voicing, without aspiration. (For an excellent survey of the Glottalic Theory, cf. Salmons 1993.)

| Traditional Indo-European | | | Gamkrelidze and Ivanov | | |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 1 | 2 | 3 |
| p | b | bh | p[h] | p' | b[h] |
| t | d | dh | t[h] | t' | d[h] |
| k | g | gh | k[h] | k' | g[h] |
| $k^w$ | $g^w$ | $g^wh$ | $k^w$[h] | $k'^w$ | $g^w$[h] |

After reviewing the arguments both for and against the Glottalic Theory, Schwink (1994:63-64) concludes (the emphasis is his):

> As was noted, the Glottalic Theory spearheaded to a large extent the current debate on typology and reconstruction methodology. It incorporates well the various problems involved in using the framework. The universals involved are not absolute so that opponents invoke the few exceptions as proof that the method is fallacious. However, the number of agreements of the new interpretations with both synchronic and diachronic patterns, if not *proving* the Glottalic Theory beyond all doubts, certainly put it high in probability. Of course, those opponents of the Glottalic Theory who follow a formulaic approach to the process of reconstruction in general are in a different business from the followers of the Theory who are attempting to capture some measure of realism.

## 7. The Nostratic Homeland and the Dispersal of the Nostratic Languages

Here, we run into potentially serious problems, for we must turn to other disciplines such as archeology. Archeological data provide the raw material from which archeologists construct theories about the past. The problem is that the raw material is hardly ever complete, but rather it is limited by what has happened to survive, usually products of manual skill and craftsmanship. This means that the theories derived from the controlled analysis of the raw material involve a good deal of interpretation on the part of the observer — one's view of the past will be directly conditioned to a greater or lesser degree by the theoretical framework within which one operates as well as by one's prejudices in addition to the type of evidence employed. (To complicate matters, many of these same problems occur in the field of Linguistics [cf. Labov 1994:10-11].) Moreover, when dealing with pre-literate cultures, there is seldom a clear-cut correlation between linguistic groups and culture, and cultural spread does not always mean language spread, even when migration of people takes place — individuals or small groups of individuals moving peacefully to a new territory may simply be assimilated into the dominant population group. One could cite the example of the many ancient Greek trading colonies established on the shores of the Mediterranean and Black Seas, which were eventually

absorbed into the surrounding communities. On the other hand, language spread can occur with a relatively small migration of people when the language belongs to conquerors or to those bearing a more technologically advanced culture — both these factors were involved, for example, in the spread of Latin to the Iberian Peninsula, Gaul, and Dacia, where modern-day Romance languages are found, nearly all of the indigenous languages existing at the time of the Roman conquest having been replaced (Basque is an exception). Another example would be the spread of Turkic languages across Central Asia, mostly replacing the Iranian languages that were spoken there at the time of the appearance of the Turkic tribes (Tajik [also called Tadzhik] is an exception). It goes without saying that written records, when combined with the surviving relics of material culture, give a much broader view of earlier communities and reduce the need for speculation/interpretation. Even when no written records exist, however, the analysis of the lexicon of a reconstructed proto-language can give a clue to the material culture of the speakers of that language — this endeavor is referred to as "linguistic paleontology" or "paleolinguistics".

The question of where the probable homeland of the Nostratic proto-language is to be located is directly related to the locations of the homelands of each of the daughter languages. Since there is a fair amount of controversy surrounding this subject, it is necessary to survey current theories and to select the scenarios that seem most likely in view of linguistic, archeological, and anthropological evidence, while mindful of the problems expressed in the preceding paragraph. Let us look at each of the daughter languages in turn.

**Indo-European:** At the present time, there are two main competing theories regarding the Indo-European homeland: (1) according to the first theory, championed by the late Marija Gimbutas and a large number of supporters, the Indo-European homeland was located to the north of and between the Black and Caspian Seas and has been broadly identified with the "Kurgan Culture"; (2) another view, made popular by Colin Renfrew, would place the Indo-European homeland in Anatolia — similar views were put forth by Gamkrelidze-Ivanov in the second volume of their massive 1984 work (in English translation) *Indo-European and the Indo-Europeans: A Reconstruction and Historical Typological Analysis of a Protolanguage and a Proto-Culture* (an English translation of this work by Johanna Nichols is due out shortly) and by Krantz (1988). Renfrew tries to link the spread of Indo-European languages in Europe with the spread of agriculture. According to Gimbutas, the period of Indo-European unity is to be placed at around 4,500 BCE, while Renfrew would place the date considerably earlier at around 7,000 BCE.

The following objections may be raised against the theory of an Anatolian homeland for Indo-European:

1. There are no unambiguous references to Indo-Europeans in written records from the ancient Near East until just before 2,000 BCE, and the first references are to Hittites. Moreover, the Hittites were most definitely invaders (cf. Gamkrelidze 1970; Mellaart 1981; Steiner 1990) who imposed themselves on populations speaking Caucasian languages — it is generally agreed that Hittite replaced Hattic, which is thought to be a Caucasian language (cf. Diakonoff 1990:63). Another language widely-spoken in

Anatolia at the time that the Hittite texts were composed was Hurrian, which, along with the later and closely-related Urartean, has been convincingly shown by Diakonoff and Starostin (1986) to be a Northeast Caucasian language. Thus, it appears that the earliest inhabitants of Anatolia were speakers of Caucasian languages and that the Indo-Europeans were intrusive — Diakonoff (1990:62-63) places the Hurro-Urartean language in eastern Anatolia at least as far back as the third millennium BCE. Furthermore, attempts to equate other groups (Gutians, for example) referred to in cuneiform texts with Indo-Europeans are based upon such scanty evidence as to be meaningless (Diakonoff [1990:63] claims that the Gutians [Qutians] were Caucasian).

2. An Anatolian homeland for Indo-European makes it difficult to account for the extensive evidence for contact between Indo-European and Uralic (cf. Joki 1973).

3. Anthony (1991:198-201) argues that the linguistic evidence confirms the existence of four-wheeled vehicles among the Indo-Europeans. Archeological evidence indicates that four-wheeled vehicles appeared in Europe no earlier than 3,300 - 3,100 BCE. The correlation of the linguistic and archeological evidence brought forth by Anthony rules out a date for Indo-European unity as early as that proposed by Renfrew and suggests that "the PIE language community remained relatively intact until at least 3,300 BC". Moreover, the association of the Indo-Europeans with the domestication of horses and with the development of four-wheeled vehicles definitely points to a North Pontic/Steppe homeland as opposed to an Anatolian homeland. I will have more to say about this below.

The literature supporting a North Pontic/Steppe homeland for Indo-European is extensive and begins as far back as 1926 with the publication of V. Gordon Childe's book *The Aryans: A Study of Indo-European Origins*. Rather than presenting all of the arguments and evidence, I will summarize my own views. For detailed information on the theory of a North Pontic/Steppe homeland, Mallory's 1989 book *In Search of the Indo-Europeans: Language, Archaeology and Myth* should be consulted as should the 1990 volume co-edited by Thomas Markey and John A. C. Greppin entitled *When Worlds Collide: Indo-European and Pre-Indo-Europeans. The Bellagio Papers* and the 1987 volume honoring Marija Gimbutas co-edited by Susan Skomal and Edgar Polomé enti *Proto-Indo-European: The Archaeology of a Linguistic Problem. Studies in Honor of Marija Gimbutas*. Finally, many notable articles on the subject have appeared in issues of the *Journal of Indo-European Studies*, including numerous articles by Marija Gimbutas herself, as well as in *Current Anthopology*, to name two of the more important journals.

In an unpublished paper of major significance, Johanna Nichols (1993) has argued that the earliest Indo-European speech community ("Pre-Indo-European") was located in Central Asia. She proposes that Pre-Indo-European spread westward across the steppes, eventually arriving on the northeastern shores of the Black Sea. I support this scenario. I would place the Pre-Indo-Europeans in Central Asia at about 7,000 BCE, and I would date the arrival of the Pre-Indo-Europeans in the vicinity of the Black Sea at about 5,000 BCE. Though it is not known what language or languages were spoken in the area before the arrival of Indo-European-speaking people, it is known that the Pre-Indo-Europeans

were not the first inhabitants of the area. According to Kośko (1991:252), archeological evidence points to cultural influence spreading from the Caucasian-Pontic zone to the area of the Vistula-Oder in the earliest Neolithic (around 7,000 BCE). The direction of influence was subsequently reversed, and there appears to have been a movement of people from west to east into the Pontic area. I would equate this reversal with the arrival of the Pre-Indo-Europeans. I will venture a guess that when the Pre-Indo-Europeans arrived on the shores of the Black Sea, they encountered and occupied territory formerly inhabited by Caucasian-speaking people. This disrupted the pre-existing cultural link between the Caucasian-Pontic zone and the Vistula-Oder area and resulted in a displacement of Caucasian languages southward toward the Caucasus Mountains. That there was contact between Indo-Europeans and Caucasians is supported by a number of shared vocabulary items between Indo-European and Northwest Caucasian. Among these are (this is but a small sampling; I have taken the Northwest Caucasian examples exclusively from Kuiper's *A Dictionary of Proto-Circassian Roots* — it is the only work available to me. Now, I realize full well that Circassian is but one branch of Northwest Caucasian. Therefore adjustments may have to be made to the comparisons I am proposing on the basis of evidence from the remaining branches of Northwest Caucasian)(the Proto-Indo-European reconstructions are in accordance with Gamkrelidze-Ivanov's system):

1. Proto-Circassian **q'ºat$^{h}$a* "to tell, to report; to announce, to make known" ~ Proto-Indo-European **k'$^{w}$et[$^{h}$]-/*k'$^{w}$ot[$^{h}$]-* "to say, to speak, to call" (cf. Pokorny 1959:480-481 **g$^{u}$et-* "to talk": Gothic *qiþan* "to say"; Old English *cweþan* "to say, to speak"; Armenian *koč̣em* "to call, to name").

2. Proto-Circassian **wasa* "price" ~ Proto-Indo-European **wes-no-m* "price" (cf. Pokorny 1959:1173 **u̯es-* "to buy, to sell", **u̯es-no-* "price": Sanskrit *vasná-m* "price, value"; Latin *vēnum* "sale"; Greek ὦνος [< **wós-no-s*] "price").

3. Proto-Circassian **warda* "high-born" ~ Proto-Indo-European (adj.) **word[$^{h}$]-o-s* "grown, full-grown, tall, upright", (adj.) **w̥rd[$^{h}$]-o-s* "raised, upright, tall", (stem) **werd[$^{h}$]-/*word[$^{h}$]-/*w̥rd[$^{h}$]-* "to raise, to elevate; to grow, to increase" (cf. Pokorny 1959:1167 **u̯erdh-*, **u̯redh-* "to grow": Sanskrit *várdha-ḥ* "increasing, growing, thriving", *vṛddhá-ḥ* "grown, become larger or longer or stronger, increased, augmented, great, large", *vṛddhi-ḥ* "growth, increase, augmentation, rise, advancement").

4. Proto-Circassian **wala* "cloud" ~ Proto-Indo-European **wel-/*wol-/*w̥l-* "to flow, to wet, to moisten": (extended forms) **wel-k[$^{h}$]-/*wol-k[$^{h}$]-/*w̥l-k[$^{h}$]-*, **wel-g[$^{h}$]-/ *wol-g[$^{h}$]-/ *w̥l-g[$^{h}$]-*, **wel-k'-/*wol-k'-/*w̥l-k'-* "to wet, to moisten" (cf. Pokorny 1959:1145-1146 **u̯elk-*, **u̯elg-* "wet, moist": Old English *weolcen*, *wolcen* "cloud"; German *Wolke* "cloud").

5. Proto-Circassian **nəba* "belly" (note here Temirgoy *nəbəǯ'ə/bənža* "navel"; Ubykh *nəbəǯ'* "navel") ~ Proto-Indo-European (**neb[ʰ]-/)*nob[ʰ]-* "navel" (cf. Pokorny 1959:314-315 (**enebh-*), **embh-*, **ombh-* **nŏbh-*, (**nēbh-* ?), **m̥bh-* "navel": Sanskrit *nā́bhi-ḥ* "navel"; Old High German *naba* "nave, hub (of a wheel)"; Old Prussian *nabis* "navel").

6. Proto-Circassian **ban(a)* "to fight" ~ Proto-Indo-European **b[ʰ]en-* "to slay, to wound" (cf. Pokorny 1959:126 **bhen-* "to slay, to wound": Gothic *banja* "strike, blow, wound"; Old High German *bano* "death, destruction").

7. Proto-Circassian **malə* "sheep" ~ Proto-Indo-European **mel-* "wool, woolen garment" (cf. Pokorny 1959:721 **mel-* "wool, woolen garment": Greek μαλλός "a lock of wool, wool").

8. Proto-Circassian **hawa* "but" ~ Proto-Indo-European **hew-* [**haw-*] "that, other" (cf. Pokorny 1959:73-75 **au-*, **u-* pronoun stem: "that, other": Gothic *auk* "but, also"; Latin *au-tem* "but, on the other hand").

9. Proto-Circassian **p:əyə* "enemy" ~ Proto-Indo-European **p[ʰ]ĕ(y/i)-* "to hurt, to harm, to attack" (cf. Pokorny 1959:792-793 **pē(i)-* "to hurt": Gothic *fijands* "enemy"; Old English *fēonds* "enemy").

10. Proto-Circassian **k'anə* "knucklebone (used in bone game)" ~ Proto-Indo-European **k'enu-* "knee, joint, angle" (cf. Pokorny 1959:380-381 **ĝenu-*, **ĝneu-* "knee": Sanskrit *jā́nu* "knee"; Latin *genū* "knee, knot, joint"; Greek γόνυ "knee, joint"; Gothic *kniu* "knee").

11. Proto-Circassian **k'ºasa* "to go out (as fire, light); to escape, to run away, to desert, to elope" ~ Proto-Indo-European **k'ʷes-* "to extinguish" (cf. Pokorny 1959:479-480 **gᵘes-*, **zgᵘes-* "to extinguish": Lithuanian *gèsti* "to go out, to die out, to become dim").

12. Proto-Circassian **sama* "heap" ~ Proto-Indo-European **sem-/*som-* "together, together with; one" (originally "to gather together") (cf. Pokorny 1959:902-905 **sem-* "one; together": Sanskrit *sa* [< **sm̥-*] "with, together with, along with", *sám* "with, together with, along with, together, altogether", *sa-trā́* "together, together with", *sámana-ḥ* "meeting, assembly, amorous union, embrace", *samūbhá-ḥ* "heap, collection").

13. Proto-Circassian **gəya* "smooth (of ice)" ~ Proto-Indo-European **g[ʰ]ey-* "snow, ice, winter" (cf. Pokorny 1959:425-426 **ĝhei-*, **ĝhi-* "winter, snow": Sanskrit *himá-ḥ* "snow, frost, hoar-frost, winter", *hemantá-ḥ* "winter, the cold season"; Greek χιών

"snow; snow-water, ice-cold water", χεῖμα "winter-weather, cold, frost", χειμών "winter; wintry weather, a winter storm").

The Armenian linguist Gevork B. Djahukyan (1967) has devoted a book entitled (in English translation) *Interrelations of the Indo-European, Hurrian-Urartean, and Caucasian Languages* to exploring lexical parallels between Indo-European and Caucasian languages.

Thus, it was the area to the north of and between the Black and Caspian Seas that was most likely the final homeland of a unified Indo-European parent language. By 3,500 BCE, Indo-European had begun to split up into different dialect groups, and Indo-European speaking-people had started to spread westward into Central Europe and southward into the Balkans (cf. Anthony 1991; Nichols 1993:23-26, §3.5). Gimbutas (1973) suggests similar dating and identifies the spread of Bronze Age metallurgical technology with the Indo-Europeanization of Europe. The Indo-European homeland is shown in Map 1, and the dispersal of the Indo-European languages is shown in Map 2.

**Afroasiatic:** So much controversy surrounds the subject of the homeland of Afroasiatic that none of the proposals advanced to date can be considered definitive. Diakonoff (1988:23-25) presents a summary of several of the proposals — his own view is that Afroasiatic (his "Afrasian") was located in the "South-Eastern Sahara (say, between Tibesti and Darfur)". Another hypothesis has been advanced by Yuri Militarëv. According to Militarëv, the original Afroasiatic homeland was in the Middle East and the Arabian peninsula (cf. Diakonoff 1988:24). Diakonoff (1988:32, fn. 14) further clarifies Militarëv's views:

> A more precise identification was proposed by Militarev and sustained from the archaeological and historical side by V. Shnirelman. In their opinion, the Proto-Afrasian speakers were the Natufians of the well-known early Neolithic culture of the Palestinian-Syrian area.

In my opinion, Militarëv's proposals have great merit. Henry (1992:182-184) notes that "Natufian assemblages are remarkably well-dated because of multiple lines of evidence tied to radiocarbon dates, stratigraphic successions, and artifact seriation". Henry dates the earliest Natufian finds to 10,900 BCE and the latest to 7,800 BCE (he actually says [1992:184] "as early as about 12,900 years ago to as late as about 9,800 years ago"). The earlier date agrees extremely well with the date assigned to the Afroasiatic parent language (approximately 10,000 BCE [that is, 12,000 years ago] according to Diakonoff [1988:33, fn. 15]). The following scenario may be proposed: Afroasiatic is sufficiently different from other Nostratic languages to suggest that it was the first branch to split off from the rest of the Nostratic speech community — some have even suggested that Proto-Afroasiatic might be a sister language to Proto-Nostratic rather than a daughter language. Proto-Afroasiatic may be dated at roughly 10,000 BCE (though a little earlier is also possible), and the Afroasiatic homeland may be placed in the Middle East in an area bordering the eastern shores of the Mediterranean Sea, stretching from modern-day Syria through Lebanon and south into Israel (that is, the Levant) — if Militarëv and Shnirelman are correct, the Natufian cultural complex may be

identified with the Afroasiatic parent language. By 8,000 BCE, Afroasiatic had begun to split up into various dialect groups and had spread southward into the Arabian peninsula and southwestward across the Sinai peninsula into northern Africa. A northern and eastern spread followed the fertile crescent, initially as far as northern and eastern Syria — it was this dialect group that eventually developed into Proto-Semitic, which Diakonoff (1988:25) dates to the 6th-5th millennia BCE. Further spread took Afroasiatic languages southward down through the Arabian Peninsula, across the Bab el Mandeb, and into the Horn of Africa, westward across northern Africa, and then southward across the Sahara Desert into what is today the area bordering northern and northeastern Nigeria around Lake Chad. See also Renfrew (1992:472) on the spread of Afroasiatic languages. Map 3 shows the distribution of the Afroasiatic languages at about 500 BCE (this is adapted from Cohen [ed.] 1988:viii).

Archeological remains in the Levant (Syria-Lebanon-Israel coast and slightly inland) go back to Paleolithic times. The Levant is made up of a combination of mountains, plains, valleys, and coastal lowlands cramped into a rather small geographical area. There is plentiful evidence from Mesolithic hunter-gatherer societies. The earliest Neolithic settlements (such as Jericho, which is still inhabited) date to at least 9,000 BCE. Several noteworthy, partially sequential, partially overlapping Neolithic cultural complexes have been identified, namely, the Mushabian, the Geometric Kebaran, and the Natufian (for details, cf. Henry 1992). The dating for these is as follows: Mushabian: between 14,170 B.P. and 11,700 B.P. (Henry 1992:125); Geometric Kebaran: between 14,330 B.P. and 12,610 B.P. (Henry 1992:155); Natufian between 12,500 and 10,500 B.P. (Henry 1992:182 — earlier dates are given in Cavalli-Sforza et al. 1994:214). It is the Natufians who are associated with the development of agriculture. Neolithic remains from the Levant are dated well into the 5th millennium BCE. Apparently, the topography of the Levant did not favor the establishment of large, unified states, since the archeological record points to numerous, autonomous or semi-autonomous city-states instead — by the 3rd millennium BCE, there were many such city-states. The Levant stood at the cross-roads between the mighty empires in Egypt and Mesopotamia — it was an area made rich by trade, an area coveted by competing neighbors, an area with a rich and varied literature, an area that gave birth to great religions, and an area with a long and colorful history. The archeological data from the Levant are extremely rich and have been fairly intensively studied and dated, though it will still take ages to sift through it all.

The topography of Mesopotamia is varied: the east is bounded by the Zagros mountains and the Iranian Plateau, the center is dominated by the plains surrounding the Tigris and Euphrates Rivers, the south is dominated by alluvial plains, and the west is semi-arid / desert. Several major shifts in climatic conditions have taken place over the past 15,000 years. Permanent settlements associated with agriculture and stock herding date as far back as 8,000 BCE. At this period, settlements were relatively small. By 6,000 BCE, agriculture was well-established, and larger villages appeared. Slightly later, major cultural centers (such as Eridu) emerge, trade flourishes, and wealth and population increase. Pictographic writing begins to appear at around 3,500 BCE, and this slowly develops into the cuneiform syllabary. The earliest recorded language was Sumerian — the Sumerians were located in central and southern Mesopotamia. Semitic people were located in the immediate north and west. The earliest recorded Semitic language was

Akkadian. Further north, in modern-day Turkey, Caucasian languages were spoken. There were also several languages of unknown affiliation (such as Kassitic). References: Diakonoff 1988; Henry 1992; Nissen 1988.

Another scenario, proposed by Martin Bernal, associates the final disintegration of the Afroasiatic parent language with the Khartoum Mesolithic and locates the latest Afroasiatic homeland in modern-day Sudan. Bernal (1980:4) notes that "archeological evidence from the Maghreb, the Sudan, and east Africa [makes it seem] permissible to postulate that at least three branches of Afroasiatic existed by the eighth millennium [BCE]". Thus, he (1980:13) dates the breakup of Proto-Afroasiatic to no later than about 8,000 BCE, after which there was a rapid expansion outward in all directions.

