Post-Nostratic

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The following is an account of research in progress, as it was presented at the fifth CESS conference, 17-20 October 2002.

In the past 15 years I have made a strong case that Indo-European was related to one of the Caucasian language families (Northwest Caucasian) at the distant level, in a phylem which I have called Pontic, (Colarusso 1996; in press). Uli Schamiloglu encouraged me to examine the far-flung links for Eurasia contained in the Nostratic hypothesis from a new critical perspective based upon my work.

The first linguist to mention Nostratic was the Danish Indo-Europeanist, Holger Pedersen, 1931. He said, "The boundaries of the Nostratian world of languages cannot yet be determined, but the area is enormous, and includes such widely divergent races that one becomes almost dizzy at the thought" (p. 338). Even Pedersen harbored the suspicion, however, "… whether sufficient material can be collected to give this inclusion flesh and blood and a good clear outline." This was surely a responsible position to assume since the standards of proof had been set quite high by more than a century of work by scholars examining Proto-Indo-European, Proto-Finno-Ugrian, Proto-Semitic, and Proto-Algonquian. Pedersen's idea did not stand alone in its era, however, but was paralleled contemporaneously by Edward Sapir's visions of North American phyla in the 1930s, and a bit later by Joseph Greenberg's for Africa in the 1950s.

Roughly speaking, the Indo-European, Finno-Ugrian, and Altaic efforts were often driven by a 19th century spirit of romantic nationalism, which was caught in a tension between narrow ethnic identity and the surprise at the recognition of distant kin. This spirit was sufficient to overcome scanty or poor data in many cases and evoke wide support for the proto-families put forward even when rigorous proof was lacking. The effort to push the historical horizons back to the level of phyla, however, lacked this dynamics and so often met indifference or resistance unless such efforts were directed within North America, then broad lumping was the order of the day.

The only two exceptions to the forlorn status of the language phylum were Hamito-Semitic, which later blossomed into Afro-Asiatic and was largely driven by the fact that the various branches are extremely close to one another, and those claiming that each was related to all, what we would now call the Mother Tongue hypothesis. While this is often offered as new and revolutionary, in truth this notion of "pan-cognacy" goes back to the 19th century figure of Alfredo Trombetti (1866-1929), and is maintained by such current workers as Merritt Ruhlen (1994) . This effort, as sort of Nostraticist program in "overdrive," states that all languages are related, because they have descended from a common ancestor along with our species. To speak plainly, this is a bad idea whose time has come. The notion rests upon a simplistic view of evolution generally and of our species specifically. Monogenesis is suspected, but unprovable. Anyone who has pushed back in time to the phylum level knows that the base of cognates diminishes drastically, so that given time depths of 150,000 years or more one would lack any traces of conventional cognates. And yet the Motrher Tonguers do point proudly to a range of vague resemblances, for 'tooth', etc., thaty can be gleaned from a scrutiny of the world's languages. The natural question is "what are the Mother Tonguer's seeing?" There are two possible answers. First, de Sausseur was wrong and that part of our linguistic capacity is iconic, that is it exhibits Jungian phonological archetypes with universal links between sound and sense (Bruce Elliott, personal communication). Second, they are seeing the simple phylogenetic core of language where a range of basic meanings can be expressed only through a limited archaic core of phonemes that are similar in all languages (Colarusso, in preparation). Both matters deserve their own research, however, and this is not it.

Returning to Nostratic there seem to be two main currents (plus many variants). The first centers about Altaic in an extended form, with Hunnic, Turkic, Mongolic, Tunguzic, Manchuric, Korean, and Japanese. Workers in this vein then try to incorporate Indo-European, Uralic, consisting of Finno-Ugrian, Samoyedic, and Yukaghir, Afro-Asiatic, consisting of Semitic, Hamitic, Egyptian, Cushitic, Omotic, and Chadic, and even Kartvelian or South Caucasian, consisting of Georgian, Mingrelian, Laz, and Svcan. Sometimes Basque, seen as an outlier of "Caucasian" is thrown in for good measure.

In complementation to this super-phylum, other workers take (Burmo-)Sino-Tibetan, and add "Caucasic" (usually meaning Northwest and Northeast Caucasian, but sometimes also South Caucasian) along with (Na) Dene. On the basis of some morphological similarities with Northeast Caucasian, Burushaski suffers a fate similar to that of Basque.

The Nostraticist enterprise is a thriving one with a number of active figures, such as Vladislav M. Illich-Svitych, Aharon. B. Dolgopol'skij, Sergei A. Starostin, Vitaly Shevoroshkin, Joseph Greenberg (PGtic plus Niger - Congo), Alan Bomhard (+AA), Paul Levin (PIE + AA), Alexis Manaster Ramer, Irén Hegedüs, Peter Michalove. (see references at end). Most if not all of these do "mass comparison," which is a sort of proof in numbers coupled a form of glottochronology (à la Morris Swadesh) . They assemble large numbers of words from more or less the core vocabulary of a set of subject languages and then seek to find similarities and patterns among these. While this sounds reasonable, in practice they utilize every cognate in every language, with vague similarities of form or meaning being deemed sufficient for comparison. The resulting vagueness is justified by time depth. Some will go the next step posit proto-forms based on sound laws and compare these across families (Illich-Svitych, Bomhard) A few supplement these conventional methods with typological arguments (Michalove). Only a very few use what is ostensibly old (fossilized, irregular) material within a family as a base for further comparisons (Hegedüs, Levin,).

Some problems arise, however, most notably with the time-honored technique of the comparative method. The obvious failure in the comparative method arises with inflection. Inflectional and especially derivational morphology shows a limited phonological inventory, so that chance similarities are common (Colarusso 1998). Furthermore, mass comparison utilizes frequent forms, but these are new in a language, while the rare ones are old. Mass comparison, by its very nature, frequently misses this older material.

Another problem arises with the time depth of comparison, or whether or not a links is being made within a family or across families, that is within a phylum. The distinction is not arbitrary. Comparison of proto-forms seems valid, but works best at the level of the family because similar, retained morphology adds to the weight of the comparands. If this was all the Nostraticists had to do, compare between members of a

family, then there would be no controversy with Nostratic. Instead, Nostratic would just be "big Proto-Indo-European" or "big Altaic."

To bridge the gulf in time that separates true phyla, a time that seem to be greater than 5,000 years, one must find divergent morphologies frozen as relics in different phyla. This seems true even for typologically similar families such as Dravidian and Proto-Indo-European or Altaic and Uralic.

The typological arguments I have seen are based on limited sample and on antiquated concepts of phonology. For example, Michalove (1997) has objections (p. 250) to three Nostratic affricate series: /c, ć, č, …/ (Illyč-Svityč 1971-84) because of developments within Japanese, which he seems to see as reducing one of these Nostratic series to a plain alveolar stop one preceded by a fricative. In other words, Nostratic *sD (rather than * ǯ) → Old Jap. /d/, (Yoniguni dial.), with later shift to /y/. There are two weaknesses to his argument. First Japanese has a rule that sets alveolar stops and palato-alveolar affricates into complementary distribution: /t, d/ → /č, ǯ/ / ____ i; if this is old, then the sets of sounds are equivalent and no argument can be based upon Old Japanese. To see Old Japanese as being closer to Nostratic Michalove also follows the argument of Martin (1987, p. 20) who sees Proto-Japanese *d/ǯ → Old Jap. d/y, as "lenited." This argument may seem phonologically plausible, but English, early modern French, late Iranian, and Armenian all have a shift going the other way:*y → ǯ, so that this typological argument is not compeling.

By contrast, morphological typology generally serves as a better guide, as with Algic (Algonquian + Wiyot + Yurok) (Ives Goddard 1975), or with Algic + Muskogean (Mary Haas 1958), or Pontic (PIE + PNWC) (Colarusso 1997; 2002)

Mass comparison also has an undesirable side effect: the poor use of sources. For example, I have seen Ingush (Chechen) /-s/ genitive compared with Proto-Indo-European */-syo/, but in fact the Ingush and Chechen nominative genitive does not show this form. Instead, this claim seems to be based upon a misreading of the first singular ergative and perhaps second person plural ergative, (1).