Bernal (1980:17) further notes that "[t]he earliest evidence of the Khartoum Mesolithic comes from the East African Rift Valley in Kenya and Ethiopia". The precursor of the Khartoum Mesolithic seems to have been the Kenya Capsian culture, which began as far back as 20,000 years ago. This implies that the earliest homeland of Pre-Proto-Afroasiatic is to be sought in Ethiopia, and Bernal (1980:46-59) proposes just such a scenario (I will quote at length):

> (p. 46) During the late Ice Age the proto-Afroasiatic speakers developed a fishing culture by the lakes of the Kenyan and Ethiopian Rift Valley. This culture also dominated tef, ensete and some *pennisata*. The first division, for which there is no archeological evidence, was that of the proto-Omotic speakers, who moved northwest, either to their present territory in the Ethiopian mountains south of the Blue Nile or, more likely, to the grasslands of the Upper Nile, from which they moved to their present home, as the former became heavily forested at the beginning of the Holocene. The split occurred sometime between the fourteenth and the eleventh millennia.
>
> The "explosion" took place in the ninth millennium when some Afroasiatic speakers moved north into the mountains and then to the Blue and White Niles above Khartoum on the edge of the rainforest. Others went northeast down the Awash Valley to the sea and later to Asia (see below). Still others moved out of the Kenya Rift mainly to the east, as the west was becoming heavily forested. The archeological record of this is the spread of the Khartoum Mesolithic and the Kenya Capsian to the northwest and that of the East African Wilton microlithic tools to the east.
>
> Some degree of linguistic and cultural uniformity was maintained during the eighth and seventh millennia, and it was during this period that herding, milking, and possibly tooth avulsion spread back throughout the Afroasiatic "world". During the following millennia, unity was broken by the expansion of the desert and the growing importance of other linguistic groups, notably the Nilo-Saharans...
>
> (p. 49) The final problem in the expansion of Afroasiatic is that of the Semitic branch. Although several authorities continue to accept the hypothesis that the Ethiopian Semitic languages are descended from the language of south Arabian conquerors of the first millennium BC or from earlier Asiatic influence, none have replied to the substance of the arguments put forward by Fleming, Hudson, and Murtonen in favor of an African origin... Not merely does the hypothesis of an Ethiopian origin fit well with most modern schemes of Afroasiatic development, but the linguistic diversity among Ethiopian Semitic languages is wider and deeper than that between the Asiatic ones, even when one takes into consideration the greater time depths of the latter.
>
> The extraordinary differences between the Gurage languages spoken within a radius of 50 miles and having undoubted contact with, and loans from, one another suggests diversification over a very long period. This region at the northern end of the Rift would seem a plausible Semitic *Urheimat*. Such an area would correspond well with

the picture of an agricultural stock-rearing and non-desertic culture drawn by Franzaroli on the basis of the common Semitic lexicon (1975:43-51). With climatic changes of the ninth millennium, I postulate an expansion northward down the Awash Valley to Eritrea and Djibouti which after some time led to the division of North and South Ethiopic.

Before attempting to describe the Asiatic branch of Semitic, I shall propose a hypothetical sequence of events that would explain the present and historically known distribution of Ethiopian languages. The first stage ... is that of Semitic expansion northward during the ninth and eighth millennia; the second is the Agaw migration west. No date is postulated for this, but the great linguistic diversity among Agaw languages indicates that it could be as early as the third millennium. Stage three is the Amharic movement south at the end of the first millennium AD. The latest move is that of the Oromo, which started in the sixteenth century. The major problem with this scenario is that it does not explain why Amharic should be closer to the Southern Ethiopic languages than to the northern ones (Hetzron 1975:114-117)...

At some time in the eighth millennium, probably but not necessarily before the differentiation of North and South Ethiopic, Semitic speakers crossed the Bab al Mandeb into Arabia. Like the Sahara, the Arabian desert now had enough rainfall to become savannah capable of supporting big game and cattle. This situation is indicated by rock paintings in the southern Hejaz. Pictures of cattle and herders are frequent, even in sites deep in the Rub al Khali. There would seem to be no difficulty in placing the beginning [of] Anati's hunting and pastoral age in the eighth millennium. His "Radaf Style", which comes late in the sequence, shows striking resemblance to pottery decoration from the Amratian period which flourished in the fifth millennium (Anati 1972:40-42; Arkell 1975:41)...

(p. 57) The hypothesis I propose then, is that Semitic was the branch of Afroasiatic that went through Ethiopia to Arabia during the climatic optimum before 7000 BC. Proto-Semitic speakers hunted, herded, and possibly planted sorghum in Arabia. One indication of the latter is that the African plant seems to have been in India by the mid-second millennium BC (Shaw 1976:124). On the other hand, no sickles have been found in association with the Eridu and Ubaid pottery in Arabia (Burkholder 1972:264-269). It is more probable that Eridu culture began when the Arabian herders and African agriculturalists took on southwest Asian agriculture, possibly from the Samarra culture. Desiccation seems to have begun in Palestine sometime after 7000 BC (Smith 1976:169). It is also likely that the Upper Gulf started to become dry sooner than other areas more exposed to monsoons. This process would have been a powerful incentive to go into the Mesopotamian marshes and begin irrigation agriculture in the late seventh millennium. With the desiccation of the following millennia, Arabia became much less important, though it continued to support sheep and goat herding nomads who traded with and periodically raided nearby agricultural settlements. By contrast, irrigation agriculture in Mesopotamia led to urbanization and a huge increase in population. It seems to have been impetus from this society that led to the Ubaid domination of Assyria and Syria, though Hurrians remained in the north.

Linguistically, the pattern seems to be as follows: "Asiatic" is probably opposed to "Ethiopic" Semitic, though it could be a subbranch of North Ethiopic. The whole situation is greatly complicated by the fact that one is not merely dealing with a branching tree but also with repeated "waves" leaving isoglosses cutting across "genetic" boundaries. There is also the problem of outside influences, notably that of East and Central Cushitic on Ethiopian Semitic and Sumerian on Akkadian...

With the migration into Mesopotamia, there seems to have been a division between Northern and Southern Asiatic. The descendants of the latter are Early and Modern South Arabic. The genetic relationship has been obscured by the undoubted contact between the former and North Ethiopic during the first millennia BC and AD and the contact with (Northern) Arabic during the latter. The earliest example of Northern Asiatic is Eblaite, which was spoken, or at least written not only in Syria but as far east as

in Khamazi in what is now Kurdistan (Garbini 1978:256). It was not, however, dominant in Mesopotamia, where there was Akkadian. This was a "creole" or *mischsprache*, produced by over a thousand years of Sumerian domination (see above). It is this creolization that explains the striking differences from the rest of Semitic. However, as well as being a *mischsprache*, Akkadian is — apart from Ebiaite — the oldest known Semitic language. This antiquity would seem to explain its "special" relationship with Ge'ez. Hetzron's "central Semitic languages", Canaanite, Arabic, and Aramaic would appear to be descendants of proto-North Asiatic Semitic. However, constant and close contact has caused so many linguistic waves to cover them that it is impossible to work out their genetic relationship to each other or to Eblaite.

The implications of Bernal's views are enormous. Though his views are highly speculative, they are by no means implausible. Should they turn out to be true, it would give substantial weight to the arguments that Afroasiatic is to be viewed as a sister language to Proto-Nostratic rather than a descendant.

**Kartvelian:** At the present time, the Kartvelian (also called "South Caucasian") languages are located in the Republic of Georgia, except for Laz, which is spoken in Lazistan, Turkey. Georgian has the most speakers, while Svan is the most conservative.

As is to be expected by its more archaic nature, Svan was the first language to split from the rest of the Kartvelian speech community (Georgian, Mingrelian, and Laz). According to Gamkrelidze-Machavariani (1982:23-24), Klimov, using glottochronology, has dated this split at 2,000 BCE. The next split was between Georgian and Laz-Mingrelian (together called "Zan"), which has been dated at 800 BCE. This chronology would mean positing a rather shallow time depth for the Kartvelian family, implying that undifferentiated Proto-Kartvelian is to be dated no earlier than about 3,000 BCE. However, in view of the apparent contacts between Proto-Kartvelian and Proto-Indo-European (cf. Gamkrelidze 1966, 1967, and 1970:141), Proto-Kartvelian must have been roughly contemporaneous with Proto-Indo-European, which would imply an earlier date. Therefore, I very hesitatingly suggest a date of around 5,000 BCE for Proto-Kartvelian. It is certain, at the very least, that Kartvelians were in their current location by that date.

Nichols (1993:47-51, §6.2) speculates that Pre-Kartvelian originated in Central Asia, near Pre-Indo-European, and that it spread westward along a southern route below the Caspian Sea, eventually reaching its present location, where it stayed.

**Uralic-Yukaghir:** There is general agreement about the homeland of Uralic — Décsy (1990:9), for example, places the Uralic proto-language "in the Forest-Zone-Steppe-Border (mainly north of it) between the Volga Bend in Eastern Russia and the Ob River in Western Siberia" (see also Hajdú [1972:17-23] for a discussion of the Uralic homeland and [1975:30-40] for both Uralic and Finno-Ugrian; see also Collinder [1965:28-30]).

The date at which the unified Uralic parent language is thought to have been spoken is usually given as approximately 4,000 BCE, while bringing in Yukaghir pushes that date back another millennium or so and moves the homeland slightly to the east. Nichols (1993:38, §5.1, and 47-51, §6.2) also sees Pre-Uralic as having spread westward and northward from Central Asia, slightly just ahead of the westward movement of Pre-Indo-European. Pre-Uralic took a more northerly route, while Pre-Indo-European took a more southerly route directly across the steppes.

A number of scholars have claimed that Indo-European and Uralic are more closely related to each other than either of them is to any other language or language family, while others have claimed that Uralic and Altaic are particularly close, even going so far as to set up a Ural-Altaic language family. The Ural-Altaic hypothesis is generally no longer supported by specialists in the field. The Indo-Uralic hypothesis, however, may indeed have some validity. I would very, very tentatively set up an Indo-Uralic subbranch within Eurasiatic, suggest that Indo-Uralic be located in Central Asia not far from the Aral Sea, and place the date of Indo-Uralic at around 7,000 BCE. This is definitely an area that requires additional research. We will close by citing Collinder's (1965:29-30) tantalizing remarks:

> As we shall see later, Uralic and Indo-European seem to have several words in common. If these words were borrowed from Common Indo-European, the speakers of Common Uralic must have been the neighbors of the speakers of Common Indo-European. If we account for them by assuming that Uralic and Indo-European are interrelated, we arrive at the conclusion that the Uralians and the Indo-Europeans once had a common *Urheimat*. Both alternatives imply that the Indo-Europeans lived to the north of the Black Sea, and the Uralians lived to the north of them.

**Elamo-Dravidian:** Proto-Dravidian may be dated at approximately 5,000 BCE — Zvelebil (1970:18), for instance, notes that by 4,000 BCE, Dravidian had already started to break up into different dialect groups, Brahui being the first group to split off from the main speech community (note: the dates proposed by Pejros-Shnirelman [1988] are far too shallow [for example, they place Proto-Elamo-Dravidian at the 5th-4th millennia BCE], considering that Elamite is already attested as a separate language in written records [so-called "Proto-Elamite" — assumed to be Elamite but as yet undeciphered] as early as the Jemdet Nasr period, that is, around 3,000 BCE [cf. Reiner 1969:56], though it is not until considerably later, after the adoption of cuneiform by the Elamites, that abundant records begin to appear [the earliest document in cuneiform is the so-called "Treaty of Narām-Sin", which is dated at just before 2,200 BCE]). At the present time, the overwhelming majority of Dravidian languages are located in the southern half of the Indian subcontinent and in the northern part of Sri Lanka, though a few outliers are found to the northwest and northeast of the main body of Dravidian languages — Brahui, for instance, is spoken in the Qalat, Hairpur, and Hyderabad districts of Pakistan (plus a smaller number of speakers in Iran and southern Afghanistan), while Kurux is spoken in the districts of Bihar, Orissa, and Madhya Pradesh, and Malto near the borders of Bihar and West Bengal (cf. Zvelebil 1970:15-18; Ruhlen 1987:136-137). We may note in passing that the inscriptions of the Indus Valley (Harappan) Civilization may have been written in an early Dravidian language (cf. Fairservis 1992:14-23 and Parpola 1994; but see also Zide-Zvelebil [eds.] 1976 for a critical assessment of earlier Soviet attempts to decipher the Indus Valley script).

David McAlpin (1981) has presented convincing evidence for a genetic relationship between Elamite and Dravidian, and the majority of scholars now accept this view (though there are still some holdouts!). I will suggest a date of 8,000 BCE for Proto-Elamo-Dravidian, though a bit later (say, 7,000 BCE) is also possible. Elamite, which is now extinct, was located primarily in southwestern Iran, in the vicinity of the

Zagros mountains as well as the adjacent plains of Khuzistan and to the south along the coast of the Persian Gulf. There is good reason to believe that Elamite once occupied nearly all of the Iranian plateau.

Pejros-Shnirelman (1988) accept the Elamo-Dravidian hypothesis. They argue for a "western origin" of the Dravidian languages "somewhere in the Middle East". After the disintegration of Proto-Elamo-Dravidian, "the Dravidian languages could begin to spread eastwards to South Asia". Though, as noted above, their dating is questionable, the scenario they propose for the spread of Dravidian languages into India is plausible. Thus, the Elamo-Dravidian homeland may be placed roughly in western and central modern-day Iran at about 8,000 BCE. Elamo-Dravidian gradually spread eastward covering all of the Iranian plateau and extending into modern-day Pakistan and northwestern India. There was then an east-west split, with Proto-Elamite developing in the western area and Proto-Dravidian developing in the eastern area. Thus, the Dravidian homeland may be placed in Pakistan and northwestern India and dated at about 5,000 BCE, from which Dravidian languages spread southward into India proper. The invasion of Indo-Aryans (occurring in several phases during the period of about 1,700-1,400 BCE [cf. Burrow 1973:30-34]) drove the Dravidians further south and severed the geographical links between Brahui, Kurux, and Malto and the main body of Dravidian languages.

Pejros-Shnirelman (1988) correlate the movement of the Dravidian languages into India with archeological evidence of the Neolithic and Chalcolithic. After surveying faunal and floral terminology in Central-Southern Dravidian languages, they discuss agricultural and stock-raising terminology. This combined evidence confirms a high level of agriculture in West-Central India by about 2,000 BCE. They associate this area and culture with the homeland of Central-Southern Dravidian. This is the region from which Central-Southern Dravidian languages spread eastward and southward. They also note that the archeological evidence as well as linguistic reconstructions indicate that arable farming was widespread in the western South Asian regions already by the late third millennium BCE and that both the "Harappans and the Chalcolithic inhabitants of Central India and Maharashtra kept goats, sheep, humped cattle, buffaloes, pigs, and dogs".

Neolithic settlements in Iran (Tepe Ganj Dareh, for example) have been dated to before 7,000 BCE. The dwellings from this period were constructed of sun-dried mud bricks, and the inhabitants herded goats and produced lightly-fired pottery. In the 5th and 4th millennia BCE, the settlements had grown to large towns — Susa had already been established (Susa was the capital of Elam). At that time, the western part of Iran was under the influence of the Ubaid and Uruk cultures of Mesopotamia. Though it is probably safe to say that an early form of Elamite was the language of western and southern Iran (and most likely well to the east) by this time, Caucasian languages were spoken in the northwest of Iran on into modern-day Turkey (as evidenced by the later Hurrian and Urartean). By the 3rd millennium BCE, there were several Bronze Age cultures in Iran. In the west and south, the Elamite kingdom had been established — it lasted until it was destroyed by the Assyrians in 640 BCE. As noted above, the earliest "Proto-Elamite" inscriptions date to this period. To the north of Elam, in what is currently central and western Iran, the Giyan culture was flourishing — it lasted nearly a thousand years. Another noteworthy cultural center (at sites such as Sharh-i Sokhte and Tepe Yahya) existed in southeastern Iran, not far from the Indus Valley (Harappan)

Civilization. In the middle of the 2nd millennium BCE, Persian tribes began invading from the northeast, and, by 1,200 BCE, they had conquered nearly all of Iran.

The India-Pakistan cultural area is enormous and has always been heterogeneous — even at present there is tremendous variety. In the 3rd millennium, Baluchistan and northwestern India were part of the vast Mesopotamian-Iranian-Indus Valley cultural complex. Copper-working agriculturalists were living in well-built villages. Trade routes were thriving. By 2,500 BCE, the Indus Valley (Harappan) Civilization was well-established — it extended over most of Baluchistan, north well into Punjab, and south as far as the Gulf of Cambay. Indo-Aryan tribes began invading from the northwest at about 1,700 BCE. Given the geography, claims that the Indus Valley inscriptions were written in an early form of Dravidian are likely to be true. Reference: Dani-Masson (eds.) 1992.

**Altaic:** At the present time, Altaic languages cover an enormous territory, beginning with Turkey in the west; stretching eastward across the Russian Federation and the republics of Central Asia in the middle and across nearly all of northern Siberia; encompassing all of Mongolia, parts of northern, northwestern (Xinjiang) and northeastern China (Manchuria); reaching down into the Korean peninsula; and ending far to the east in Japan. The spread of Turkic and Mongolian languages across vast stretches of Eurasia has occurred within the past two millennia — the first westward forays of Altaic tribes began with the Huns, going as far back as Roman times (Nichols [1993] gives a good overview of the spread of Turkic and Mongolian languages; see also Menges 1968:16-53). (Manchu-)Tungus languages were once more widely spoken but have lost considerable ground fairly recently.

In the middle of the first millennium BCE, Turkic tribes were concentrated in the vicinity of modern-day Mongolia and just to the north, while Mongolian tribes were immediate neighbors to the east, south, and southeast. Tungus tribes were to the north and northeast. Indo-European languages covered most of Central Asia (Iranian) and parts of Xinjiang (Tocharian). To the extreme northeast were Chukchi-Kamchatkan peoples. Prior to their expansion westward, Altaic-speaking people had lived for millennia in the area delimited above in small pastoral nomadic tribes, apparently freely intermingling with one another.

**Others:**

1. Sumerian, which is now extinct, was spoken in southern Mesopotamia (modern-day Iraq), extending from Babylon in its northernmost limits to the tip of the Persian Gulf in the south. From the time of the earliest texts, several dialects can be distinguished, the most important of which was Emesal, most probably "women's speech", which Boisson (1992:434-435) argues was more conservative than the main dialect, Emegir. The earliest Sumerian inscriptions date from around 3,100 BCE, though the oldest intelligible texts date from about 2,600 BCE, and the language was probably still spoken as late as the 3rd century BCE. The Sumerian writing system was based exclusively on the cuneiform syllabary, which exhibits several marked stages of development over the course of Sumerian literary history. After about 1,900 BCE,

Akkadian (a Semitic language) began to replace Sumerian in letters and administrative texts, though Sumerian continued to be used in cultic and literary texts.

2. The Chukchi-Kamchatkan family includes the following languages: Chukchi, Koryak, Kerek, Alyutor, and Kamchadal (also called Itelmen or Itelmic). Koryak, Kerek, and Alyutor are extremely close as a group, and these, in turn, are close to Chukchi. Kamchadal, which is now on the verge of extinction, stands apart from the others. The Chukchi-Kamchatkan languages are found in the extreme northeast corner of Siberia in the Chukota and Kamchatka peninsulas. Though written languages were developed for Chukchi, Koryak, and Kamchadal in the 1930's, only Chukchi is still being used in publications and education.

3. Gilyak (also called Nivkh) is usually considered to be a single language, but the two main dialects, namely, the Amur dialect, on the one hand, and the Sakhalin (or Eastern) dialect, on the other, are not mutually intelligible. Of the two, the Sakhalin dialect is the more archaic. The Gilyaks are found on the lower reaches of the Amur River and on Sakhalin Island. Though a written language was developed for the Amur dialect in the 1930's, next to nothing has appeared in it.

4. As the name implies, Eskimo-Aleut has two branches: Eskimo and Aleut. The Aleut dialects are mutually intelligible. However, this is not the case with the Eskimo dialects. Two main Eskimo dialect groups are distinguished, namely, Yupik and Inuit (also called Inupiaq). Yupik speakers are concentrated in southwestern Alaska, beginning at Norton Sound and extending southward along the western and southern coasts and inland. An extremely small enclave of Yupik speakers is found in northeastern Siberia as well — the result of a fairly recent migration. Inuit speakers are found north of Norton Sound all the way to the northern coast of Alaska and extending eastward across all of the northernmost parts of Canada and on into Greenland. Aleut is spoken on the Aleutian Islands and the Commander Islands.

**Nostratic:** Now that we have surveyed the homelands and/or present locations of the Nostratic daughter languages, we are in a position to try to determine the probable homeland of Nostratic itself. Before beginning, however, let us quote what Aaron Dolgopolsky, John C. Kerns, and Henrik Birnbaum have to say about Nostratic in general, about its structure, about its dating, and about its homeland — this will set the stage for what follows.

First, Dolgopolsky (1994:2838):

> The [Nostratic] parent language had, most probably, an analytical grammatical structure with a strict word order (sentence-final predicate; object preceding the verb; nonpronominal attribute preceding the head; a special position for unstressed pronouns) and with grammatical meaning expressed by word order and auxiliary words (e.g., postpositions: **nu* for genitive, **ma* for marked accusative, and others). In the descendant languages this analytic grammar evolved towards a synthetic one. The phonological system (reconstructed by V. Illich-Svitych (1971-84) and A. Dolgopolsky (1989) in the framework of a Nostratic historical phonology) included a rich consonantism (with threefold opposition of voiced/voiceless/glottalized [ejective] stops and affricates, with three series of sibilants and affricates, with lateral obstruents,

laryngeal, pharyngeal, and uvular consonants), and a vowel system of 7 vowels. The ancient Nostratic parent language seems to have existed in the pre-neolithic period (up to ca. 15,000 or 12,000 BC) somewhere in southwest Asia. But most descendant proto-languages (e.g., Proto-Indo-European) existed during the neolithic period (with agriculture and husbandry, resulting in a demographic explosion, which can explain their spread throughout Eurasia and the northern half of Africa).