(1) Ingush (Chechen) Pronominal Forms:

1st.sg.erg /so/ (/swo/) ~ 1st.sg.gen /a:z/ (/as/),

2nd.pl.erg /šu/ ~ /oaš/,

(2nd.sg /ḫwo/ ~ /aḫ/).

Such errors are the inevitable result of using mass comparison over a vast array of languages. Mass comparison leads to sloppiness and too many homonyms at the Nostratic level. Most importantly, Nostratic shows us that beyond a certain horizon of time the time-honored comparative method fails unless supplemented with other techniques, the foremost being morphological idiosyncracies, and the second being typology. I am now convinced that to extend comparative work back beyond roughly 5,000 years BP, an "enlarged comparative method" must be invoked. This would involve three features: first, careful use of idiosyncratic material, second, the embedding of this material in a sound comparative matrix, and third, the evaluation from the first two against a wide grasp of typological likelihoods. In my own work on "Pontic" this complex of tools has yielded highly specific forms with exact meanings that seem to be the most ancient material reliably recoverable. By contrast, the yield of mass comparison is just the opposite. Large numbers, literally hundreds, of putative cognates are formed, most of which show only vague similarities to their putative daughters, and therefore lack sound laws to link them to these daughters. Their most disturbing feature is that most of them have a pathologically wide range of vague meanings and numerous homonyms, upwards of seven or more (see Bomhard 1991; Ruhlen 1994). To put it simply, the resulting proto-languages do not look real by typological standards.

To gain a rigorous sense of what is wrong with mass comparison it is useful to offer a probabilistic model of the comparative technique (Colarusso 1998). One must measure the chance resemblance of two words from two languages. Given a word from L_1, label it $W(L_1)$, what are the chances that $W(L_2)$ will match it? Take a word canon of CVC for W_1 in L_1. The probability of a match is $P(C_1) \times P(V) \times P(C_2)$ with the Cs and Vs of L_2 matching those of L_1 for a word W_2 also of CVC canon. Each probability, roughly, is 1/(number of Cs or Vs in the language). This number is surprising not very small, so that when a number of words are compared the result odd favor chance matches between any two languages for at least a few forms. There is the effect of what I term paradigmatic pressure: Given $paradigm(L_1)$, what are odds for $paradigm(L_2)$? This may be modeled as a product of the preceding "simple match" probabilities: $P(W_1(L_2)) \times P(W_2(L_2)) \times P(W_3(L_2)) \times \ldots$; one obtains low odds very fast, on

the order of 1/1,000,000. The mathematical model tells us that we should be looking for old paradigms between families, plus the occasional conventional cognate. If we follow such techniques, then we will also enhance our odds of finding true historical relationships when we deal with "natural" paradigms, those with limited phonemic possibilities due to "sound symbolism" (Nichols 1998; Campbell 1997, pp. 240-252).

To show that deep phyletic links can be established I offer just two examples (2-3) from the Pontic phylum (Indo-European (PIE) and Northwest Caucasian (PNWC)) that are based upon reasonable (albeit complex) sound correspondences, but more crucially also show a high degree of idiosyncratic derivational morphology and hence have the hallmarks of being very ancient. The resulting Pontic forms also have very limited and specific meanings.

(2) Pontic 'run', 'horse' = (aspect)+ run + excess/emphatic

a. Pontic */w-x̌ə-ʔá-/ → */x̌˚əʔá/ → PIE */ḫ˚ʔá-/ → /ḫ˚əʔ-/ by early back-formation (anit)

b. P(roto-)N(orth)w(est) C(aucasian) developments

i. */x̌ə-ʔá-/ → */x̌q̄'á-/ → */x̄q̄'á-/ → (by lagging assimilation in cluster) */x̄q̄á-/ → (by cluster simplification) Ubykh /q̄á-/ 'to run' (early change)