John C. Kerns (Bomhard-Kerns 1994:153-156) is considerably more specific, not only about the location of the homeland of Nostratic but also about the pre-neolithic environment existing at the time. Therefore, we will quote him at length:

> I believe that Nostratic languages did not exist except as a part of Dene-Caucasian until the waning of the Würm glaciation, some 15,000 years ago. At this time the glacial ice began a rapid retreat all along the Northern fringe of Eurasia. In Europe, the effect was particularly dramatic, where the ice had been piled to impressive heights with moisture received from the Atlantic. Huge lakes developed from the melt water, particularly in the lowlands of Southern Russia, and new rivers were eroded into being, to both feed and drain the lakes, and to drain the Northern slopes of Eurasia as they came into view. As the new lands emerged, sub-Arctic winds whipped up the dust of rocks, which had been ground by the movements of glacial ice, and carried it Southward into the newly emerging forests. Most of the dust was deposited in the valleys near rivers, forming the basis of the fertile loess soils that later proved so attractive to early Neolithic farmers with their techniques of slash and burn and their casual herding of domesticated animals. These people included the Chinese in Asia, and also the Indo-Europeans in the Balkans and later in Central Europe with the Linear Pottery expansion around 5000 BCE, and in the lands radiating Northward and Eastward from there.
>
> By 10,000 BCE, the Northern half of Eurasia and North America had been transformed. Formerly glacial and sub-Arctic lands were now temperate forests; only the Circumpolar fringe was still Arctic or sub-Arctic. The great herds of large Arctic mammals had been replaced by more solitary game, and fish abounded in the lakes and streams. People of (ultimately) Aurignacian ancestry adapted their equipment and techniques to take advantage of the new opportunities. The small-blade stone working of the Aurignacians and their successors was refined and elaborated to provide a varied array of new tools and weapons by setting these "microliths" in handles of wood or antler. Greater use was made of bows and arrows (with microlith tips), and dogs were used in the hunt and for food. Fishing industries were established in the rivers and lakes, and particularly in the Baltic, involving nets, boats and bait lines.
>
> As always in hunter-gatherer societies, mobility was at a premium. Canoes were used for water travel and snow shoes and sleds were developed for overland travel in winter. The conditions were favorable for the rapid spread of tribes and their new linguistic family over immense distances. This expansion, which is called Mesolithic, is indicated archaeologically by microliths found all along Northern Eurasia and Southward through the Caucasus into the Near East, where it later developed smoothly into the Neolithic with its domestication of cereals and of animals suitable for food and fibers.
>
> The Mesolithic culture is aptly named, for it provided a gradual though rapid transition between the Upper Paleolithic and the agricultural Neolithic. There was, in fact, a steady advance in man's ability to control and exploit his environment. This point is brought out by Grahame Clark (1980).
>
> The more I study the matter, the more I am convinced that the spread of the Nostratic speaking peoples was occasioned by the spread of the Mesolithic culture, for it occupied the right positions in time and space, and its characteristic features are compatible with the residual vocabulary of the Nostratic families — it was the last of the pre-agricultural eras in Eurasia.

Was the culture unilingual? I believe it was, in origin, though by the time the culture had spread into the more extreme areas — North Africa and Eastern Eurasia and North America — it had broken up into a catenation of mutually unintelligible, though closely related, languages, some of which eventually became ancestral to new linguistic families, including those comprising the Northern Nostratic sub-phylum we observe today. One reason for assuming a unitary origin is that certain features of vocabulary and morphology are shared between Eskimo-Aleut and Indo-European that occur only vestigially in the intervening families. This includes the heteroclitic declension. It also includes a few items of shared vocabulary such as Eskimo (Yupik) *alla* 'other' and *ingne* 'fire' (with a velar nasal in the first syllable). The paucity of such correspondences is analogous to the vestigial retention of radioactive atoms after the lapse of several half-lives.

Here, *ingne* is particularly interesting. It reminds us of Latin *ignis* 'fire'. The vowel in the first syllable is controversial since the corresponding vowels in the Lithuanian and Sanskrit words are respectively *u-* and *a-*, which cannot be reconciled with the Latin form or with each other by the accepted rules of phonological correspondence. This suggests that the ancestral word in Nostratic had the velar nasal in the first syllable, preserved in Yupik but perhaps lost sometime during the prehistory of Indo-European. Bomhard informs me that some Indo-Europeanists (cf. Ernout-Meillet 1979:308) have suggested that the Latin form may come from an earlier **ŋgnis*, with a syllabic nasal in the first syllable.

I believe that the Mesolithic culture, with its Nostratic language, had its beginning in or near the Fertile Crescent just south of the Caucasus, with a slightly later northern extension into Southern Russia in intimate association with woods and fresh water in lakes and rivers. From these positions, it had ready access to the lower Danube and the Balkans (Indo-European), to the Caucasus (Kartvelian), south of the Caucasus into Mesopotamia, Palestine, Egypt, and the rest of North Africa (Sumerian and Afroasiatic), eastward into Central Siberia (Elamo-Dravidian), and northward and thence eastward along the Circumpolar fringe (Uralic-Yukaghir, Altaic, Chukchi-Kamchatkin, Gilyak, and Eskimo-Aleut). In the process of its expansion, it undoubtedly effected a linguistic conversion of many tribes of Dene-Caucasian or other origin; this accounts for the fact that non-Nostratic languages in Eurasia in historic times have been found mostly as relics in mountainous regions. Exceptions are Chinese and the now moribund or extinct Ket, which, together with Hattic and Hurrian, probably represent post-Nostratic reemergences of Dene-Caucasian speakers from their relict areas.

The Nostratic dispersion probably began at least 15,000 years ago, giving ample time for a plethora of eccentric linguistic developments unrecorded in history. By historic times — i.e., as late as the nineteenth century in many instances — the primordial features have been much diluted and transformed. Only by viewing the entire macrofamily holistically can we gain some idea of the features of the original Nostratic language; the importance of Indo-European in this is crucial in that it serves as an intermediate link, linguistically as well as geographically, between Kartvelian, Sumerian, and Afroasiatic on the one hand, and the Circumpolar group (Uralic-Yukaghir to Eskimo-Aleut) on the other. Besides, Indo-European seems to be fairly conservative in its syntactic system, its nominal declension, its pronouns, and its vocabulary in general.

At last we return to the issue I raised at the beginning of this section: Why does Indo-European resemble Afroasiatic in phonology and vocabulary, but the Circumpolar group in syntax and morphology? If the foregoing scenario is correct, or nearly so, it suggests that the Nostratic dispersal began almost as soon as its unity was formed; this is the inevitable result of the peripatetic activities of hunter-gatherers in an expansive situation. If we assume that the speakers of pre-Indo-European remained in the neighborhood of the Caucasus to a fairly late period (say 7500 BCE), with Afroasiatic already extending through Palestine into Egypt and eventually into the rest of North Africa, but with its Semitic branch still situated in Northern Mesopotamia high on the

upper slopes of the Fertile Crescent, we would have an explanation for the similarity of vocabulary. That this proximity existed to a late period is suggested by shared words for field, bull, cow, sheep, and goat, animals which were then being domesticated in the Fertile Crescent. In addition, shared words for star and seven suggest a common veneration for that number and perhaps a shared ideology. This is speculative, of course, but if it is true it suggests an association that was social as well as geographical.

Meanwhile, the Circumpolar families were developing in a situation that was geographically and environmentally separate. Here, the Mesolithic way of life has been maintained continuously to recent times; any impulses toward agriculture have been late, and except for the Finno-Ugrians, they all have been received from non-Indo-European sources. The linguistic developments have been equally idiosyncratic. In all of these families the SOV word order and associated morphological principles of early Indo-European have been retained except where subjected to alien influences in more recent times, and they have been maintained with special purity in Altaic and Elamo-Dravidian, which may well have been of Siberian origin. In vocabulary, they show little in common with Indo-European or Afroasiatic except at a strictly pre-agricultural level.

In Uralic-Yukaghir, the linguistic idiosyncrasy is particularly marked. While the syntax and a considerable part of the morphology are basically conservative, the latter has been extended to an astonishing degree in several languages. But the most striking peculiarity of this family is the remarkable simplification that has developed in its consonantal system (reminiscent of Tocharian in Indo-European), and in the paucity of the Nostratic vocabulary that it has retained. It suggests a long isolation along the North Siberian fringe in the neighborhood of tribes not yet converted to Nostratic speech, for these features are less prominent in the other families of this group.

By the same token, it also suggests that the similarities shared by Uralic with Indo-European, or Eskimo-Aleut are very likely to have been features of the original Nostratic since borrowing among these groups is excluded by their mutual isolation until much more recent times. Although the similarities are few as discernible at this late date, they are sufficiently striking that they are unlikely to have been due to independent developments.

Finally, the following quote is what the well-known Slavicist Henrik Birnbaum has to say about the Nostratic Hypothesis in general and about the Nostratic homeland in particular (Birnbaum 1992:25):

> If, in conclusion, I were to indicate my own position with regard to the still highly controversial issue of Nostratic, I would have to say that I have no difficulty in accepting the notion of a Nostratic macrofamily of languages comprising at least the six language families envisioned by Illič-Svityč and Dolgopol'skij. However, my understanding of such a macrofamily — and similar considerations would presumably apply to other large-scale language groups elsewhere in the world — would not, and could not, be based exclusively on evidence of genetic relationship as defined above. Linguistic macrofamilies (such as the one we term Nostratic) must, I submit, be viewed as the tangible result of both genetic relationships resulting from divergence and structural adjustments reflecting convergent trends in linguistic evolution. Consequently, and in line with some of the views propounded by Baudouin de Courtenay, Polivanov, and Trubeckoj, I would consider it fairly realistic to hypothesize a once actually spoken Nostratic ancestral language. Presumably, this language was characterized by a degree of inner cohesion comparable to what, *mutatis mutandis*, we can assume to have been the case with, say, Common Baltic or, possibly, Anatolian in their chronological and substantive development from Proto-Indo-European. And perhaps, if the heartland of Proto-Nostratic, as just qualified, is indeed to be identified with an area encompassing Transcaucasia, eastern (and southern) Anatolia, as well as the upper reaches of the Tigris and Euphrates, it would not be too far-fetched to assume secondary Indo-European

protohomes in territories closer to the Black Sea, namely in the Pontic Steppe region, in northern and western Anatolia, and in parts of the Balkan Peninsula. This would further provide at least a point of departure for a reasonable explanation for the early settlement of the Greeks in mainland Greece and the archipelagos of the Aegean; for the formation of a secondary — if not tertiary — Indo-European core area focused in the Baltic region; and possibly even for the yet largely opaque earliest moves of Celtic tribes throughout Western, Central, and Southeastern Europe.

In my opinion, Kerns has hit the nail on the head (Bomhard-Kerns 1994:155): "I believe that the Mesolithic culture, with its Nostratic language, had its beginning in or near the Fertile Crescent just south of the Caucasus". Let us now reexamine the evidence from the Nostratic daughter languages and see how it leads to this conclusion.

The Indo-European homeland was most likely to the north of and between the Black and Caspian Seas. However, Nichols has convincingly argued that Pre-Indo-European originated in Central Asia and later spread westward to the North Pontic/Steppe zone that was the geographical location where Proto-Indo-European proper developed, where it began to split up into different dialect groups, and from which its descendants spread into Europe, the Iranian plateau, and northern India. Likewise, again as argued by Nichols, Pre-Uralic may be presumed to have originated in Central Asia and to have spread westward, following a more northerly route than Pre-Indo-European. Thus, it is likely that the Eurasiatic parent language was located in Central Asia and that it is to be dated roughly at about 9,000 BCE. This would mean that the eastern Eurasiatic languages (Altaic, Chukchi-Kamchatkan, Gilyak, and Eskimo-Aleut) must have spread eastward from Central Asia (more specifically, the area traditionally called "Western Turkestan") to their prehistoric homelands. Nichols has also speculated that Pre-Kartvelian may have originally been located in Central Asia, from which it spread westward along a southern route below the Caspian Sea to the Caucasus Mountains. The Elamo-Dravidian homeland may be placed roughly in western and central modern-day Iran and dated at about 8,000 BCE. Finally, the homeland of Afroasiatic may be placed in the Middle East in the Levant and dated at about 10,000 BCE. Working backwards geographically and chronologically, we arrive at the only possible homeland for Proto-Nostratic, namely, "the Fertile Crescent just south of the Caucasus".

Thus, the following scenario emerges: The unified Nostratic parent language may be dated to between 15,000 to 12,000 BCE, that is, at the end of the last Ice Age — it was located in the Fertile Crescent just south of the Caucasus (see Map 4). Beginning around 12,000 BCE, Nostratic began to expand, and, by 10,000 BCE, several distinct dialect groups had appeared. The first to split off was Afroasiatic. One dialect group spread from the Fertile Crescent to the northeast, eventually reaching Central Asia sometime before 9,000 BCE — this was Eurasiatic. Another dialect group spread eastward into western and central Iran, where it developed into Elamo-Dravidian at about 8,000 BCE. If Nichols is correct in seeing Pre-Kartvelian as having migrated from Central Asia westward below the Caspian Sea to the Caucasus, this would seem to imply that Pre-Kartvelian had first migrated northeastward from the Fertile Crescent along with or as part of Pre-Eurasiatic, that it stopped somewhere along the way, and that it then returned to the Middle East. The early dispersal of the Nostratic languages is shown in Map 5.

Analysis of the linguistic evidence has enabled us to determine the most likely homeland of the Nostratic parent language, to establish a time-frame during which Proto-Nostratic might have been spoken, to date the disintegration of Nostratic, and to trace the early dispersal of the daughter languages. To round out the picture, let us now correlate the linguistic data with archeological data. During the last Ice Age (the so-called "Würm glaciation"), which reached its zenith about 18,000 to 20,000 years ago, the whole of northern Eurasia was covered by huge sheets of ice, while treeless steppe tundra stretched all the way from the westernmost fringes of Europe eastward to well beyond the Ural Mountains. It was not until about 15,000 years ago that the ice sheets began to retreat in earnest. When the ice sheets began melting, sea levels rose dramatically, and major climatic changes took place — temperatures rose, rainfall became more abundant, all sorts of animals (gazelles, deer, cattle, wild sheep, wild goats, wild asses, wolves, jackals, and many smaller species) became plentiful, and vegetation flourished. Areas that had formerly been inhospitable to human habitation now became inviting. Human population increased and spread outward in all directions, exploiting the opportunities created by the receding ice sheets. New technologies came into being — toward the end of the last Ice Age, hunter-gatherers had inhabited the Middle East, living either in caves or temporary campsites. As the Ice Age began coming to an end, more permanent settlements started to appear, and there was a gradual transition from an economy based on hunting and gathering to one based on cultivation and stock breeding. This was the setting in which Nostratic arose. Nostratic was indeed at the right place and at the right time. The disintegration of the Nostratic parent language coincided with the dramatic changes in environment described above, and Nostratic-speaking people took full advantage of the new opportunities.

Roaf (1990:18) has an interesting map showing the spread of agriculture in the ancient Middle East and beyond (see Map 6; see also Cavalli-Sforza et al. 1994:257 and Guilaine [ed.] 1989:118). It is striking how closely this map matches the early dispersal of Nostratic languages as shown in our Map 4, though the time-frames are different — the language spread seems to have preceded the spread of agriculture by about three millennia, at least in Central Asia. It is tempting to speculate that the spread of agriculture may have been facilitated by the cultural contacts that seem to have been maintained among the speakers of the early Nostratic daughter languages (for more discussion, see the following section on Eurasiatic). There is, however, one very important exception, namely, the spread of agriculture into and throughout Europe, which could not have been in any way connected with the early dispersal of the Nostratic daughter languages, since Nostratic languages do not appear in Europe until a much later date. In what follows, I would like to offer a proposal to account for this.

Nostratic-speaking people were not the only population group in the Middle East at the time that the dramatic changes described above were taking place. To the north, in Anatolia and the Caucasus, were very early Caucasian-speaking people (as evidenced by the later Hattic, Hurrian-Urartean, and, perhaps, Gutian [so Diakonoff 1990:63] in Anatolia), and these people were also active participants in the "Neolithic Revolution" and the consequent development and spread of agriculture and stock breeding. I suggest that these were the people responsible for the spread of agriculture into Europe, not early Nostratic-speaking people and definitely not Indo-Europeans as suggested by Renfrew. I

further suggest that it was the migration of these ancient Caucasian-speaking agriculturalists into the Balkans that gave rise to the civilization of "Old Europe" (on Old Europe, see Paliga 1989). Thus, we can plot two distinct migrations into Europe: the earliest, which crossed from Anatolia into the Balkans and then spread northward into Europe, began about 10,000 years ago. I am proposing that this migration was by Caucasian-speaking agriculturalists. The second, which came from the Russian steppes and spread westward into Europe, began about 6,000 years ago. This migration was by Indo-European-speaking horsemen. As a result of this migration, Indo-European languages gradually replaced all of the earlier languages of Europe except for Basque.

**Eurasiatic:** In the preceding section, I stated that the Nostratic dialect group which developed into Proto-Eurasiatic spread from the Fertile Crescent to the northeast, eventually reaching Central Asia sometime before 9,000 BCE. At the time of their arrival in Central Asia, the climate of the area was too dry to support primitive agriculture — it was not until the eighth millennium BCE that climatic conditions significantly improved. Therefore, we would expect to find no traces of agriculture in this region before this date, and indeed there are none. Nonetheless, there is evidence for early trade and cross-cultural contacts between northeastern Iran, Central Asia, and the Fertile Crescent dating as far back as Mesolithic times (cf. V. Sarianidi 1992:112-113). Moreover, in northeastern Iran, on the southeastern shores of the Caspian Sea, there is evidence that wild goats and sheep were hunted as early as the twelfth and eleventh millennia BCE, and these were among the first animals to be domesticated. The earliest known Neolithic remains in northeastern Iran go back to about the seventh millennium BCE. By the sixth millennium BCE, Neolithic culture had spread northward into Central Asia — the Neolithic settlement patterns and technology (pottery, agriculture, stock breeding, etc.) appearing in this area were clearly imported from the Middle East (cf. Cavalli-Sforza et al. 1994:198). On the basis of this information, we may surmise that the earliest Nostratic-speaking people to appear in Central Asia were Mesolithic hunter-gathers, not agriculturalists, though agriculture and stock breeding slowly followed. Even after the introduction of agriculture, there is evidence of different cultural traditions co-existing in the region, as noted by Sarianidi (1992:126):

> The culture of Neolithic agricultures and of cattle-breeders of Iran, Afghanistan and Soviet Central Asia shows that a transition to the forms of economy, usually termed the 'Neolithic Revolution', took place here almost simultaneously with similar developments in western Asia. A new way of life is clearly represented here by comfortable houses with accurate trimming of interiors, bright ceramics and wide use of ornaments. This qualitative leap in social development prepared the necessary base for the creation of ancient civilizations. At the same time inequalities in the course of historical development become clear: the ancient tribes of Iran and southern Turkmenistan passed to the new forms of economy, while in other areas of Soviet Central Asia and northern Afghanistan the transition was delayed. Tribes of hunters, fishers and food-gatherers, maintaining many archaic features in their culture, were contemporary with sedentary communities in oases. The lines of cultural links that emerged during the Palaeolithic epoch not only keep their importance but also become stronger — a fact which played an important role in the diffusion of cultivating cereals and of cattle-breeding.

## 8. Problem Areas

### A. The Problem of Altaic:

As noted by Merritt Ruhlen (1987:128):

> The study of the Altaic family has had a long and stormy history, and even today there is considerable disagreement among specialists over exactly which languages belong to the family.

The similarities between what has come to be known as the "Altaic" languages were recognized over two and a half centuries ago by the Swedish military officer Johann von Strahlenberg, who published a work on the subject in 1730. The famous Danish scholar, and one of the founders of Indo-European comparative grammar, Rasmus Rask also conducted research into these languages as well as Eskimo, several Uralic languages, and what have sometimes been called the "Paleosiberian" languages. In the middle of the last century, important work was done by the Finnish linguist Matthew Alexander Castrén. It was another Finnish scholar, Gustav John Ramstedt (cf. Poppe [1965:83-85] for a sketch of Ramstedt's life), who really put Altaic comparative linguistics on a firm footing. Ramstedt published many important studies, culminating in the publication (1952-1957) of his two-volume *magnum opus* (in English translation) *Introduction to Altaic Linguistics*. A few of the many scholars who have made significant contributions to Altaic linguistics are: Pentti Aalto, Johannes Benzing, Erich Haenisch, Shiro Hattori, Wladyslaw Kotwicz, Samuel E. Martin, Karl H. Menges, Roy Andrew Miller, Antoine Mostaert, Gyula (Julius) Németh, Jerry Norman, Martti Räsänen, András Róna-Tas, Andrew Rudnev, Aurélien Sauvageot, Boris A. Serebrennikov, Denis Sinor, John C. Street, Vilhelm Thomsen, Vera Ivanovna Tsintsius (Cincius), Boris Yakovlevich Vladimirtsov, and others too numerous to count, including several Russian, Korean, and Japanese scholars. One of the most prominent Altaic scholars of this century is the Russian-born Nicholas Poppe, who has published numerous books and articles, including (in English translation) *Khalkha-Mongolian Grammar* (1951), *Introduction to Mongolian Comparative Studies* (1955; reprinted 1987), (in English translation) *Comparative Grammar of the Altaic Languages* (1960; only Part I appeared), *Introduction to Altaic Linguistics* (1965), and *Grammar of Written Mongolian* (third printing 1974). The most noteworthy recent work (1991) is the monograph by the highly respected Russian linguist Sergej A. Starostin entitled (in English translation) *The Altaic Problem and the Origin of the Japanese Language*. Strong opposition to the Altaic Hypothesis has been expressed by several reputable scholars, perhaps the most vocal being Gerhard Doerfer and Gerard Clauson. At the Workshop on Linguistic Change and Reconstruction Methodology held at Stanford University from 28 July through 1 August 1987, the consensus of the Altaic panel was that "we found Proto-Altaic, at best, a premature hypothesis and a pragmatically poor foundation on which to build a sustained research program" (cf. Baldi [ed.] 1990:479; the quotation is from the "Summary Report of the Altaic Panel" prepared by J. Marshall Unger). Finally, we may note in passing that Illich-Svitych also made a couple of important contributions to Altaic linguistics.

Traditionally, Altaic has included the core groups (Chuvash-)Turkic, Mongolian, and (Manchu-)Tungus, to which some have tried to add Korean, Japanese-Ryukyuan, and Ainu. Looking at just the core group, one is hard-pressed to find features common to all three. There are, to be sure, common features between (Chuvash-)Turkic and Mongolian on the one hand and between Mongolian and (Manchu-)Tungus on the other, but there appear to be relatively few features common to (Chuvash-)Turkic and (Manchu-)Tungus alone. All three are, in fact, similar in structure, but this has been considered by some to be strictly a typological characteristic. The common features found between the members of the core group have been explained as due to diffusion, and, for a good portion of the common lexical material, this seems to be a valid explanation. There are, however, features common (pronouns, to cite a single example) to the members of the core group as a whole that cannot be explained as due to diffusion, and which do indeed point to some sort of genetic relationship. The problem is in trying to define the nature of that relationship. Two explanations are possible: (1) The shared features are due to common descent from Proto-Nostratic and do not imply a closer relationship between the three. In this scenario, (Chuvash-)Turkic, Mongolian, and (Manchu-)Tungus turn out to be three independent branches of Nostratic. (2) The shared features are due to descent from a common Altaic parent language intermediate between Proto-Nostratic and each of the core group members. The problem with the first explanation is that it merely shifts the question back to the Nostratic level without resolving a thing, whereas the second explanation keeps the focus exactly where it belongs, namely, on the core group. The second alternative thus remains a viable hypothesis. I would unhesitatingly include the following groups within the Altaic language family: (Chuvash-)Turkic, Mongolian, (Manchu-)Tungus, and Korean, while Japanese-Ryukyuan appears to be made up of an Altaic element that has been superimposed on an Austronesian substratum. The shared features between (Chuvash-)Turkic, Mongolian, and (Manchu-)Tungus may be looked upon as due to common descent from an Altaic parent language. Language change over time has gradually led to increasing differentiation between each of the three core group members, while diffusion, especially lexical diffusion, has tended to complicate the picture and has made it difficult to differentiate between that which is borrowed and that which is inherited.

The whole question of Altaic unity has recently been reexamined by Roy Andrew Miller (1991). Miller addresses and convincingly demolishes objections that have been raised by those opposed to setting up an Altaic language family, and he concludes his paper by listing a number of important tasks that must be undertaken by Altaicists to redirect "Altaic historical-linguistic studies back into the mainstream of comparative linguistics". The new book by Sergej Starostin (1991) attempts to clarify many of the issues surrounding the problems associated with setting up an Altaic language family, including the relationship of Korean and Japanese to the other Altaic language groups.

## B. The Origin of Etruscan:

In spite of several heroic efforts, Etruscan has never been convincingly shown to be related to any known language or language family. This applies as well to recent attempts by Russian scholars to establish a connection between Etruscan and Northeast

Caucasian (cf. Orël-Starostin 1990). And yet, there are some important clues as to the origin of Etruscan, and these need to be looked at in a new perspective, but, first, a few introductory comments ought to be made.

Etruscan was spoken in central Italy, with the largest concentration of speakers being in the region now known as Tuscany. It is now generally accepted that Etruscan was an indigenous language of Italy and not a recent importation. The first written documents date from the 7th century BCE, while the latest date from the first century CE, which is probably not far beyond the time that Etruscan became extinct. Etruscan was usually written from right to left in an alphabet based mostly on Western Greek models. Though approximately 13,000 Etruscan inscriptions have been found, the overwhelming majority of them are extremely brief. The phonological system was simple: There were only four vowels, namely, *a*, *e*, *i*, *u*, and the consonant system distinguished a relatively small number of phonemes and lacked a voicing contrast in stops. Syntactically, Etruscan word order was SOV.

Looking closely at Etruscan, it is clear that it contains unmistakable Nostratic elements, including the personal pronouns *mi* "I", and *mini* "me", the demonstrative pronouns *eca*, *ca* "this" and *ita*, *ta* "this", and several lexical items such as, for example, *maθ* "honey, honeyed wine" (cf. Proto-Indo-European **med[ʰ]u* "honey, mead"; Proto-Finno-Ugrian **mete* "honey"; Proto-Dravidian **maṭṭu* "honey, nectar, toddy" [Bomhard-Kerns 1994:665-666, no. 543]), *apa* "father" (cf. Indo-European: Gothic *aba* "man, husband"; Proto-Afroasiatic **ʔab-* "father, forefather, ancestor"; Proto-Dravidian **appa-* "father"; Proto-Altaic **aba* "father"; Sumerian *a-ba*, *ab*, *ab-ba* "father" [Bomhard-Kerns 1994:572-573, no. 440]), *hanθin* "in front of" (cf. Indo-European: Hittite *ḫanti* "facing, frontally, opposite, against", *ḫanza* "in front"; Sanskrit *ánti* "in front of, before, near"; Afroasiatic: Egyptian *ḥnt* "face, front part; in front of" [Bomhard-Kerns 1995:554, no. 414]), *pi* (also *pul*) "at, in, through" (cf. Indo-European: Gothic *bi* "about, over; concerning, according to", Old English *bī*, *bi*, *be* "[of place] near, in, on, upon, with, along, at, to; [of time] in, about, by, before, while during; for, because of, in consideration of, by, by means of, through, in conformity with", Sanskrit [with prefix] *a-bhí* "to, towards"; Afroasiatic: Proto-Semitic **ba/*bi* "in, with, within, among"; Sumerian *bi* "with, together with, in addition to" [Bomhard-Kerns 1994:218-219, no. 23]), *tev-* "to show, to set" (cf. Proto-Kartvelian **dew-/*dw-* "to lay, to put, to place, to set"; Sumerian *dù* "to do, to make; to build; to set up, to establish" [Bomhard-Kerns 1994:276, no. 90]). There is also a pronoun *θi*, whose meaning is unknown, but which resembles the Nostratic 2nd singular personal pronoun. That *θi* may, in fact, have been the 2nd singular personal pronoun finds support in the verbal 2nd person imperative endings *-ti*, *-θ*, *-θi*. But, there is more. The declensional system is blatantly reminiscent of Indo-European, and verb morphology, though poorly known, also exhibits Indo-European characteristics. There are five noun stem types (cf. Georgiev 1981:232-233): (A) stems ending in *-a*, with genitive singular in *-as* or *-aś*; (B) stems ending in *-i*, with genitive singular in *-is*, *-ias*, or (rarely) *-aias*; (C) stems ending in *-ai*, with genitive singular in *-ias* or *-aias*; (D) stems ending in *-u*, with genitive singular in *-us*; and (E) consonant stems, with genitive singular in *-as* or (later) *-s*. These correspond to similar stem types in Indo-European.

Moreover, the genitive singular in *-s* is typically Indo-European. Etruscan also had an archaic genitive in *-n* (*-an*, *-un*), which corresponds to the Indo-European genitive plural in **-om* (also with long vowel: **-ōm* < **-o-om*). In demonstrative stems, the accusative ends in *-n*, and this also has a correspondence with the Indo-European accusative singular ending **-om*. The locative in *-ti*, *-θ(i)* has parallels in Anatolian (Hittite ablative singular *-az*, *-aza* [*z* = /t͡s/], instrumental singular *-it*; Luwian ablative-instrumental singular *-ati*; Palaic ablative-instrumental singular *-at*; Lycian ablative-instrumental singular *-edi*, *-adi*) and in other Nostratic languages in the Uralic ablative ending and the Elamo-Dravidian oblique/locative ending (see above, §6D). There are also Indo-European elements in the vocabulary, a few examples being: Etruscan *-c* "and" (cf. Sanskrit *-ca* "and", Latin *-que* "and"), *semφ* "seven" (cf. Latin *septem* "seven", Sanskrit *saptá* "seven"), *tin* "day, Jupiter" (cf. Sanskrit *dína-m* "day", Old Church Slavic *дьнь* "day"), and *tiu*, *tiv-*, *tiur* "moon, month" (same stem as in Sanskrit *dívasa-ḥ* "heaven, day", *divyá-ḥ* "divine, heavenly, celestial", etc.), *θam-* "to build, to found" and *tmia* "place, sacred building" (same stem as in Latin *domus* "house, home; dwelling abode", Sanskrit *dáma-ḥ* "house, home", Greek δέμω "to build, to construct"), *an* (*ana*, *ane*, *anc*, *ananc*) "he, she" (cf. Saṇskrit demonstrative stem *ana-* "this", Hittite demonstrative *anniš* "that, yonder", Lithuanian demonstrative *anàs* "that one [over yonder]"), *car-*, *cer-* "to make, to build" (cf. Sanskrit *kárati* "to do, to make, to perform, to accomplish, to cause, to effect, to prepare, to undertake, to work at, to build" [Pokorny 1959:641-642 **k*$^{u}$*er-* "to make, to form"]), *neri* "water" (cf. Sanskrit *nārāḥ* "water", *Narmadā* the name of a river). These give no indication of being borrowings. The following may be a borrowing: *neftś*, *nefś*, *nefiś* "grandson" (< Latin *nepos* "grandson").

These and other similarities are discussed in detail in recent articles by Adrados (1989:363-383) and Woudhuizen (1991:122-150). Adrados draws the conclusion that Etruscan is an archaic Indo-European language and that it is particularly close to the languages of the Anatolian branch. Woudhuizen reaches a similar conclusion. The conclusions reached by Adrados and Woudhuizen are sober and persuasive, and, therefore, I am strongly inclined to accept their views. The following hypothesis may be proposed: Etruscan was one of the first branches to separate from the main Indo-European speech community. Coming from Central Europe, pre-Etruscan Indo-Europeans migrated westward and eventually settled in Central Italy. These intruders may be equated with the Rinaldone culture, which dates from around 2,700 BCE and which contains unmistakable Indo-European cultural elements. We may assume that they imposed their speech and culture upon non-Indo-European people. It is this non-Indo-European substratum that has left a trace in the Etruscan lexicon, and which has made it difficult to ascertain the fundamentally Indo-European character of Etruscan. The similarities that several scholars have seen between Etruscan and the Anatolian languages are real and can be accounted for by assuming that both became separated from the main speech community at about the same time and that, therefore, they represent a more archaic stage of development than that found in later stage languages such as Greek, Italic, Indo-Iranian, Baltic, Slavic, Germanic, Albanian, and Armenian, which remained in close geographical proximity for a longer period of time and which, consequently,

shared many common developments as a group. References: Bonfante 1990; Bonfante-Bonfante 1983; Georgiev 1979 and 1981:229-254 (these works must be used with caution); Pfiffig 1969.

Future research must be directed toward testing the validity of the conclusions reached in this section, especially in light of the growing body of literature on Nostratic.

## C. The Placing of Sumerian:

Sumerian shares a number of interesting lexical parallels with other Nostratic languages (these are listed in several papers by Boisson and in Bomhard-Kerns 1994:195-714), including some core vocabulary items such as pronominal stems, though there are important differences here as well. Thus, Sumerian *may* be an ancient Nostratic language. In a number of privately-circulated papers, Claude Boisson has explored lexical parallels between Sumerian and Dravidian, while Anumugam Sathasivam (1965), in an unpublished manuscript, has tried to show that Sumerian is related to Dravidian. Though I have very tentatively accepted a modified version of Sathasivam's (and Boisson's) theories, placing Sumerian as a sister to Proto-Elamo-Dravidian, I am not entirely satisfied with this arrangement. True enough, Sumerian has an agglutinating morphological structure, as do Elamite and Dravidian, and the nominal case endings, for example, are, in reality, bound postpositions in both Sumerian and Elamo-Dravidian. However, Sumerian is sufficiently different from both Elamite and Dravidian to make me think that it may be an independent branch of Nostratic, perhaps one of the earliest to separate from the main speech community.

Before beginning, we should give a brief sketch of Sumerian grammatical structure, noting first and foremost that, even after more than a century of intensive study, there is still not widespread agreement among experts in the field on many fundamental questions of Sumerian grammar. Nevertheless, the overall structure is clear. Three word classes were distinguished: (A) nouns, (B) verbs, and (C) adjectives. Even though grammatical gender in the strictest sense did not exist, nouns fell into two classes, namely, animate and inanimate, which were only distinguished in the 3rd person actor verbal and possessive pronoun affixes and in the relative pronoun. Ten cases (genitive, absolutive, ergative, dative, locative, comitative, terminative, ablative-instrumental, and equative [in nouns] plus subject case [in pronouns only]) and two numbers (singular and plural) were distinguished. The plural was indicated by means of the suffix *-ene*, which was used only with animate nouns, or by reduplication. In later texts, the plural could also be indicated by the form *hi-a*, which was used with inanimate nouns and which was originally an independent word meaning "mixed, various, unspecified", or by *-me-eš*, which was properly the enclitic copula with plural suffix. Sumerian differentiated between ergative and absolutive in nouns. In pronouns, however, the patterning was that of a nominative-accusative system. Sumerian verbs were formed by adding various prefixes and/or affixes directly to the verbal root, which was itself invariable. Verbal constructions fell into one of two categories, namely, finite forms or non-finite forms. Finite verbal stems distinguished three conjugational types: (A) the intransitive conjugation, (B) the transitive *hamṭu* conjugation, and (C) the transitive *marû* conjugation. Intransitive forms were noted by means of pronominal suffixes, while

transitive forms were noted by means of either prefixes, suffixes, or both. Syntactically, the basic word order was SOV.

To illustrate the problems involved in trying to determine the placement of Sumerian, let us begin by looking at the differences between the case endings reconstructed for Proto-Elamo-Dravidian by McAlpin (1981:111) with those found in Sumerian (cf. Thomsen 1984:88-89):

A. Proto-Elamo-Dravidian:

| | |
|---|---|
| Nominative: | *-Ø |
| Accusative: | *-(V)n |
| Adessive/ | *-əkkə |
| Purposive (Dative): | (?) |
| Genitives: | |
| 1. Possessive: | *-a |
| 2. Adnominal: | *-in |
| 3. Oblique/ Locative | *-tə |

B. Sumerian:

| Case | Animate | Inanimate | Prefix Chain |
|---|---|---|---|
| Genitive: | -ak | -ak | |
| Absolutive: | -Ø | -Ø | |
| Ergative: | -e | -e | |
| Dative: | -ra | | -na-, etc. |
| Locative: | | -a | -ni- |
| Comitative: | -da | -da | -da- |
| Terminative: | -šè | -šè | -ši- |
| Ablative-Instrumental: | | -ta | -ta- and -ra- |
| Equative: | $-gin_7$ | $-gin_7$ | |

The prefix chain cases require special explanation (I will quote from Thomsen 1984:215 and 219 [for the dative, §431 below]):

> **§ 423.** Some cases, the so-called dimensional cases, can be incorporated in the prefix chain of finite verbal forms. These cases are: dative, comitative, terminative, ablative, and locative. In principle the case elements have the same shape as the corresponding postpositions and only minor changes in writing and pronunciation occur.
>
> The rank of the case elements in the prefix chain is between the conjugation prefixes and the pronominal element serving as subject/object mark...
>
> **§ 424.** *Terminology*
>
> The case elements of the prefix chain are most often called 'infixes' or 'dimensional infixes' by the sumerologists. However, since they do not act as infixes in the stem but

merely as members of the chain of grammatical elements preceding a verbal root, 'case elements' or 'case prefixes' are used here as the most appropriate terms.

**§ 431.** The dative is the only case prefix which has different prefixes for every person...

| | | | |
|---|---|---|---|
| 1.sg. | ma- < /mu-a-/ | 1.pl. | -me- |
| 2.sg. | -ra- | 2.pl. | ? |
| 3.sg.an. | -na- < /-n-a-/ | 3.pl. | -ne- |

There are parallels, to be sure, but as many with *other* Nostratic languages as with Elamo-Dravidian. The Sumerian ablative-instrumental case ending (inanimate) *-ta*, (prefix chain) *-ta-* agrees with the Proto-Uralic ablative ending **-ta* as well as with the Proto-Elamo-Dravidian oblique/locative ending **-tə*. The Sumerian locative case ending (prefix chain) *-ni-* is similar to the Proto-Uralic locative case ending **-na*, though the vowels are problematic, and to the Proto-Dravidian locative case ending **-in(/*-il* ?). The Sumerian genitive case ending *-ak* is similar in form to the Proto-Dravidian dative case ending **-(k)ku* and the Proto-Elamo-Dravidian adessive/locative (dative) **-əkkə*, but the difference in function is a problem. Moreover, the *-na-* and *-ni-* prefix chain case endings may be somehow related to the oblique-*n* formations described by John C. Kerns (cf. Bomhard-Kerns 1994:173-179, §3.5.3.1).

An extremely interesting parallel involves the Sumerian comitative element *da* (also *-dè*). As noted by Thomsen (1984:99): "The basic meaning of the comitative is 'with', 'together with', expressing accompaniment as well as mutual action." A particle **da/*də*, with the basic meaning "along with, together with, in addition to", shows up all over Nostratic (cf. Bomhard-Kerns 1994:275-276, no. 89). It appears in Kartvelian as a conjunction: Georgian *da* "and", Mingrelian *do* "and", Zan *do* "and" < Proto-Kartvelian **da* "and". In Afroasiatic, it is found in Chadic: Hausa *dà* "with; and; by, by means of; regarding, with respect to, in relation to; at, in, during; than"; Kulere *tu*; Bade *də*; Tera *ndə*; Gidar *di*; Mokulu *ti*; Kanakuru *də* < Proto-Chadic **də* "with, and". Elamite has *da* "also, too, as well, likewise; so, therefore, consequently, accordingly, hence; thereby, thereupon". Particularly interesting is Altaic, where this particle functions as a locative suffix on the one hand, **-da*, and as an independent particle on the other, **da* "together with, and, also": Common Mongolian dative-locative suffix **-da* > Mongolian *-da*; Dagur *-da*; Khalkha *-dɒ*; Buriat *-da*; Kalmyk *-dɒ* (cf. Poppe 1955:195-199). In Turkic, it also appears as a locative suffix: Common Turkic **-da/*-dä* (cf. Menges 1968:110). It may be preserved in Indo-European in the suffixed particle appearing, for example, in Sanskrit as *-ha* and *-dhi*: *sa-há* "with" (Vedic *sa-dha*), *i-há* "here" (Prakrit *i-dha*), *kú-ha* "where?", *á-dhi* "above, over, from, in"; in Avestan in *iδa* "here", *kuδā* "where?"; and in Greek in the locative particle -θι in, for example, οἴκο-θι "at home", πό-θι "where?".

Now let us look briefly at verb morphology. McAlpin (1981:122-123) notes that the Proto-Elamo-Dravidian verbal conjugation "does not survive in Dravidian as a paradigm". Therefore, we will give the verbal endings as they appear in Middle Elamite, using, once again, the verb *hutta-* "to make" for illustration (cf. Reiner 1969:76; Grillot-Susini 1987:33):

| Person | Singular | Plural |
|---|---|---|
| 1 | *hutta-**h*** | *hutta-**hu*** (< *h* + *h*) |
| 2 | *hutta-**t*** | *hutta-**ht*** (< *h* + *t*) |
| 3 | *hutta-**š*** | *hutta-**hš*** (< *h* + *š*) |

McAlpin derives the Elamite 1st sg. ending *-h* from Proto-Elamo-Dravidian **-H*, the 2nd sg. ending *-t* from **-ti*, and the 3rd sg. ending *-š* from **-(V)š*. The Proto-Elamo-Dravidian 2nd sg. ending **-ti* survives in South Dravidian negative imperatives.

The Sumerian finite verb employs various pronominal elements. These are described by Thomsen (1984:147, §287) as follows:

> The pronominal elements of the finite verbal form refer to the persons involved in the verbal action. There are two main series with different marks: the prefixes and the suffixes. A verbal form can have at most one prefix immediately before the verbal root and one suffix after the verbal root (or, if present, after /ed/), both referring to subject and/or object. The prefixes are identical with the pronominal elements which under some conditions occur together with case prefixes...

Thomsen (1984:148-149, §290) lists the following pronominal prefixes:

| | | | |
|---|---|---|---|
| 1.sg. | *-?-* | 1.pl. | *-me-* |
| 2.sg. | *-e-* | 2.pl. | *-e ene-* |
| 3.sg. animate | *-n-* | 3.pl. | *-ene-* |
| inanimate | *-b-* | | |

The plural pronominal prefixes "are used as dative elements only..., and it is thus more probable that they are case elements rather than pronominal elements" (cf. Thomsen 1984:148).

There are also two series of pronominal suffixes (cf. Thomsen 1984:152), the first of which (column A below) marks both the subject of intransitive verbs and the direct object of transitive verbs, the second of which (column B below) "is used in two-part. *marû* forms together with the prefix /-n-/ to denote the 3.pl. ergative subject". In actual fact, only the 3rd persons singular and plural are different (cf. Thomsen 1984:152).

| | A | | B | |
|---|---|---|---|---|
| | sg. | pl. | sg. | pl. |
| 1 | *-en* | *-enden* | *-en* | *-enden* |
| 2 | *-en* | *-enzen* | *-en* | *-enzen* |
| 3 | *-Ø* | *-eš* | *-e* | *-ene* |

There is simply nothing here that resembles what is found in Elamo-Dravidian nor, for that matter, in other Nostratic languages. For a discussion of the etymology of the pronominal stems, see below.