ii. (?)*/ƛ̌a-x̌ə-ć̌a-wa/ after-run-more-predicative → */ƛ̌a-x̌ə-ć˚á-/ → */ƛ̌x̄əc˚á-/ → Ubykh /x̄əc˚á-/ 'he who overtakes a wandering beast or an abducted maiden'

iii. */w-x̌ə-(ʔá)-/ → */x̌˚(ʔ)á-/ → */x̌˚a-/ → */č'ə-x̌˚a-rə/ horse-run-prolonging sfx → Circassian /šx̌˚arə/ 'alarm, pursuit by horse'

iv. */x̌ə-(ʔá)-/ → */x̌(ʔ)á-/ → */x̌a-/ → */p'ə-x̌a-rə/ point\front-run-prolonging.sfx → Circassian /px̌arə/ 'pursuit, alarm'

v. */w-x̌ə-ʔə́-/ → */x̌ʔ˚ə́-/ → */x̌˚q̄'˚ə-/ → Proto-Abkhaz-Abaza */x̌˚q'˚ə-/ → */q'˚ə/ → Abaza /ʕ˚ə-ra/ 'to run,' /ʕ˚-ʕ˚ə-ra/ 'to race' (either intensive reduplication or ← */q'˚ə-q'ə-/ with renewed intensive)

vi. */x̌ə-ʔə́-/ → */x̌q̄'ə-/ → */x̌q'ə-/ → */q'ə-/ → */ʕə-/ → Abkhaz "(aš^{y}tax^{y}) à a-(rá)" (/(aš^{y}tax^{y}) ʕa-(rá)/) (after) run-(infinitive) = 'to pursue, follow'

c. Glottalic PIE derived forms

i. ə-grade root */ḫ˚əʔ-k'ẃ-s/ (*OeE-ḱw-s)

ii. restored ə-grade derivative stem */ḫ̥ʔ-ə́kʿ-w-a-s/ (OE-é-ḱw-o-s)

iii. zero-grade stem */ḫ̥ʔ-ə́-kʿ-w-a-s/ → */ḫ̥ʔ-ə́-kʿ-w-a-s/ (OE-ə́-ḱw-o-s)

(3) Pontic 'fire', 'that which descends (from heaven),' i.e. 'lightning'

a. Pontic: */pʿa-x̂˚ə-r/ ignite/strike.down(ward)-fall-abs/ger = 'that which strikes downward (said of lightning), that which ignites something,' later 'fire' */pʿa-x̂˚ə-n-i/ …-obl-dat = 'in the fire'

b. PIE: */pʿaxˇ˚ə-r/, Hitt paḫḫur 'fire' (nom-acc), paḫḫweni 'in the fire' (dat),

c. PNWC: */-pʿa-/ 'down', 'to descend'; 'to ignite, as with lightning', WCirc /-pʿa-λaλa-/ -down-dangle-, Ub /-fa-/ 'to ignite', */-x̂˚ə-/ 'to fall', WCirc /-fə-/, ECirc /-x̂˚ə-/.

Despite all of my reservations, I think that the Nostratic hypothesis is not unreasonable on any *prima facie* grounds. Allow me to put forward a slightly different model, Post-Glacial - X (where X denotes a wave/expansion number). I suggest the following time depths: PIE ~ 6.5 kilo-years (kyrs) ; Pontic ~ 8-9 kyrs; Post-Glacial (PG) -2 ~ 11-12 kyrs; P-G-1 ~ 14 kyrs, for this model. With the reader's indulgence I shall use the declarative mood, but a subjunctive spirit should be inferred.