The Sumerian personal pronoun stems are as follows (the Emesal forms are shown in parentheses; /g̃/ = /ŋ/)(cf. Thomsen 1984:68; Boisson 1992:437):

| | 1.sg. | 2.sg. | 3.sg. | 3.pl. |
|---|---|---|---|---|
| Subject: | *g̃á.e* | *za.e* | *e.ne* | *e.ne.ne* |
| | (*me.e*) | (*ze*) | | |
| | *g̃á-a-ra* | *za-a-ra* | *e.ne-ra* | *e.ne.ne-ra* |
| Dative: | *g̃á-a-ar* | *za-a-ar* | | |
| | (*ma-a-ra*) | | | |
| Terminative: | *g̃á(-a/e)-šè* | *za(-a/e)-šè* | *e.ne-šè* | *e.ne.ne-šè* |
| Comitative: | *g̃á(-a/e)-da* | *za(-a/e)-da* | *e.ne-da* | *e.ne.ne-da* |
| Equative | *g̃á(-a/e)-gin*$_7$ | *za(-a/e)-gin*$_7$ | *e.ne-gin*$_7$ | *e.ne.ne-gin*$_7$ |

The possessive suffixes are (cf. Thomsen 1984:71):

| | Singular | Plural |
|---|---|---|
| 1 | *-g̃u*$_{10}$ "my" | *-me* "our" |
| 2 | *-zu* "your" | *-zu.ne.ne*, *-zu.e.ne.ne*, *-zu.ne* "your" |
| 3 an. | *-a.ni* "his, her" | *-a.ne.ne* "their" |
| inan. | *-bi* "its" | *-bi* also "their", presumably collective |

Right away, we notice that the Emesal 1st singular forms (subject) *me.e*, (dative) *ma-a-ra* are related to the common Nostratic 1st person personal pronoun stem **mi*/**me* "I, me" (cf. Bomhard-Kerns 1984:661-662, no. 540; Illich-Svitych 1971- .II:63-66, no. 299 **mi*), while the 1st plural possessive suffix *-me* is related to the common Nostratic inclusive 1st plural personal pronoun stem **ma-*/**mə-* "we, us" (cf. Bomhard-Kerns 1984:661-662, no. 540; Illich-Svitych 1971- .II:52-56, no. 289 **mä*). The 2nd person personal pronoun *ze-*, *za-*, *-zu* may also be derived from the Proto-Nostratic 2nd person personal pronoun stem **t[ʰ]i-*/**t[ʰ]e-* "you" (cf. Bomhard-Kerns 1984:285-287, no. 102; Dolgopolsky 1984:87-89 **t̰[ü]*). assuming affrication of the dental before front vowel (similar to what has happened in Mongolian): **t[ʰ]i-*/**t[ʰ]e-* > **t*$^{y}$*i-*/**t*$^{y}$*e-* > (**t*$^{s}$*i-*/)**t*$^{s}$*e-* > *ze-* /ts̲e-/, etc. (Sumerian <z> = /ts̲/ [cf. Boisson 1989:221-226 and 1992:436]). Finally, the 3rd person forms *e.ne* and *a.ne* are related to the demonstrative pronoun *ne.en*, *ne(-e)*, which is itself related to the Proto-Nostratic demonstrative stem **na-*/**nə-*, **ni-*/**ne-*, **nu-*/**no-* (cf. Bomhard-Kerns 1984:688-689, no. 570). To account for the beginning vowels in *e.ne* and *a.ne*, Shevoroshkin (cited in Boisson 1992:443) has suggested that these appear "to be a compound of the demonstrative / personal pronoun of the 3rd person ***ʔi* / ***ʔä* [...] plus the demonstrative base ***n(ä)*". I agree with Shevoroshkin's suggestion. Though

widespread in the Nostratic daughter languages, these stems are lacking in Dravidian (though see Dolgopolsky 1984 for a slightly different interpretation of some of the Dravidian material). Zvelebil (1977:40) reconstructs the following personal pronoun stems for Proto-Dravidian:

| | Singular | Plural |
|---|---|---|
| 1 | **yān* : **yan-* "I" | (incl.) **yām* : **yam-* "we"<br>(excl.) **nām* : **nam-* "we" |
| 2 | **nīn* : **nin-* "you" | **nīm* : **nim-* "you" |
| 3 | **tān* : **tan-* "he, she, it" | **tām* : **tam-* "they" |

McAlpin (1981:112) begins his discussion of pronouns by making some very important observations regarding the relationship of the Elamite and Dravidian pronouns:

> 530.0 The personal pronouns have long been an enigma in the relationship of Elamite to Dravidian. On the one hand, the second person pronouns provided the morphological detail first recognized as being cognate... On the other hand, one of them, the first person plural is still somewhat ambiguous as to its form in PED. For the others, it has been a long quest, fitting together the morphological pieces. The major breakthrough came with the realization that the Proto-Dravidian pronouns were not ultimately archaic, but rather a major innovation in late Pre-Dravidian. The nature of the innovation was the replacement of the nominative by oblique stems. Thus, Proto-Dravidian pronouns have little to say directly about the morphology of nominative bases in PED. However, the same forms, in a different usage, were preserved as personal possessive prefixes in kinship terminology. This was maintained as a system for a few kin terms in Old Tamil and sporadically in many other Dravidian languages. Thus, Dravidian does attest the PED system, but not directly in the paradigm.

McAlpin (1981:112-117) reconstructs the following personal pronoun stems for Proto-Elamo-Dravidian:

| | Singular | Plural |
|---|---|---|
| 1 | **i* | **nəNKə* |
| 2 | **ni* | **nim* |
| 3 resumptive | **ta(n)* | |
| reflexive | **i* | |

The 1st person singular is to be derived from Proto-Nostratic **ʔiya* 1st person personal pronoun stem (postnominal possessive/preverbal agentive) found also in Afroasiatic (cf. Bomhard-Kerns 1984:597-598, no. 470; Dolgopolsky 1984:72, 83, 85-86, 96, and 99-100), while the 3rd person stem **ta(n)* is to be derived from the wide-spread Nostratic demonstrative stem **t[ʰ]a-*/**t[ʰ]ə-* "this" (cf. Bomhard-Kerns 1984:287-289, no. 103), and the Proto-Dravidian 1st plural (exclusive) stem **nām* : **nam-* "we" is to be derived

from the Proto-Nostratic 1st person personal pronoun stem **na-*/**nə-* (cf. Bomhard-Kerns 1984:683-684, no. 564; Dolgopolsky 1984:90-91) — this stem may also be the source of the Sumerian 1st person pronoun *ĝá-* /ŋa-/, but this is uncertain.

To conclude, there is much in Sumerian that points to it being a Nostratic language — we have only scratched the surface in this brief summary (for more detailed information, see the papers by Boisson cited in the references). However, there are also many problems that must still be solved regarding the exact nature of that relationship.

## 9. Concluding Remarks / Future Prospects

In this paper, we have surveyed the evidence for setting up a Nostratic macrofamily, paying particular attention to Indo-European and how it fits into the overall picture. We have also discussed several problem areas. The evidence continues to accumulate to support the Nostratic Hypothesis, and the evidence is massive and persuasive.

As the twentieth century draws to a close, it is simply no longer reasonable to hold to the view that Indo-European is a language isolate — thirty years have already passed since Vladislav M. Illich-Svitych and Aaron B Dolgopolsky successfully demonstrated that Indo-European is related to a several other language families of northern and central Eurasia and the ancient Near East. Since then, not only has this work been continued by the Russians, it has also been taken up by a number of other scholars in other countries, who have verified the initial results arrived at by the Russians, who have refined the methodology, who have greatly expanded the number of cognate sets, who have clarified issues related to phonology, who have identified additional grammatical formants and have begun to piece together the early development of morphology in each of the daughter languages, and who have made great strides in problems of subgrouping. We have touched upon some of these areas in this paper.

This does not mean that all of the work has been done, however. As shown by the problem areas listed in this paper (and there are many, many others), much work still needs to be done, not only at the level of Proto-Nostratic itself but also within each of the daughter languages. The future prospects are extremely encouraging — enough solid results have already been achieved to lay the foundation for future research, and, to make matters even more promising, advances in one area will impact other areas as well. The days are past when scholars could work on problem areas in one language family without regard to work being done in other language families. Indo-European has relatives, and these must now be taken into consideration.

## References


ADRADOS, Francisco R[odríguez]. 1989. "Etruscan as an IE Anatolian (but not Hittite) Language". *Journal of Indo-European Studies* 17:3/4.363-383.

_____. 1992. "The New Image of Indoeuropean: The History of a Revolution". *Indogermanische Forschungen* 97.1-28.

ANTHONY, David W. 1991. "The Archeology of Indo-European Origins". *Journal of Indo-European Studies* 19:3/4.193-222.

ANTTILA, Raimo. 1989. *Historical and Comparative Linguistics*. 2nd edition. Amsterdam and Philadelphia, PA: John Benjamins.

ARLOTTO, Anthony. 1972. *Introduction to Historical Linguistics*. Reprinted 1981. Lanham, MD: University Press of America, Inc.

BALDI, Philip (ed.). 1990. *Linguistic Change and Reconstruction Methodology*. Berlin and New York, NY: Mouton de Gruyter.

BARBUJANI, Guido, Andrea PILASTRO, Silvia de DOMENICO, and Colin RENFREW. 1994. "Genetic Variation in North Africa and Eurasia: Neolithic Demic Diffusion vs. Paleolithic Colonisation". *American Journal of Physical Anthropology* 95.137-154.

BENVENISTE, Émile. 1935. *Origines de la formation des noms en indo-européen*. Paris: Librairie Adrien-Maisonneuve.

_____. 1969. *Le vocabulaire des institutions indo-européennes*. 2 volumes. Paris: Les Éditions de Minuit.

BERNAL, Martin. 1980. "Speculations on the Disintegration of Afroasiatic". Paper presented at the 8th conference of the North American Conference on Afroasiatic Linguistics, San Francisco, April 1980, and at the 1st International Conference of Somali Studies, Mogadishu, July 1980.

BIRNBAUM, Henrik. 1977. *Linguistic Reconstruction: Its Potentials and Limitations in New Perspective*. Washington, DC: Journal of Indo-European Studies.

_____. 1992. "Genetic and Typological Approaches to External Comparison of Languages". *Nostratic, Dene-Caucasian, Austric and Amerind*, ed. by Vitaly Shevoroshkin, pp. 10-33. Bochum: Brockmeyer.

BOISSON, Claude. 1987a. "Quelques ressemblances lexicales entre sumérien et dravidien". Manuscript.

_____. 1987b. "A Conjecture on the Linguistic Affiliation of Sumerian". Manuscript.

_____. 1988. "Some Sumerian Grammatical Elements in a Nostratic Perspective". Manuscript.

_____. 1989. "Contraintes typologiques sur le système phonologique du sumérien." *Bulletin de la Société de Linguistique de Paris* LXXXIV/1.201-233.

_____. 1992. "The Sumerian Pronominal System in a Nostratic Perspective". *Nostratic, Dene-Caucasian, Austric and Amerind*, ed. by Vitaly SHEVOROSHKIN, pp. 433-461. Bochum: Brockmeyer.

BOMHARD, Allan R. 1984. *Toward Proto-Nostratic: A New Approach to the Comparison of Proto-Indo-European and Proto-Afroasiatic*. (= *Current Issues in Linguistic Theory*, vol. 27.) Amsterdam: John Benjamins.

_____. 1986. "Common Indo-European/Afroasiatic Roots: Supplement 1". *General Linguistics* 26/4.225-257.

_____. 1988. "The Prehistoric Development of the Athematic Verbal Endings in Proto-Indo-European". *A Linguistic Happening in Memory of Benjamin Schwartz*, ed. by Yoël L. ARBEITMAN, pp. 475-488. Louvain-la-Neuve: Publications Linguistiques de Louvain.

_____. 1990. "A Survey of the Comparative Phonology of the So-Called 'Nostratic Languages'." *Linguistic Change and Reconstruction Methodology*, ed. by Philip BALDI, pp. 331-358. The Hague: Mouton de Gruyter.

_____. 1991. "Lexical Parallels between Proto-Indo-European and Other Languages". *Studia Etymologica Indoeuropaea: Memoriae A. J. Van Windekens (1915-1989) Dicata*, ed. by L. ISEBAERT, pp. 47-106. Leuven: Peeters.

_____. 1992a. "Distant Linguistic Comparison and the Nostratic Hypothesis". *FAIES Newsletter* II/1 (March 1992).

_____. 1992b. "The Nostratic Macrofamily (with Special Reference to Indo-European)". *Word* 43/1.61-83.

_____. 1993. "Linguistic Methodology and Distant Linguistic Comparison". *Mother Tongue* 20.1-4.

BOMHARD, Allan R. and KERNS, John C. 1994. *The Nostratic Macrofamily: A Study in Distant Linguistic Relationship*. Berlin, New York, NY, and Amsterdam: Mouton de Gruyter.

BONFANTE, Larissa. 1990. *Etruscan*. Berkeley, CA: University of California Press.

BONFANTE, Giuliano and BONFANTE, Larissa. 1983. *The Etruscan Language: An Introduction*. New York, NY: New York University Press.

BRIGHT, William (ed.). 1992. *International Encyclopedia of Linguistics*. New York, NY, and Oxford: Oxford University Press.

BRUGMANN, Karl. 1904. *Kurze vergleichende Grammatik der indogermanischen Sprachen*. Berlin: Walter de Gruyter. Reprinted 1970.

BRUNNER, Linus. 1969. *Die gemeinsamen Wurzeln des semitisches und indogermanisches Wortschatzes*. Bern: Francke Verlag.

BUCK, Carl Darling. 1949. *A Dictionary of Selected Synonyms in the Principal Indo-European Languages*. Chicago, IL: University of Chicago Press.

BURENHULT, Göran (ed.). 1993. *People of the Stone Age: Hunger-Gatherers and Early Farmers*. Foreword by Colin RENFREW. New York, NY: Harper Collins.

BURROW, Thomas. 1973. *The Sanskrit Language*. 3rd edition. London: Faber & Faber.

BYNON, Theodora. 1977. *Historical Linguistics*. Cambridge: Cambridge University Press.

CARDONA, George, HOENIGSWALD, Henry M., and SENN, Alfred (eds.). 1970. *Indo-European and Indo-Europeans*. Philadelphia, PA: University of Pennsylvania Press.

CAVALLI-SFORZA, L[uigi] Luca, MENOZZI, Paolo, and PIAZZA, Alberto. 1994. *History and Geography of Human Genes*. Princeton, NJ: Princeton University Press.

CHILDE, V. Gordon. 1926. *The Aryans: A Study of Indo-European Origins*. Reprinted 1987. New York, NY: Dorset Press.

CLARK, Grahame. 1980. *The Mesolithic Prelude*. Edinburgh: Edinburgh University Press.

COHEN, David (ed.). 1988. *Les langues dans le monde ancien et moderne: langues chamito-sémitiques*. Paris: Centre National de la Recherche Scientifique.

COLARUSSO, John. 1992. "Phyletic Links between Proto-Indo-European and Proto-Northwest Caucasian". *The Non-Slavic Languages of the USSR: Linguistic Studies (Second Series)*, ed. by Howard I. ARONSON, pp. 19-54. Chicago, IL: Chicago Linguistic Society. Reprinted in *Mother Tongue* 21: 8-20 (1994).

COLLINDER, Björn. 1934. *Indo-uralisches Sprachgut: Die Urverwandtschaft zwischen der indoeuropäischen und der uralischen (finnisch-ugrisch-samojedischen) Sprachfamilie*. Uppsala: A. B. Lundequistska.

_____. 1954. "Zur indo-uralische Frage". *Acta Universitatis Upsaliensis* 10.79-91.

_____. 1957. *A Survey of the Uralic Languages*. Uppsala: Almqvist and Wiksells.

_____. 1960. *A Comparative Grammar of the Uralic Languages*. Uppsala: Almqvist and Wiksells.

_____. 1965. *An Introduction to the Uralic Languages*. Berkeley and Los Angeles, CA: University of California Press.

_____. 1977. *Fenno-Ugric Vocabulary. An Etymological Dictionary of the Uralic Languages*. 2nd revised edition. Uppsala: Almqvist and Wiksells.

COMRIE, Bernard (ed.). 1981. *The Languages of the Soviet Union*. Cambridge: Cambridge University Press.

_____ (ed.). 1987. *The World's Major Languages*. New York, NY: Oxford University Press.

_____. 1993. Review of STAROSTIN 1991. *Language* 69/4.828-832.

CRAWFORD, Harriet. 1991. *Sumer and the Sumerians*. Cambridge: Cambridge University Press.

CUNLIFFE, Barry (ed.). 1994. *The Oxford Illustrated Prehistory of Europe*. Oxford and New York, NY: Oxford University Press.

CUNY, Albert. 1946. *Invitation à l'étude comparative des langues indo-européennes et des langues chamito-sémitiques*. Bordeaux: Editions Biere.

DANI, A. H. and MASSON, V. M. (eds.). 1992. *History of Civilizations of Central Asia. Volume I: The Dawn of Civilization: Earliest Times to 700 B.C.* Paris: UNESCO.

DÉCSY, Gyula. 1965. *Einführung in die finnisch-ugrische Sprachwissenschaft*. Wiesbaden: Otto Harrassowitz.

_____. 1990. *The Uralic Protolanguage: A Comprehensive Reconstruction*. Bloomington, IN: Eurolingua.

DIAKONOFF, Igor M. 1965. *Semito-Hamitic Languages*. Moscow: Nauka.

_____. 1975. "On Root Structure in Proto-Semitic". *Hamito-Semitica*, ed. by James BYNON and Theodora BYNON, pp. 133-153. The Hague: Mouton.

_____. 1984. Letter to the Conference regarding recent work in the USSR on the comparative historical vocabulary of Afrasian. *Current Progress in Afro-asiatic Linguistics: Papers from the Third International Hamito-Semitic Congress*, ed. by James BYNON, pp. 1-10. Amsterdam: John Benjamins.

_____. 1988. *Afrasian Languages*. Moscow: Nauka.

_____. 1990. "Language Contacts in the Caucasus and the Near East". *When Worlds Collide: Indo-European and Pre-Indo-Europeans. The Bellagio Papers*, ed. by Thomas L. MARKEY and John A. C. GREPPIN, pp. 53-65. Ann Arbor, MI: Karoma.

_____. 1992. *Proto-Afrasian and Old Akkadian: A Study in Historical Phonetics.* (= *Journal of Afroasiatic Languages* 4: 1/2.) Princeton, NJ: Institute of Semitic Studies.

DIAKONOFF, Igor M. (ed.). 1991. *Early Antiquity*. English translation by Alexander KIRJANOV. Foreword by Philip L. KOHL, Project Editor. Chicago, IL, and London: University of Chicago Press.

DIAKONOFF, Igor M. and STAROSTIN, Sergej A. 1986. *Hurro-Urartian as an Eastern Caucasian Language*. Munich: R. Kitzinger.

DIXON, R. M. W. 19__. *The Languages of Australia.* Cambridge: Cambridge University Press.

DJAHUKYAN, Gevork B. 1967. *Vzaimootnošenie indoevropejskix xurritsko-urartskix i kavkazskix jazykov (Interrelations of the Indo-European, Hurrian-Urartean, and Caucasian Languages)*. Yerevan: Academy of Sciences of the Armenian SSR.

DOLGOPOLSKY, Aaron. 1984. "On Personal Pronouns in the Nostratic Languages". *Linguistica et Philologica. Gedenkschrift für Björn Collinder (1894-1983)*, ed. by Otto GSCHWANTLER, Károly RÉDEI, and Hermann REICHERT, pp. 65-112. Vienna: Wilhelm Braumüller.

_____. 1989. "Problems of Nostratic Comparative Phonology (Preliminary Report)". *Reconstructing Languages and Cultures*, ed. by Vitaly SHEVOROSHKIN, pp. 90-98. Bochum: Brockmeyer.

_____. 1992. "The Nostratic Vowels in Indo-European". *Nostratic, Dene-Caucasian, Austric and Amerind*, ed. by Vitaly SHEVOROSHKIN, pp. 298-331. Bochum: Brockmeyer.

_____. 1994. "Nostratic". *The Encyclopedia of Language and Linguistics*, ed. by R. E. ASHER, volume 5, p. 2838. Oxford: Pergamon Press.

FAGAN, Brian M. 1990. *The Journey from Eden: The Peopling of our World.* New York, NY: Thames and Hudson, Inc.

FAIRSERVIS, Walter A. 1992. *The Harappan Civilization and Its Writing. A Model for the Decipherment of the Indus Script*. Leiden: E. J. Brill.

FLEMING, Harold C. 1968. "Ethiopic Language History: Hypotheses in an Archeological and Documentary Context". *Ethnohistory* XV/4.353-387.

FLEMING, Harold C. 1973. "Sub-classification in Hamito-Semitic". *Lexicostatistics in Genetic Linguistics: Proceedings of the Yale Conference, Yale University, April 3-4, 1971*, ed. by Isidore DYEN, pp. 85-88. The Hague: Mouton.

FRANZAROLI, P. 1975. "On the Common Semitic Lexicon and its Ecological and Cultural Background". *Hamito-Semitica*, ed. by James BYNON and Theodora BYNON, pp. 43-53. The Hague: Mouton.

GAMKRELIDZE, Thomas V. 1966. "A Typology of Common Kartvelian". *Language* 42.69-83.

_____. 1967. "Kartvelian and Indo-European: A Typological Comparison of Reconstructed Linguistic Systems". *To Honor Roman Jakobson*, volume I, pp. 707-717. The Hague: Mouton.

_____. 1970. "'Anatolian Languages' and the Problem of Indo-European Migrations". *Studies in General and Oriental Linguistics Presented to Shirô Hattori on the Occasion of His Sixtieth Birthday*, ed. by Roman JAKOBSON and Shigeo KAWAMOTO, pp. 138-143. Tokyo: TEC Company, Ltd.

_____. 1978. "On the Correlation of Stops and Fricatives in a Phonological System". *Universals of Human Language*, ed. by Joseph H. GREENBERG, volume 2, Phonology, pp. 9-46. Stanford, CA: Stanford University Press.

_____. 1981. "Language Typology and Language Universals and Their Implications for the Reconstruction of the Indo-European Stop System". *Bono Homini Donum: Essays in Historical Linguistics in Memory of J. Alexander Kerns*, ed. by Yoël L. ARBEITMAN and Allan R. BOMHARD, part II, pp. 571-609. Amsterdam: John Benjamins.

GAMKRELIDZE, Thomas V. and IVANOV, Vjacheslav V. 1984. *Indoevropejskij jazyk i indo-evropejcy: Rekonstrukcija i istoriko-tipologičeskij analiz prajazyka i protokul'tury (Indo-European and the Indo-Europeans: A Reconstruction and Historical Typological Analysis of a Protolanguage and a Proto-Culture).* 2 vols. Tbilisi: Publishing House of the Tbilisi State University.

GAMKRELIDZE, Thomas V. and MACHAVARIANI, Givi. 1982. *Sonantsystem und Ablaut in den Kartwelsprachen. Eine Typologie der Struktur des Gemeinkartwelischen.* German translation by Winfried BOEDER. Tübingen: Gunter Narr Verlag.

GEORGIEV, Vladimir. 1979. *La lingua e l'origine degli etruschi.* Rome: Nagard.

_____. 1981. *Introduction to the History of the Indo-European Languages.* 3rd edition. Sofia: Publishing House of the Bulgarian Academy of Sciences.

_____. 1984. "Die drei Hauptperioden des Indoeuropäischen". *Diachronica* 1/1.65-78.

GIMBUTAS, Marija. 1973. "The Beginning of the Bronze Age in Europe and the Indo-Europeans: 3500-2500 B.C." *Journal of Indo-European Studies* 1/2.163-214.

_____. 1975. "An Archaeologist's View of PIE In 1975". *Journal of Indo-European Studies* 2/1.289-307.

_____. 1977. "The First Wave of Eurasian Steppe Pastoralists into Copper Age Europe". *Journal of Indo-European Studies* 5/4.277-338.

_____. 1985. "Primary and Secondary Homeland of the Indo-Europeans: Comments on the Gamkrelidze-Ivanov Articles". *Journal of Indo-European Studies* 13:1/2.185-202.

_____. 1989. "The Social Structure of Old Europe". *Journal of Indo-European Studies* 17:3/4.197-214.

_____. 1990. "The Social Structure of Old Europe: Part 2-4". *Journal of Indo-European Studies* 18:3/4.225-284.

GREENBERG, Joseph H. 1957. *Essays in Linguistics.* Chicago, IL: University of Chicago Press.

_____. 1987. *Language in the Americas.* Stanford, CA: Stanford University Press.

_____. 1990. "The Prehistory of the Indo-European Vowel System in Comparative and Typological Perspective". *Proto-Languages and Proto-Cultures*, ed. by Vitaly SHEVOROSHKIN, pp. 77-136. Bochum: Brockmeyer.

_____. Forthcoming. *Indo-European and Its Closest Relatives: The Eurasiatic Language Family*. 2 volumes. Stanford, CA: Stanford University Press.

GRILLOT-SUSINI, Françoise. 1987. *Éléments de grammaire élamite*. Paris: Éditions Recherche sur les Civilizations.

GUILAINE, Jean (ed.). 1989. *La préhistoire d'un continent à l'autre*. Paris: Larouse.

GURNEY, O[liver] R[obert]. 1990. *The Hittites*. London: Penguin Books.

HAJDÚ, Péter. 1972. "The Origins of Hungarian." *The Hungarian Language*, ed. by Loránd BENKŐ and Samu IMRE, pp. 15-48. The Hague: Mouton.

_____. 1975. *Finno-Ugrian Languages and Peoples*. Translated and adapted by G. F. CUSHING. London: Andre Deutsch.

HEGEDŰS, Irén. 1992. *Bibliographia Nostratica 1960-1990 (A List of Publications on, or Relevant for Nostratic Studies)*. Szombathely: Seminar für uralische Philologie der Berzsenyi-Hochschule.

HENRY, Donald O. 1992. *From Foraging to Agriculture: The Levant at the End of the Ice Age*. Philadelphia: University of Pennsylvania Press.

HOCK, Hans Henrich. 1991. *Principles of Historical Linguistics*. 2nd edition, revised and updated. Berlin and New York, NY: Mouton de Gruyter.

HODGE, Carleton T. (ed.). 1981. *Afroasiatic: A Survey*. The Hague: Mouton.

_____. 1993. "Indo-Europeans in the Near East". *Anthropological Linguistics* 35:1/4.90-108. Special issue: *A Retrospective of the Journal* Anthropological Linguistics: *Selected Papers, 1959-1985*. Bloomington, IN: Department of Anthropology / American Indian Studies Research Institute, Indiana University.

HOPPER, Paul J. 1973. "Glottalized and Murmured Occlusives in Indo-European". *Glossa* 7.141-166.

_____. 1977a. "The Typology of the Proto-Indo-European Segmental Inventory". *Journal of Indo-European Studies* 5/1.41-53.

_____. 1977b. "Indo-European Consonantism and the 'New Look'". *Orbis* XXVI/1.57-72.

_____. 1981. "'Decem' and 'Taihun' Languages: An Indo-European Isogloss". *Bono Homini Donum: Essays in Historical Linguistics in Memory of J. Alexander Kerns*, ed. by Yoël L. ARBEITMAN and Allan R. BOMHARD (eds.), part I, pp. 133-142. Amsterdam: John Benjamins.

_____. 1982. "Areal Typology and the Early Indo-European Consonant System". *The Indo-Europeans in the Fourth and Third Millennia*, ed. by Edgar C. POLOMÉ, pp. 121-139. Ann Arbor, MI: Karoma Publishers.

ILLICH-SVITYCH, V[ladislav] M[arkovich]. 1965. "Materialy k sravnitel'nomu slovarju nostratičeskix jazykov (indoevropejskij, altajskij, ural'skij, dravidskij, kartvel'skij, semito-xamitskij)" ("Materials for a Comparative Dictionary of the Nostratic Languages [Indo-European, Altaic, Uralic, Dravidian, Kartvelian, Hamito-Semitic]"). *Etimologija* 1965.321-373.

_____. 1971- . *Opyt sravnenija nostratičeskix jazykov (semitoxamitskij, kartvel'skij, indoevropejskij, ural'skij, dravidskij, altajskij) (An Attempt at a Comparison of the Nostratic Languages [Hamito-Semitic, Kartvelian, Indo-European, Uralic, Dravidian, Altaic])*. 3 vols. Moscow: Nauka.

ISSERLIN, B. S. J. 1975. "Some Aspects of the Present State of Hamito-Semitic Studies". *Hamito-Semitica*, ed. by James BYNON and Theodora BYNON, pp. 479-486. The Hague: Mouton.

JOKI, Aulis J. 1973. *Uralier und Indogermanen: Die älteren Berührungen zwischen den uralischen und indogermanischen Sprachen.* Helsinki: Suomalais-Ugrilainen Seura.

JONES, Alex I. 1992. "Language and Archaeology: Evaluating Competing Explanations of the Origins of the Indo-European Languages". *Journal of Indo-European Studies* 20:1/2.31-44.

KEILER, Allan R. 1970. *A Phonological Study of the Indo-European Laryngeals.* The Hague: Mouton.

KERNS, J. Alexander and SCHWARTZ, Benjamin. 1972. *A Sketch of the Indo-European Finite Verb.* Leiden: E. J. Brill.

KERNS, John C. 1985. *Indo-European Prehistory.* Cambridge: Heffer and Sons.

KINGDON, Jonathan. 1993. *Self-Made Man: Human Evolution from Eden to Extinction?* New York, NY: John Wiley & Sons, Inc.

KLIMOV, G. V. 1969. *Die kaukasischen Sprachen.* German translation by Winfried BOEDER. Hamburg: Helmut Buske Verlag.

KORTLANDT, Frederik. 1990. "The Spread of the Indo-Europeans". *Journal of Indo-European Studies* 18:1/2.131-140.

KOSKINEN, Kalevi E. 1980. *Nilal: Über die Urverwandtschaft des Hamito-Semitischen, Indogermanischen, Uralischen und Altäischen.* Helsinki: Akateeminen Kirjakauppa.

KOŚKO, Alexander. 1991. "The Vistula-Oder Basins and the North Pontic Region". *Journal of Indo-European Studies* 19:3/4.235-257.

KRANTZ, Grover S. 1988. *Geographical Development of European Languages.* New York, NY: Peter Lang.

KRIPPES, Karl A. 1994. Review of STAROSTIN 1991. *Diachronica* XI/2.272-278.

KUIPERS, A[ert] H. 1975. *A Dictionary of Proto-Circassian Roots.* Lisse: Peter de Ridder Press.

LABOV, William. 1994. *Principles of Linguistic Change: Internal Factors.* Cambridge, MA: Blackwell Publishers.

LAMB, Sydney M. and MITCHELL, E. Douglas (eds.). 1991. *Sprung from Some Common Source. Investigations into the Prehistory of Languages.* Stanford, CA: Stanford University Press.

LANDSBERG, Marge. 1986. *Materials for a Bibliography of Translinguistic Studies.* Bloomington, IN: Indiana University Linguistics Club.

LEHMANN, Winfred P. 1992. *Historical Linguistics: An Introduction.* 3rd edition. London and New York, NY: Routledge.

_____. 1993. *Theoretical Bases of Indo-European Linguistics.* London, Boston, MA, Melbourne, and Henley: Routledge.

LINDEMAN, Frederik Otto. 1987. *Introduction to the "Laryngeal Theory"*. Oslo: Norwegian University Press.

MAKKAY, J. 1992. "A Neolithic Model of Indo-European Prehistory". *Journal of Indo-European Studies* 20:3/4.193-238.

MALLORY, James P. 1989. *In Search of the Indo-Europeans: Language, Archaeology and Myth*. London: Thames and Hudson.

MARKEY, Thomas L. and GREPPIN, John A. C. (eds.). 1990. *When Worlds Collide: Indo-European and Pre-Indo-Europeans. The Bellagio Papers*. Ann Arbor, MI: Karoma.

MARTINET, André. 1986. *Des steppes aux océans: l'indo-européen et les "indo-européens"*. Paris: Payot.

MCALPIN, David W. 1981. *Proto-Elamo-Dravidian: The Evidence and Its Implications*. Philadelphia, PA: American Philosophical Society.

MEILLET, Antoine. 1964. *Introduction à l'étude comparative des langues indo-européennes*. University, AL: University of Alabama Press. Reprint of 8th edition (1937).

MELLAART, James. 1981. "Anatolia and the Indo-Europeans". *Journal of Indo-European Studies* 9:1/2.135-149.

MENGES, Karl H. 1968. *The Turkic Languages and Peoples*. Wiesbaden: Otto Harrassowitz.

MICHALOWSKI, Piotr. 1992. "Sumerian". *International Encyclopedia of Linguistics*, ed. by William BRIGHT, volume 4, pp. 94-97. New York, NY, and Oxford: Oxford University Press.

MILLER, Roy Andrew. 1991. "Genetic Connections among Altaic Languages". *Sprung from Some Common Source. Investigations into the Prehistory of Languages*, ed. by Sydney M. LAMB and E. Douglas MITCHELL, pp. 293-327. Stanford, CA: Stanford University Press.

MÖLLER, Hermann. 1911. *Vergleichendes indogermanisch-semitisches Wörterbuch*. Göttingen: Vandenhoeck and Ruprecht. Reprinted 1970.

MURTONEN, A[dam]. 1967. *Early Semitic: A Diachronical Inquiry into the Relationship of Ethiopic to the Other So-Called South-East Semitic Languages*. Leiden: E. J. Brill.

NICHOLS, Johanna. 1992. *Linguistic Diversity in Space and Time*. Chicago, IL: The University of Chicago Press.

_____. 1993. "The Origin and Dispersal of Indo-European". Manuscript.

NISSEN, Hans J. 1988. *The Early History of the Ancient Near East, 9000 - 2000 B.C.* Translated from the German by Elizabeth LUTZEIER, with Kenneth J. NORTHCOTT. Chicago, IL, and London: University of Chicago Press.

ORËL, Vladimir and STAROSTIN, Sergej. 1990. "Etruscan as an East Caucasian Language". *Proto-Languages and Proto-Cultures*, ed. by Vitaly SHEVOROSHKIN, pp. 60-66. Bochum: Brockmeyer.

ORËL, Vladimir E. and STOLBOVA, Olga V. 1995. *Hamito-Semitic Etymological Dictionary: Materials for a Reconstruction*. Leiden: E. J. Brill.

PALIGA, Sorin. 1989. "Proto-Indo-European, Pre-Indo-European, Old European Archaeological Evidence and Linguistic Investigation". *Journal of Indo-European Studies* 17:3/4.309-334.

PARPOLA, Asko. 1994. *Deciphering the Indus Valley Script*. Cambridge: Cambridge University Press.

PEDERSEN, Holger. 1931. *The Discovery of Language: Linguistic Science in the Nineteenth Century*. English translation by John Webster SPARGO. Midland book edition 1962. Bloomington, IN: Indiana University Press.

PEJROS, Ilja I. and SHNIRELMAN, Viktor A. 1988. "In Search of the Dravidian Homeland". Paper presented at the symposium "Language and Prehistory", University of Michigan, Ann Arbor, November 7-12, 1988. Abstract, "Toward an Understanding of Proto-Dravidian Prehistory", published in *Reconstructing Languages and Cultures* (1989), ed. by Vitaly SHEVOROSHKIN, pp. 70-71. Bochum: Brockmeyer.

PFIFFIG, Ambros Josef. 1969. *Die Etruskische Sprache*. Graz: Akademische Druck- und Verlaganstalt.

POKORNY, Julius. 1959. *Indogermanisches etymologisches Wörterbuch*. Bern: Francke Verlag.

POLOMÉ, Edgar C. (ed.). 1982. *Indo-Europeans in the Fourth and Third Millennia*. Ann Arbor, MI: Karoma Publishers.

POPPE, Nicholas. 1951. *Khalkha-mongolische Grammatik*. Wiesbaden: Harrassowitz.

_____. 1955. *Introduction to Mongolian Comparative Studies*. Reprinted 1987. Helsinki: Suomalais-Ugrilainen Seura.

_____. 1960. *Vergleichende Grammatik der altäischen Sprachen*. Teil I: Vergleichende Lautlehre. Wiesbaden: Harrassowitz.

_____. 1965. *Introduction to Altaic Linguistics*. Wiesbaden: Harrassowitz.

_____. 1974. *Grammar of Written Mongolian*. Third Printing. Wiesbaden: Harrassowitz.

PULLEYBLANK, Edwin G. 1965. "The IE Vowel System and Qualitative Ablaut." *Word* 21:86-101.

RAMSTEDT, G. J. 1952-1957. *Einführung in die altäische Sprachwissenschaft*. 2 volumes. Helsinki: Suomalais-Ugrilainen Seura.

RASMUSSEN, Jens Elmegård. 1987. "The Make-Up of Indo-European Morphology". *Diachronica* IV:1/2.107-122.

_____. 1989. *Studien zur Morphophonemik der indogermanischen Grundsprache*. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

REINER, Erica. 1969. "The Elamite Language." *Altkleinasiatische Sprachen*, ed. by B. SPULER, pp. 54-118. Leiden: E. J. Brill.

RENFREW, Colin. 1987. *Archaeology and Language: The Puzzle of Indo-European Origins*. Cambridge: Cambridge University Press.

_____. 1991. "Before Babel: Speculations on the Origins of Human Diversity". *Cambridge Archaeological Journal* 1/1.3-23.

_____. 1992. "Archaeology, Genetics and Linguistic Diversity". *Man* 27/3.445-478.

RENFREW, Colin and BAHN, Paul. 1991. *Archaeology: Theories, Methods, and Practice.* New York, NY: Thames and Hudson, Inc.

ROAF, Michael. 1990. *Cultural Atlas of Mesopotamia and the Ancient Near East.* Oxford and New York, NY: Facts on File (Equinox Ltd.).

RUHLEN, Merritt. 1987. *A Guide to the World's Languages.* Stanford, CA: Stanford University Press.

_____. 1994. *The Origin of Language: Tracing the Evolution of the Mother Tongue.* New York, NY: John Wiley & Sons.

SALMONS, Joseph C. 1993. *The Glottalic Theory: Survey and Synthesis.* McLean, VA: Institute for the Study of Man.

SARIANIDI, V. 1992. "Food-Producing and Other Neolithic Communities in Khorasan and Transoxania: Eastern Iran, Soviet Central Asia and Afghanistan". *History of Civilizations of Central Asia. Volume I: The Dawn of Civilization: Earliest Times to 700 B.C.*, ed. by A. H. DANI and V. M. MASSON, pp. 109-126. Paris: UNESCO.

SATHASIVAM, Arumugam. 1965. *Sumerian: A Dravidian Language.* Unpublished manuscript.

SCHMIDT, Karl Horst. 1962. *Studien zur Rekonstruktion des Lautstandes der südkaukasischen Grundsprache.* Wiesbaden: Kommissionsverlag Franz Steiner GMBH.

SCHWINK, Frederick W. 1994. *Linguistic Typology, Universality and the Realism of Reconstruction.* Washington, DC: Institute for the Study of Man.

SHERRATT, Andrew (ed.). 1980. *The Cambridge Encyclopedia of Archaeology.* New York, NY: Crown Publishers, Inc. / Cambridge University Press.

SHEVOROSHKIN, Vitaly (ed.). 1989a. *Explorations in Language Macrofamilies.* Bochum: Brockmeyer.

_____ (ed.). 1989b. *Reconstructing Languages and Cultures.* Bochum: Brockmeyer.

_____ (ed.). 1990. *Proto-Languages and Proto-Cultures.* Bochum: Brockmeyer.

_____ (ed.). 1991. *Dene-Sino-Caucasian Languages.* Bochum: Brockmeyer.

SHEVOROSHKIN, Vitaly and MARKEY, Thomas L. (eds.) 1986. *Typology, Relationship, and Time.* Ann Arbor, MI: Karoma Publishers.

SHIELDS, Kenneth. 1982. *Indo-European Noun Inflection.* University Park, PA: The Pennsylvania State University Press.

_____. 1992. *A History of Indo-European Verb Morphology.* Amsterdam and Philadelphia, PA: John Benjamins.

SINOR, Denis. 1988. "The Problem of the Ural-Altaic Relationship". *The Uralic Languages: Descritpion, History and Foreign Influences*, ed. by Denis SINOR, pp. 706-741. Leiden: E. J. Brill.

SKOMAL, Susan Nacev and POLOMÉ, Edgar C. 1987. *Proto-Indo-European: The Archaeology of a Linguistic Problem. Studies in Honor of Marija Gimbutas.* Washington, DC: Institute for the Study of Man.

STAROSTIN, Sergej A. 1991. *Altajskaja problema i proisxoždenie japonskogo jazyka (The Altaic Problem and the Origin of the Japanese Language).* Moscow: Nauka.

STEINER, Gerd. 1990. "The Immigration of the First Indo-Europeans Into Anatolia Reconsidered". *Journal of Indo-European Studies* 18:1/2.185-214.

SZEMERÉNYI, Oswald. 1990. *Einführung in die vergleichende Sprachwissenschaft.* 4th edition. Darmstadt: Wissenschaftliche Buchgesellschaft.

THOMSEN, Marie-Louise. 1984. *The Sumerian Language: An Introduction to its History and Grammatical Structure*. Copenhagen: Akademisk Forlag.

TYLER, Stephen A. 1968. "Dravidian and Uralian: The Lexical Outlook". *Language* 44:4.798-812.

TYLOCH, Witold. 1975. "The Evidence of the Proto-Lexicon for the Cultural Background of the Semitic Peoples". *Hamito-Semitica*, ed. by James BYNON and Theodora BYNON, pp. 55-61. The Hague: Mouton.

VILLAR, Francisco. 1991. *Los indoeuropeos y los orígenes de Europa: Lenguaje e historia.* Madrid: Gredos.

WATKINS, Calvert. 1962. *Indo-European Origins of the Celtic Verb. I. The Sigmatic Aorist.* Dublin: The Dublin Institute for Advanced Studies.

WINTER, Werner (ed.). 1965. *Evidence for Laryngeals*. The Hague: Mouton.

WOUDHUIZEN, Fred C. 1991. "Etruscan & Luwian". *Journal of Indo-European Studies* 19:1/2.133-150.

ZIDE, Arlene R. K., and ZVELEBIL, Kamil V. 1976. *The Soviet Decipherment of the Indus Valley Script: Translation and Critique*. The Hague: Mouton.

ZVELEBIL, Kamil V. 1970. *Comparative Dravidian Phonology*. The Hague: Mouton.