The first post-glacial expansion was roughly at 12,500 BCE with the retreat of the last ice sheet. At this time of 14.5 kyrs BP (Before the Present) there was a "language-bubble" in southwestern Eurasia, centering upon the glacial refugium of the Caucasus and extending up into the steppes behind the glaciers. The first expansion within this bubble gave rise to the ancestors of Uralo-Elamo-Dravidian (see McAlpin 1974; Tyler 1968) with shifts to the north, east, and southeast. This was PG – 1. It left Proto-Samoyed on the northern rim; Proto-Yukaghir on the northeast rim; Uralic toward the western half; Proto-Altaic was in center or northeast of the expanded bubble, with Proto-Korean and Proto-Japanese (PK-J), or more precisely the complex from which they would descend, toward the eastern rim. Proto-Indo-European (PIE) and the North Caucasians remained on the southwestern rim. Among these the Northeast Caucasians (NEC) (of Daghestan) had links to the southeast with some of the ancient languages that were to emerge in the Middle East (such as Urartean – Hurrian, and perhaps Sumerian). These links may have extended as far east along what is now northern Iran to the

present Afghan – northern Pakistan area to end with the ancestor of Burushaski. Proto-Kartvelian (South Caucasian, consisting of the mother of Georgian, Mingrelian, Laz, and Svan) was to the south in northern Middle East. Its relationship to the rest of the language bubble was distant at best.

At 11-12 kyrs BP PG - 2 expands toward the east and the northeast. Proto-Korean-Japanese (PKJ), or the complex from which the two derive shifted eastward, and the ancestors of these two languages diverged from each other. Perhaps slightly later, Altaic expands (at perhaps 10 kyrs BP). The effects of this "secondary" expansion (PG-2.2) was to sever Uralic from Elamo-Dravidian (ED), with the latter being pushed southward into the Middle East, the Iranian plateau, and the Indian sub-continent. Because of the ED intrusion NEC was severed from Burushaski, with the latter becoming marginalized in northern India. As Proto-Altaic (PA) continued to expand it absorbed the languages that lay between the original PA and the PK-J complex, setting Proto-Korean and Proto-Japanese along divergent paths. The northeast rim of PA remained conservative, as befits marginal members of a family, but the center, Proto-Hunno-Turkic (PHT) developed vowel harmony, along with Uralic. Some vowel harmony crept northeastwards into Proto-Mongolic and Proto-Manchu-Tunguzic. The resulting configuration of PG-2 would have been : Proto-Turkic – Proto-Hunnic – Proto-Mongolic - PTunguzic – Proto-Manchu, then a wider gap with Proto-Korean and a gap to Proto-Japanese.

The expansion of PIE would could then be renamed as PG-3 with dates of 4.5 – 6 kyrs BP.

Yet the preceding is purely a fantasy and there are barriers to its fulfillment that must be overcome to lend it any credibility. Henceforth I shall confine myself to comparing Pontic (PIE and PNWC) with Altaic (PA), simply because this is the stage to which my research currently reaches.

First, there is the discrepancy between the sound systems of Pontic and Altaic (4). The vocalic systems are comparable, but the Altaic consonantal system lacks the ejectives seen in pontic, while having voiceless sonorants and a full complement of nasals, neither of which is posited for Pontic. Similar source feature problems arise even within IE, where Anatolian shows two and Tokharian one, while the rest of the family gives solid evidence for at least three. At the phyletic level this problem is almost routine. For example, in the putative phylum "Macro-Siouan" (Chafe 1976;

1973; 1964; Campbell 1997: 262-269) the Siouan languages typically show a four-way source feature contrast, Caddo from a three way to a single series, and the Iroquoian languages have only one series. The canonical PA system is geared to reflect Korean and Japanbese developments (4, i), which is curious given that these languages are the most divergent from the family (if indeed they are cognates at all). In (4, ii) have presented a system that reflects more central Altaic patterns based upon Turkic, Mongolic, and Tunguzic data. Curiously enough, this "improved Altaic" moiré closely resembles marginal (and therefore presumably old) IE languages, such as Germanic. I offer tentative shifts for the source features in (4, iii).