_____. 1977. *A Sketch of Comparative Dravidian Morphology*. Part I. The Hague: Mouton.

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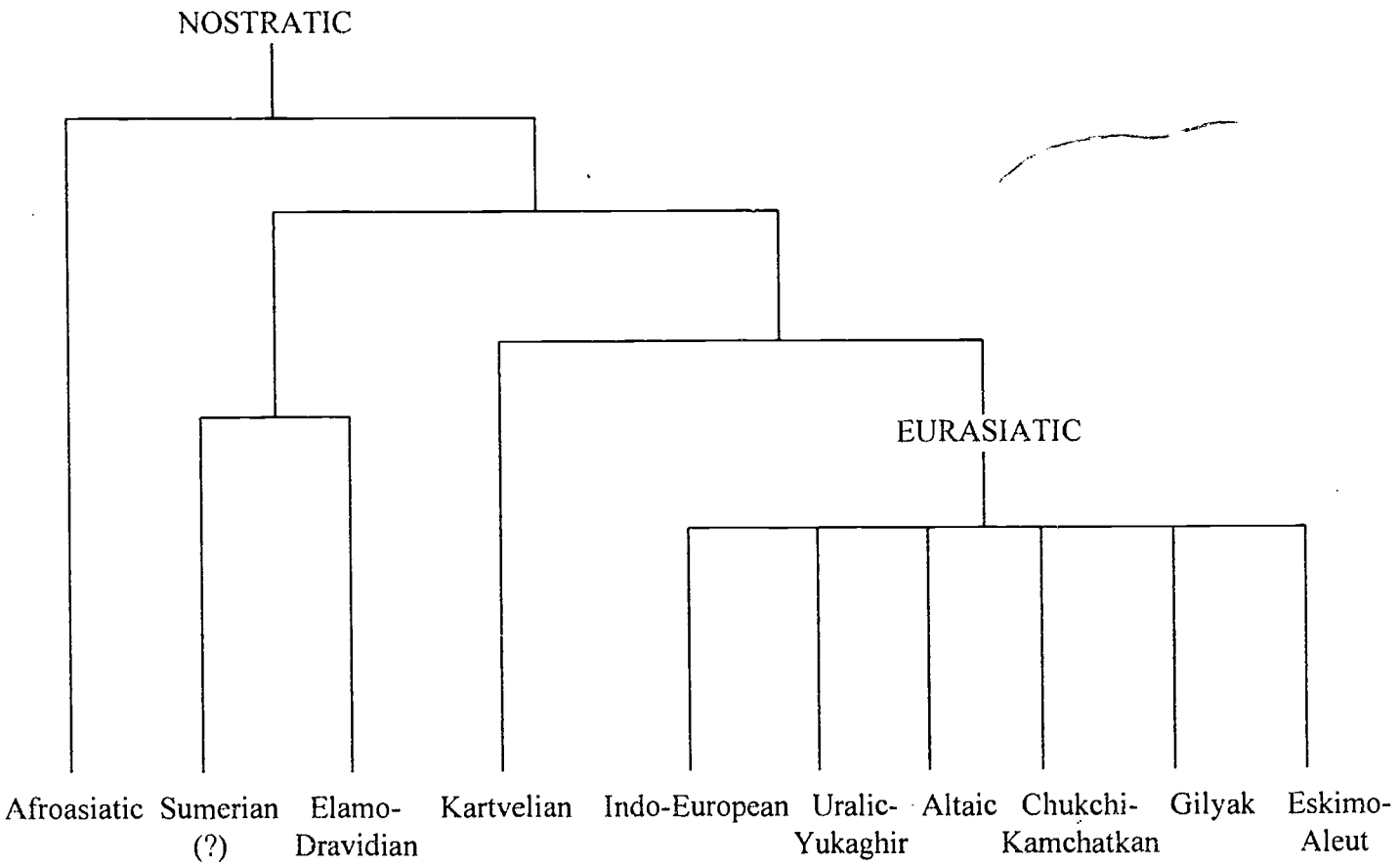
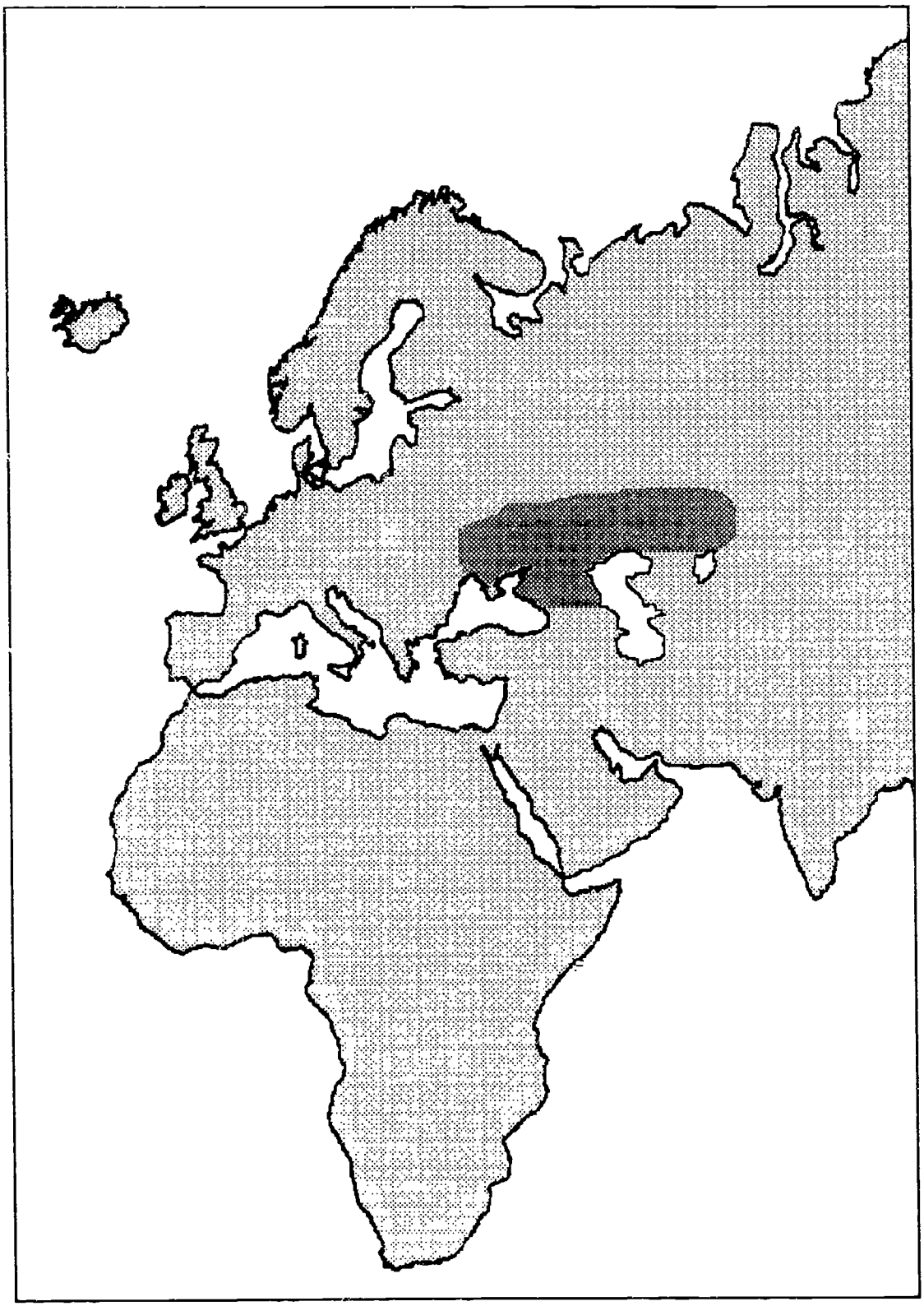
**Chart 1: The Nostratic Macrofamily**

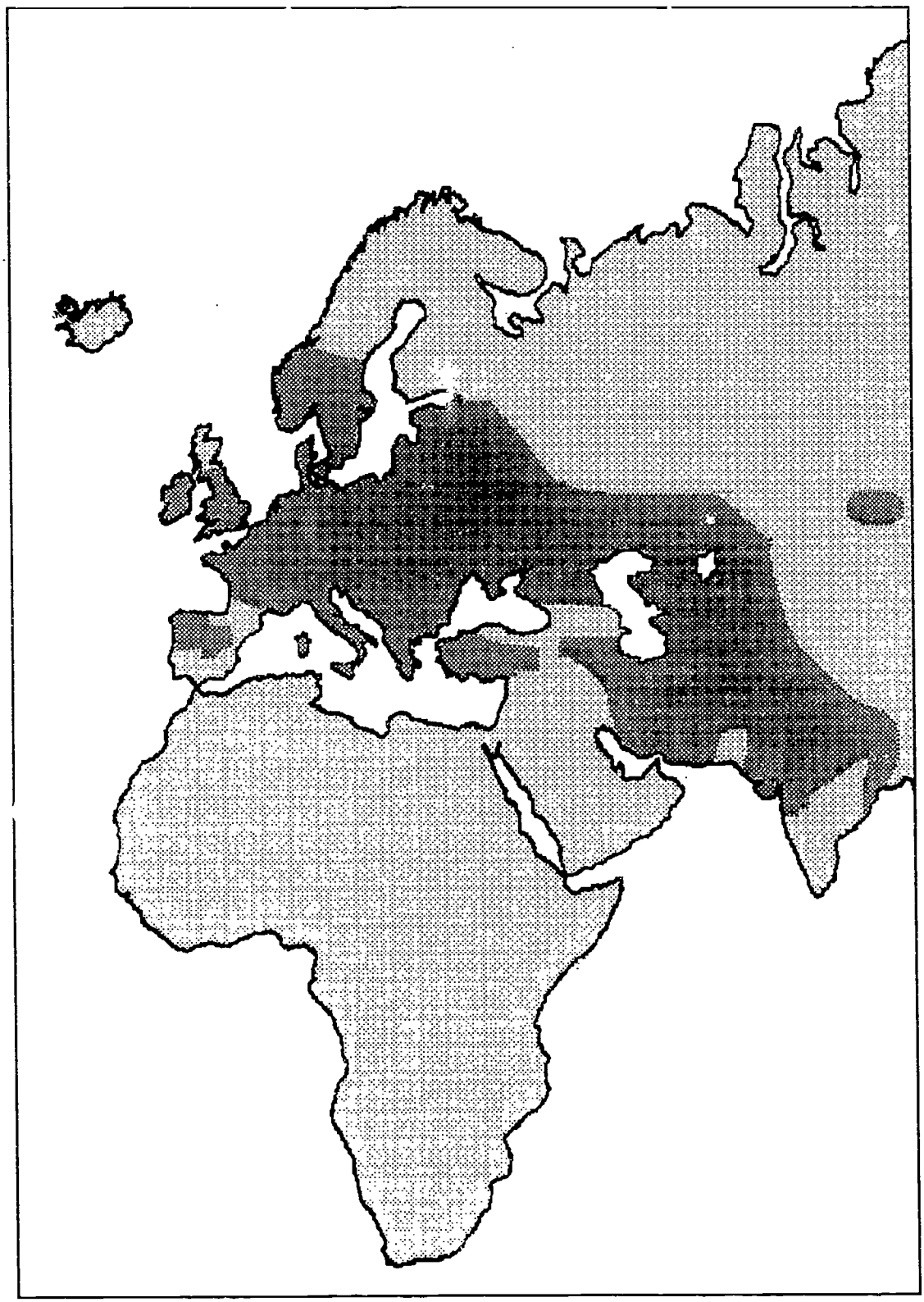


## Map 1: The Indo-European Homeland



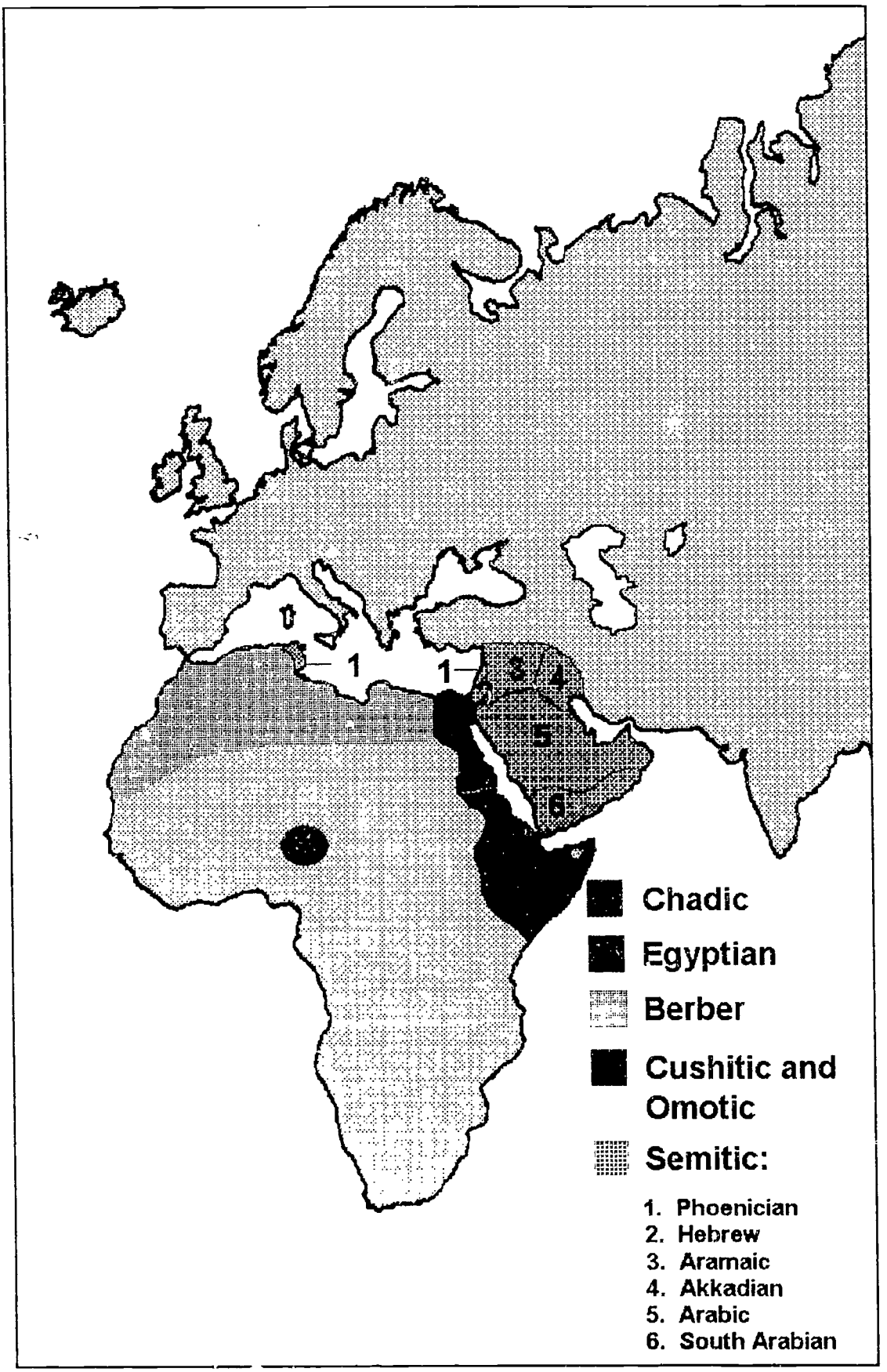
The shaded area shows the homeland of Indo-European-speaking people at about 5,000 - 4,500 BCE.

## Map 2: The Dispersal of the Indo-European Languages

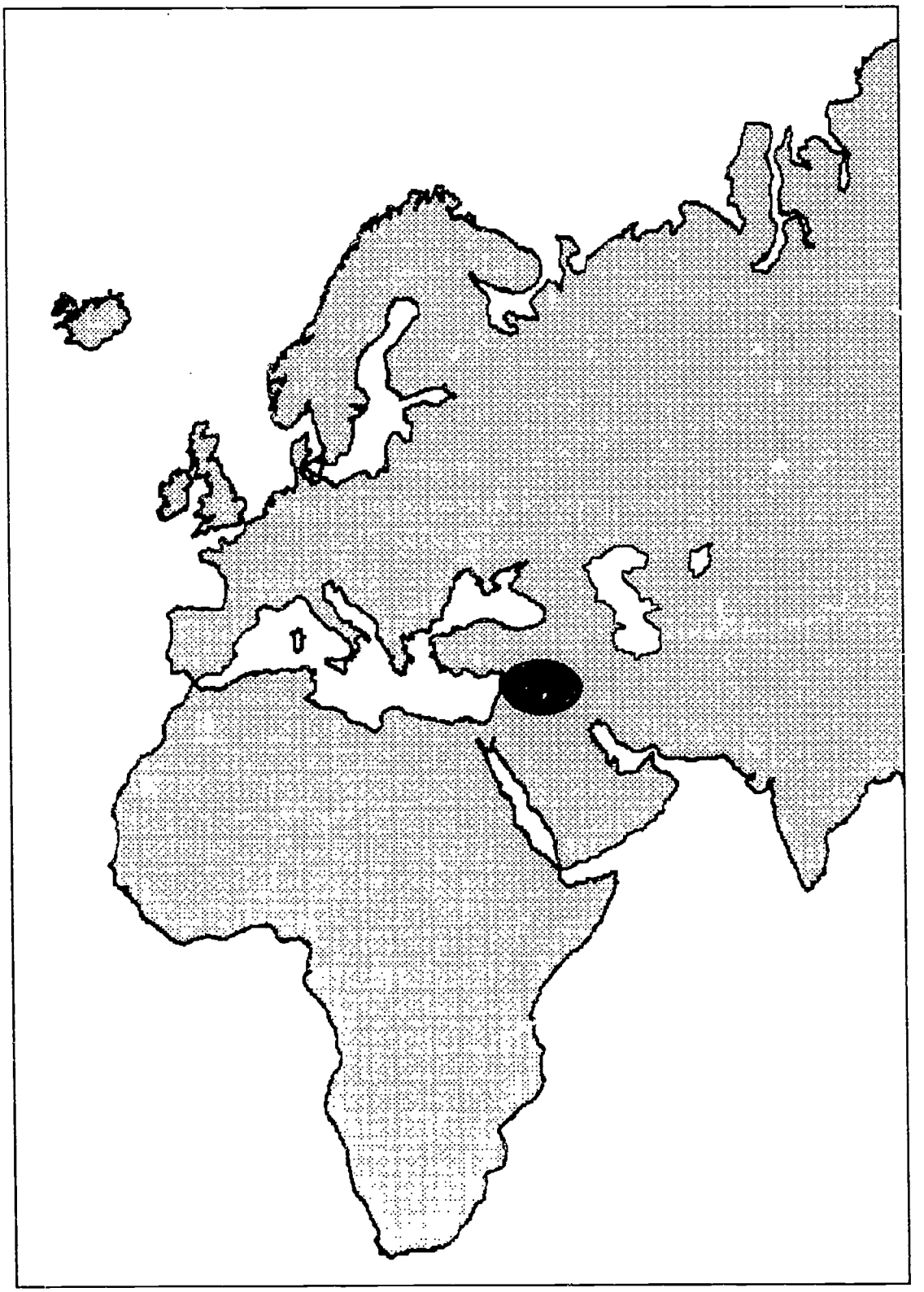


This map shows the approximate area to which Indo-European languages had spread by the first century BCE.

**Map 3: The Distribution of Afroasiatic Languages at about 500 BCE**

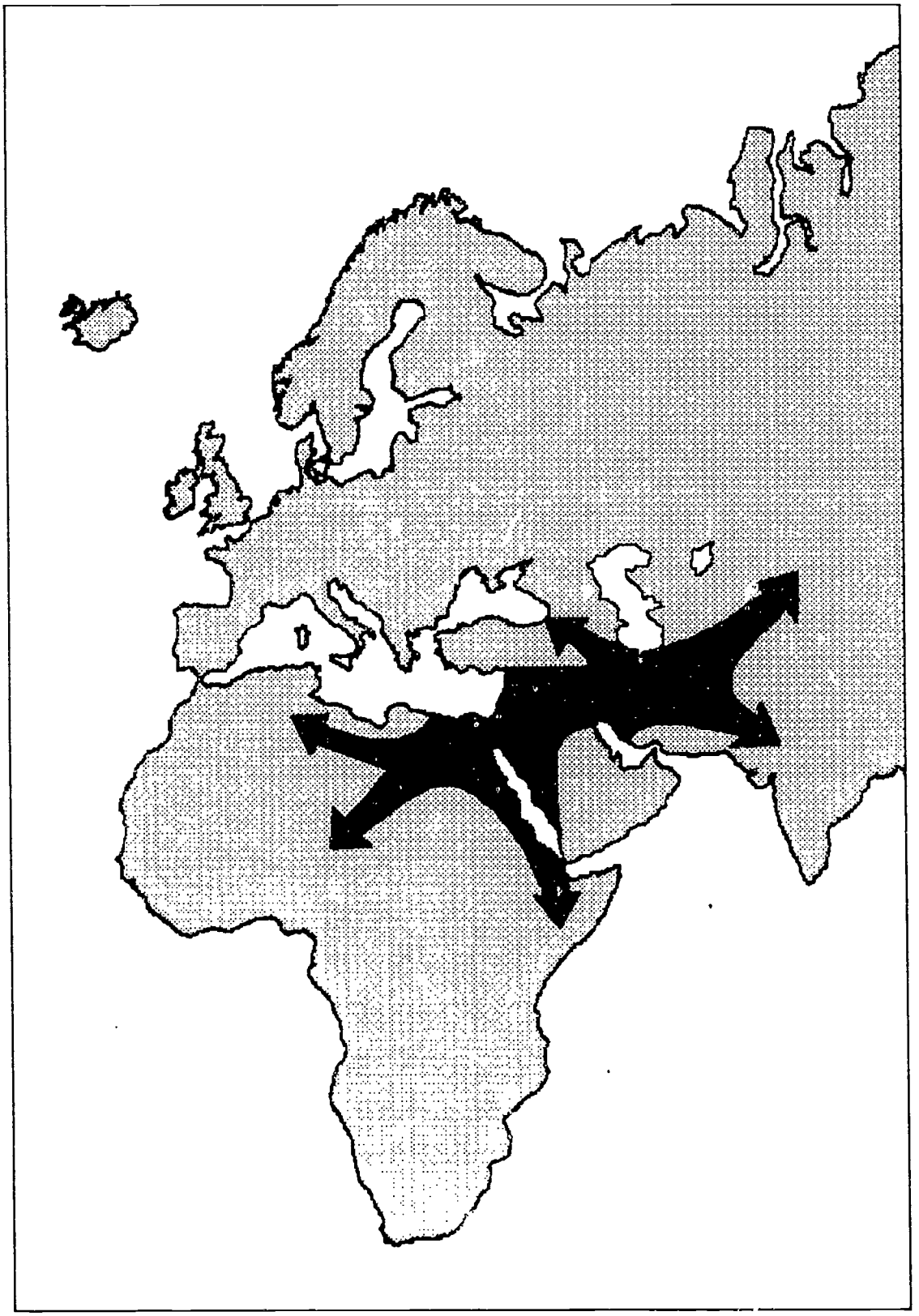


## Map 4: The Nostratic Homeland



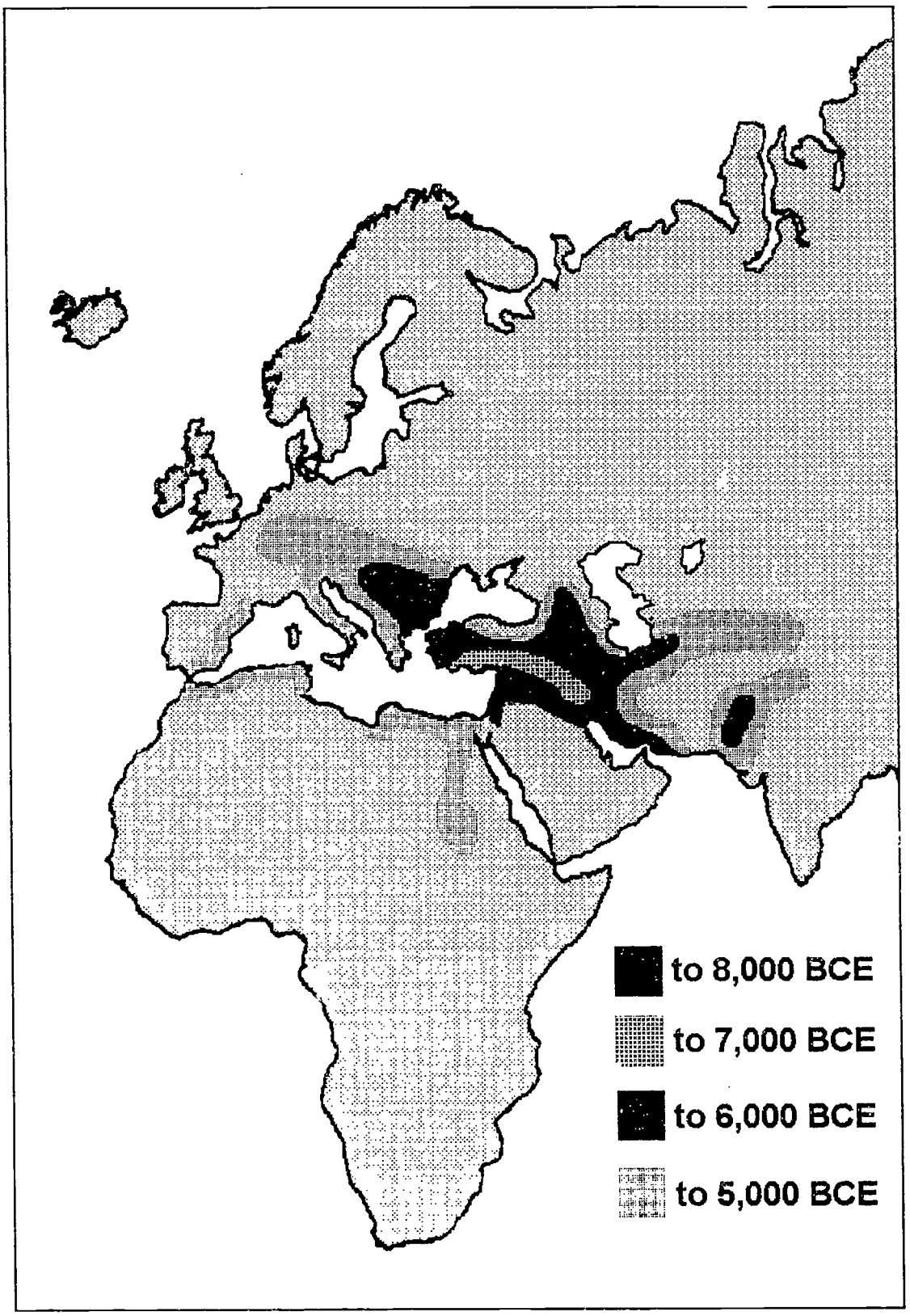
This map shows the approximate location of the Nostratic homeland at about 15,000 BCE.

## Map 5: The Early Dispersal of the Nostratic Languages



This map shows the approximate areas to which Nostratic languages had spread by about 8,000 BCE.

## Map 6: The Spread of Agriculture (to 5,000 BCE)



## Table 1: Nostratic Sound Correspondences

| Proto-Nostratic | Proto-Indo-European | Proto-Kartvelian | Proto-Afroasiatic | Proto-Uralic | Proto-Dravidian | Proto-Altaic | Sumerian |
|---|---|---|---|---|---|---|---|
| b- | b[h]- | b- | b- | p- | p- | b- | b- |
| -b- | -b[h]- | -b- | -b- | -w- | -pp-/-vv- | -b- | -b- |
| p[h]- | p[h]- | p[h]- | p[h]- | p- | p- | p- | p- |
| -p[h]- | -p[h]- | -p[h]- | -p[h]- | -p- | -pp-/-v- | -p-/-b- | -p- |
| p'- | (p'-) | p'- | p'- | | | | |
| -p'- | (-p'-) | -p'- | -p'- | | | | |
| d- | d[h]- | d- | d- | t- | t- | d- | d- |
| -d- | -d[h]- | -d- | -d- | -t- | -ṭ(ṭ)- | -d- | -d- |
| t[h]- | t[h]- | t[h]- | t[h]- | t- | t- | t- | t- |
| -t[h]- | -t[h]- | -t[h]- | -t[h]- | -t(t)- | -t(t)- | -t- | -t- |
| t'- | t'- | t'- | t'- | t- | t- | t- | d- |
| -t'- | -t'- | -t'- | -t'- | -t- | -t(t)- | -d- | -d- |
| $d^y$- | d[h]- | ǯ- | $d^y$- | $t^y$- | c- | ǯ- | d- |
| -$d^y$- | -d[h]- | -ǯ- | -$d^y$- | -$t^y$- | -c(c)- | -ǯ-/-d- | -d- |
| $t^y$[h]- | t[h]- | č[h]- | $t^y$[h]- | $t^y$- | c- | č- | š- |
| -$t^y$[h]- | -t[h]- | -č[h]- | -$t^y$[h]- | -$t^y$- | -c(c)- | -č- | -š- |
| t'$^y$- | t'- | č'- | t'$^y$- | $t^y$- | c- | č- | d- |
| -t'$^y$- | -t'- | -č'- | -t'$^y$- | -$t^y t^y$- | -c(c)- | -ǯ- | -d- |
| $s^y$- | s- | š- | $s^y$- | $s^y$- | c- | s- | š- |
| -$s^y$- | -s- | -š- | -$s^y$- | -$s^y$- | -c(c)-/-y- | -s- | -š- |
| ʒ- | d[h]- | $ʒ_1$- | ʒ- | č- | c- | ǯ- | z- |
| -ʒ- | -d[h]- | -$ʒ_1$- | -ʒ- | -č- | -c(c)- | -ǯ-/-d- | -z- |
| c[h]- | t[h]- | c[h]$_1$- | c[h]- | č- | c- | č- | s- |
| -c[h]- | -t[h]- | -c[h]$_1$- | -c[h]- | -č- | -c(c)- | -č- | -s- |
| c'- | t'- | c'$_1$- | c'- | č- | c- | č- | z- |
| -c'- | -t'- | -c'$_1$- | -c'- | -č- | -c(c)- | -ǯ- | -z- |
| s- | s- | $s_1$- | s- | s- | c- | s- | s- |
| -s- | -s- | -$s_1$- | -s- | -s- | -c(c)- | -s- | -s- |

| Proto-Nostratic | Proto-Indo-European | Proto-Kartvelian | Proto-Afroasiatic | Proto-Uralic | Proto-Dravidian | Proto-Altaic | Sumerian |
|---|---|---|---|---|---|---|---|
| g- | g[h]- | g- | g- | k- | k- | g- | g- |
| -g- | -g[h]- | -g- | -g- | -γ- | -k- | -g- | -g- |
| k[h]- | k[h]- | k[h]- | k[h]- | k- | k- | k- | k- |
| -k[h]- | -k[h]- | -k[h]- | -k[h]- | -k(k)- | -k(k)- | -k-/-g- | -k- |
| k'- | k'- | k'- | k'- | k- | k- | k- | g- |
| -k'- | -k'- | -k'- | -k'- | -k- | -k(k)- | -g- | -g- |
| $g^y$- | g[h]- | g- | $g^y$- | k- | k- | g- | g- |
| -$g^y$- | -g[h]- | -g- | -$g^y$- | -γ- | -k- | -g- | -g- |
| $k^y$[h]- | k[h]- | k[h]- | $k^y$[h]- | k- | k- | k- | k- |
| -$k^y$[h]- | -k[h]- | -k[h]- | -$k^y$[h]- | -k(k)- | -k(k)- | -k-/-g- | -k- |
| k'$^y$- | k'- | k'- | k'$^y$- | k- | k- | k- | g- |
| -k'$^y$- | -k'- | -k'- | -k'$^y$- | -k- | -k(k)- | -g- | -g- |
| $g^w$- | $g^w$[h]- | gw/u- | $g^w$- | k- | k- | g- | gu- |
| -$g^w$- | -$g^w$[h]- | -gw/u- | -$g^w$- | -γ- | -k- | -g- | -gu- |
| $k^w$[h]- | $k^w$[h]- | k[h]w/u- | $k^w$[h]- | k- | k- | k- | ku- |
| -$k^w$[h]- | -$k^w$[h]- | -k[h]w/u- | -$k^w$[h]- | -k(k)- | -k(k)- | -k-/-g- | -ku- |
| k'$^w$- | k'$^w$- | k'w/u- | k'$^w$- | k- | k- | k- | gu- |
| -k'$^w$- | -k'$^w$- | -k'w/u- | -k'$^w$- | -k- | -k(k)- | -g- | -gu- |
| G- | g[h]- | G- | g- | k- | k- | g- | g- |
| -G- | -g[h]- | -G- | -g- | -γ- | -k- | -g- | -g- |
| q[h]- | k[h]- | q[h]- | k[h]- | k- | k- | k- | h- (?) |
| -q[h]- | -k[h]- | -q[h]- | -k[h]- | -k(k)- | -k(k)- | -k-/-g- | -h- (?) |
| q'- | k'- | q'- | k'- | k- | k- | k- | g- |
| -q'- | -k'- | -q'- | -k'- | -k- | -k(k)- | -g- | -g- |
| q'$^w$- | k'$^w$- | q'w/u- | k'$^w$- | k- | k- | k- | gu- |
| -q'$^w$- | -k'$^w$- | -q'w/u- | -k'$^w$- | -k- | -k(k)- | -g- | -gu- |

| Proto-Nostratic | Proto-Indo-European | Proto-Kartvelian | Proto-Afroasiatic | Proto-Uralic | Proto-Dravidian | Proto-Altaic | Sumerian |
|---|---|---|---|---|---|---|---|
| t͡ɬ[ʰ]- | k[ʰ]- | x- | t͡ɬ[ʰ]- | sʸ- | c- | k- | |
| -t͡ɬ[ʰ]- | -k[ʰ]- | -x- | -t͡ɬ[ʰ]- | -δ- | -k- | -k-/-g- | |
| t͡ɬ'- | k'- | | t͡ɬ'- | δʸ- | t- | k- | d- |
| -t͡ɬ'- | -k'- | | -t͡ɬ'- | -δʸ- | -ṭ(ṭ)- | -g- | -d- |
| ʕ- | ʕfi- | Ø- | ʕ- | Ø- | Ø- | Ø- | |
| -ʕ- | -ʕfi- | -Ø- | -ʕ- | -Ø- | -Ø- | -Ø- | |
| ħ- | ħh- | x- | ħ- | Ø- | Ø- | Ø- | h- |
| -ħ- | -ħh- | -x- | -ħ- | -Ø- | -Ø- | -Ø- | -h- |
| ʔ- | ʔ- | Ø- | ʔ- | Ø- | Ø- | Ø- | Ø- |
| -ʔ- | -ʔ- | -Ø- | -ʔ- | -Ø- | -Ø- | -Ø- | -Ø- |
| h- | h- | Ø- | h- | Ø- | Ø- | Ø- | Ø- |
| -h- | -h- | -Ø- | -h- | -Ø- | -Ø- | -Ø- | -Ø- |
| y- | y- | y-/Ø- | y- | y- | y-/Ø- | y- | |
| -y- | -y- | | -y- | -y- | -y- | -y- | |
| w- | w- | w- | w- | w- | v-/Ø- | | |
| -w- | -w- | -w- | -w- | -w- | -v- | | |
| m- | m- | m- | m- | m- | m- | m- | m- |
| -m- | -m- | -m- | -m- | -m- | -m- | -m- | -m- |
| n- | n- | | n- | n- | n- | | n- |
| -n- | -n- | -n- | -n- | -n- | -n-/-n̲- | -n- | -n- |
| nʸ- | n- | | n- | nʸ- | ñ- | nʸ- | |
| -nʸ- | -n- | | -n- | -nʸ- | -ṇ- | -nʸ- | |
| -ŋ- | -n- | | -n- | -ŋ- | -ṇ- | -ŋ- | |
| l- | l- | l- | l- | l- | l- | | l- |
| -l- | -l- | -l- | -l- | -l- | -l- | -l- | -l- |
| -lʸ- | -l- | -l- | -l- | -lʸ- | -l̤- | -lʸ- | |
| r- | r- | r- | r- | r- | | | r- |
| -r- | -r- | -r- | -r- | -r- | -r-/-r̲- | -r- | -r- |
| -rʸ- | -r- | -r- | -r- | -rʸ- | -r̤- | -rʸ- | |

| Proto-Nostratic | Proto-Indo-European | Proto-Kartvelian | Proto-Afroasiatic |
|---|---|---|---|
| i | i, e | i | ə |
| ə | e, a, ə | e, i | ə |
| u | u, o | u | ə |
| e | e | e | a |
| a | a, o, ə | a | a |
| o | o | o | a |
| iy | ĭy, ey, ī, ē, ĭ | iy, i | əy |
| əy | ey, ay, ĭy, ĭ | ey, i | əy |
| uy | ĭy, ī, ĭ | uy, i | əy |
| ey | ey, ĭy, ē, ĭ | ey, i | ay |
| ay | ay, oy, ĭy, ĭ | ay, i | ay |
| oy | oy, ĭy, ĭ | oy, i | ay |
| iw | ū, ŭw, ŭ | iw, u | əw |
| əw | ew, aw, ŭw, ŭ | ew, u | əw |
| uw | ū, ō, ŭw, ow, ŭ | uw, u | əw |
| ew | ew, ŭw, ŭ | ew, u | aw |
| aw | ow, ŭw, ŭ | aw, u | aw |
| ow | ō, ow, ŭw, ŭ | ow, u | aw |

| Proto-Nostratic | Proto-Uralic | Proto-Dravidian | Proto-Altiac | Sumerian |
|---|---|---|---|---|
| i | i | i | i, i | i |
| ə | e | e | e | e |
| u | u | u | u, ü | u |
| e | e | e | e | e |
| a | a, ä | a | a | a |
| o | o | o | o, ö | u |

| Proto-Nostratic | Proto-Uralic | Proto-Dravidian | Proto-Altiac | Sumerian |
|---|---|---|---|---|
| iy | iy, i | iy, ī | ī, ī̈ | i |
| əy | ey | ey, ē | ē, i, ï | i |
| uy | uy | uy, ū | | i |
| ey | ey, e | ey, ē | ėy, ē̈ | e |
| ay | ay, äy | ay, ā | a, i, ï | e |
| oy | oy | oy, ō | | e |
| iw | iw | iv, ī | | u |
| əw | ew | ev, ē | | u |
| uw | uw, u | uv, ū | ū, ṻ | u |
| ew | ew | ev, ē | | u |
| aw | aw, äw | av, ā | ō, ō̈ | u |
| ow | ow, o | ov, ō | ō, ō̈ | u |

## Table 2: The Distribution of Nostratic Pronoun Stems

### A. Personal Pronoun Stems

| Proto-Nostratic | Proto-Indo-European | Proto-Kartvelian | Proto-Afroasiatic | Proto-Uralic | Proto-Dravidian | Proto-Altaic | Sumerian |
|---|---|---|---|---|---|---|---|
| **mi-/*me-* (1st sg.) | **me-/ *mo-* | **me-, *men-* | **ma-/ *mə-* | **me* | | **mi* (> **bi*) | *ma(-e), me-a, me-e* |
| **ma-/*mə-* (1st pl. incl.) | **-me-/ *-mo-* | | **ma-/ *mə-* | **me* | | **ma-* (> **ba-*) | *-me* |
| **wa-/*wə-* (1st pl.) | **we-/ *wo-; *wey-* | | **wa-/ *wə-* | | | | |
| **na-/*nə-* (1st pl.) | **ne-/ *no-; *n̥-s-* | | **na-/ *nə-* | | **năm-* | | |
| **t[ʰ]i-/*t[ʰ]e-* (2nd sg.) | **t[ʰ]ŭ, *t[ʰ]e-* | | **t[ʰ]a-/ *t[ʰ]ə-* | **te* | | **ti, *ta* | *za-e, -zu* |

NOTES:

1. Indo-European: The 1st sg. stem **mi-/*me-* is used in the oblique cases (except in the Celtic branch, where it has spread into the nominative as well); the 1st pl. inclusive stem **ma-/*mə-* is preserved in 1st person plural verb endings; the 1st pl. stem **wa-/*wə-* is preserved as an independent 1st person plural pronoun stem and in 1st person dual and/or plural verb endings; the 2nd sg. reconstructions **t[ʰ]ŭ*, **t[ʰ]e-* represent later, Post-Anatolian forms.
2. Kartvelian: The 1st pl. stem **na-/*nə-* is found in Svan *näj* "we".
3. Afroasiatic: The 1st sg. stem **mi-/*me-* and 1st pl. inclusive stem **ma-/*mə-* are found only in Chadic as independent pronouns; the 1st sg. stem **mi-/*me-* serves as the basis of the 1st sg. verbal suffix in Highland East Cushitic; the 1st pl. stem **wa-/*wə-* is found in Egyptian and Chadic (in Egyptian, *wy* means "I, me").
4. Elamo-Dravidian: The 2nd sg. stem **t[ʰ]i-/*t[ʰ]e-* is found in Elamite in the 2nd sg. and pl. verb ending *-t* and in Dravidian in the Parji appositional marker *-t* of the 2nd sg. in pronominalized nouns and as a verb suffix of the 2nd sg.

5. Altaic: The 1st sg. stem **mi-* has become *bi* "I" in the Ataic daughter languages, while the 1st pl. stem **ma-* has become *ba* in Mongolian (= 1st pl. exclusive); the initial **m-* is preserved in the oblique cases, however; the 2nd sg. stem **t[ʰ]i-* has become *či* "you" in Mongolian.
6. Sumerian: *ma(-e), me-a, me-e* "I" are Emesal forms; *-me* is a 1st pl. possessive suffix, "our"; *-zu* is a 2nd sg. possessive suffix, "your".
7. Etruscan: The 1st sg. stem **mi-/*me-* is preserved in (nominative) *mi* "I", (accusative) *mini* "me"; the 2nd sg. stem may be preserved in the pronoun stem *θi*, but this is uncertain since the meaning of the Etruscan form is unknown — however, the 2nd sg. stem **t[ʰ]i-/*t[ʰ]e-* is clearly reflected in the Etruscan verbal imperative endings *-ti*, *-θ*, *-θi*.
8. Chukchi-Kamchatkan: The pronouns of the 1st and 2nd persons sg. and pl. are as follows in Chukchi:

| | Singular | Plural |
|---|---|---|
| 1 | *γəm* | *muri* |
| 2 | *γət* | *turi* |

9. Gilyak: The 1st pl. inclusive stem **ma-/*mə-* is preserved in the 1st pl. inclusive pronoun *mer* "we" (note also 1st dual *męgi*); the 2nd sg. stem **t[ʰ]i-/*t[ʰ]e-* is preserved in the 2nd sg. pronoun *či* "you".

## B. Demonstrative Pronoun Stems

| Proto-Nostratic | Proto-Indo-European | Proto-Kartvelian | Proto-Afroasiatic | Proto-Uralic | Proto-Dravidian | Proto-Altaic | Sumerian |
|---|---|---|---|---|---|---|---|
| **sa-/*sə-* | **so-* | **s₁-* | | **sä* | | | |
| **t[ʰ]a-/ *t[ʰ]ə-* (proximate) | **t[ʰ]o-* | | **t[ʰ]a-/ *t[ʰ]ə-* | **ta, *tä* | **tă̈n-* | **te-* | |
| **t[ʰ]u-/ *t[ʰ]o-* (distant) | **t[ʰ]o-* | | **t[ʰ]a-/ *t[ʰ]ə-* | **to* | | | |
| **k[ʰ]a-/ *k[ʰ]ə-* | **k[ʰ]e-, *k[ʰ]o-, *k[ʰ]i-* | **-k[ʰ]-* | **k[ʰ]a-/ *k[ʰ]ə-* | | | | |
| **dʸi-/*dʸe-* | **-d[ʰ]e* | | **dʸa-/*dʸə-* | **tʸi-/*tʸe-* | | | |
| **ʔi-/*ʔe-* | **ʔe-/*ʔo-; *ʔey-/*ʔoy-/ *ʔi-* | **i-, *e-* (distant) | | **e* | **ĭ-* (proximate) | **i-, *e-* (proximate) | |
| **ʔa-/*ʔə-* | **ʔe-/*ʔo-* | **a-, *e-* (proximate) | | | **ă̆-* (distant) | **a-* (distant) | |
| **na-/*nə-, *ni-/*ne-, *nu-/*no-* | **ne-/*no-* | | **na-/*nə-* | **na, *nä* **no* | | | *ne-en, ne(-e)* |

NOTES:

1. Indo-European: The stem **dʸi-/*dʸe-* is only preserved as a suffixed particle **-d[ʰ]e*; the stem **ne-/*no-* has a derivative **ʔe-no-/*ʔo-no-*.
2. Altaic: The stem **t[ʰ]a-/*t[ʰ]ə-* is used as the distant demonstrative in Altaic: Mongolian (nom. sg.) *tere* (< **te-r-e*) "that", (nom. pl.) *tede* "those"; Tungus (Solon) *tari* "that"; Manchu *tere* "that".

3. Sumerian: The demonstrative stem *ʔi-/*ʔe- is found in *e* "hither, here".
4. Etruscan: The proximate stem *t[ʰ]a-/*t[ʰ]ə- is preserved in *ita*, *ta* "this"; the stem *k[ʰ]a-/*k[ʰ]ə- is preserved in *eca* (archaic *ika*), *ca* "this".
5. Gilyak: The proximate stem *t[ʰ]a-/*t[ʰ]ə- is preserved in (proximate) *tɪdʲ* "this"; the stem *k[ʰ]a-/*k[ʰ]ə- is preserved in *kudʲ* "that".
6. Eskimo-Aleut: The stem *t[ʰ]a-/*t[ʰ]ə- is preserved in the Inuit (also called Inupiaq) prefix *ta-*, which may be added to any demonstrative form whose coreferent has already been focused.

## C. Relative and Interrogative Stems

| Proto-Nostratic | Proto-Indo-European | Proto-Kartvelian | Proto-Afroasiatic | Proto-Uralic | Proto-Dravidian | Proto-Altaic | Sumerian |
|---|---|---|---|---|---|---|---|
| **kʷ[ʰ]i-/ *kʷ[ʰ]e-* (relative) | **kʷ[ʰ]e-/ *kʷ[ʰ]o-/ *kʷ[ʰ]i-* | | | **ki, *ke* | | **ki-, *ke-* | |
| **kʷ[ʰ]a-/ *kʷ[ʰ]ə-* (interrogative) | **kʷ[ʰ]e-/ *kʷ[ʰ]o-/ *kʷ[ʰ]i-* | | **kʷ[ʰ]a-/ *kʷ[ʰ]ə-* | **ku, *ko* | | **ki-, *ke-* | |
| **mi-/*me-* (interrogative) | **me-/*mo-* | **mi-, *min-* | **ma-/*mə-* | **mi* | | | |
| **ma-/*mə-* (relative) | **me-/*mo-* | **ma-* | **ma-/*mə-* | **mi* | | | |
| **ʔay-, *ʔya-* (relative and interrogative) | **ʔyo-* | | **ʔay(y)-* | **yo* | **yā-* | **yā-* | |

NOTES:

1. Kartvelian: The relative / interrogative stem **ʔya-* is found in Svan (interrogative) *jär* "who?", (relative) *jerwäj* "who", (indefinite) *jer* "somebody, something".
2. Altaic: The interrogative stem **mi-/*me-* is found in the Turkish interrogative particles *mi, mı, mu, mü.*
3. Sumerian: The interrogative stem **mi-/*me-* occurs in *me-na-àm* "when?", *me-a* "where?", *me-šè* "where to?".
4. Chukchi-Kamchatkan: The interrogative stem **mi-/*me-* is preserved in *meŋin* "who?".
5. Eskimo-Aleut: The interrogative stem **kʷ[ʰ]a-/*kʷ[ʰ]ə-* is preserved in the Inuit interrogative pronoun *kina* "who?".