(4) Source features of Pontic and Proto-Altaic

i. Golttalic PIE + PNWC = Pontic (NWC conservative), PA geared to K-J needs

Pontic									P-Altaic						
pʿ	p	b	-			m	w		pʿ	p	b	(f)	(v)	m	w
tʿ	t	d	t’			n			tʿ	t	d	s	z	n	
cʿ	c	ʒ	c’	s	z	r						ḷ	l		
ƛʿ	ƛ	λ	ƛ’			l						ṛ	r		
ć ʿ	ć	ʒ́	ć’	ś	ź										
čʿ	č	ǯ	č’	š	ž				čʿ	č	ǯ			ɲ	
kʿ	k	g	k’	x̂	ĝ				kʿ	k	g	(x̂)		ŋ	
qʿ	q	-	q’	x̌	ɣ				qʿ	q	-	(x̌)	ɣ		
				ḥ	ʕ										
			ʔ	h											
i		u								i		u			
(e)		ə, o								e		o			
		a										a			

ii. Improved Altaic, similar to Pontic

Improved P-Altaic (2nd and 3rd columns, split old lenis series)

pʿ	p	p’	β	(f)	(v)	m	w
tʿ	t	t’	ð	s	z	n	
				ḷ	l		

ṛ r

čʿ č č’ ǯ ɲ

kʿ k k’ ĝ x̂ ŋ

qʿ q q’ ɣ x̌

iii. Source feature shifts between the various branches

PA					Tung/Manch				Mong				Hunno-Turkic				PK-J			
pʿ	p	p’	β	→	p/f-	p	b	b	h-	p	b	b	ø	p	b	β	p	p	p	b/-w-
tʿ	t	t’	ð		t	t	d	d	t	t	d	d	t	t	d	d	t	t	t/d	d
kʿ	k	k’	ĝ	→	x-	k	g	g	k	k	g	g	k	k	g	ĝ	k	k	k/h	g/-ø-

The chief effect of (4, ii) is to split the old “lenis” series into an ejective and voiced series. I shall comment further on the motive for this shortly.

One should note the overall richness of Pontic as opposed to the relative poverty of Altaic. This can be seen as a strength, however, rather than as a disadvantage. The languages of the Caucasus, including Pontic, stand apart from the others across Eurasia, whether modern or ancient, on the basis of the profusion of their consonants. In fact, the emergence of vowel harmony (VH) in Altaic can explain Pontic (NC) richness: The VH of southwestern Altaic led to front and back consonantal variants, as depicted in (5):

(5) Linear representation of vowel hgarmony

i. rule

V[±back] C → V[±back]C[±back] (or [±dark] instead of [±back])

ii. edffects

PG-2(SW) *c → *c/*ć, *č → $č^{y}$/*č, *k → *k/*q

The many points of articulation characteristic of the north Causcasus can be seen as due to VH loss in that region. The shifts in vowel quality were reinterpreted as differences in consonants. This was carried to an extreme in the northwestern region , rendering Pontic with a vertical vowel system (Colarusso 1994).

The secondary origin of voiced segments in PA (columns 2 and 3) is thought to have arisen late in the history of the family, with consonants voicing before advanced tongue root vowels, (6). This is seen as a natural process because advancing of the tongue root expands the pharynx. This expansion in turn permits more air to flow across the larynx during the occlusion of a stop, causing it to be voiced. Now, while it is true that most voiced stops show facultative pharyngeal expansion ([+advanced tongue root]), the converse is not true.

(6) Supposed secondary voicing in Altaic

C → [+voice] / _____ V (supra-glottal distenion)

[+ATR] (= [+tense])

Furthermore, for vowels that are back and non-high, especially for back low vowels, no pharyngeal distension is apparent, so one would not expect consonants to become voiced in this environment. In fact, given this long stganding problem with [advanced tongue root] many phoneticians now prefer the earlier term [tense] for such vowels. Across the board voicing before [+tense] vowels is not a wide spread process. Voicing loss is probably far more likely within the history of Altaic and accords better with the Mongolic and Tunguzic data than does (6).

Finally, Altaic lacks the "laryngeals" seen in Pontic. Using the cover symbol 'R' for these pharyngeals and laryngeals (all sonorant), one has the pattern of vowel-lengthening shown in (7).

(7) "Laryngeals"

i. VR → V: in PIE,

ii. Rs conserved in PNWC,

Furthermore, long vowels are often realized as [+tense]. Long vowels in turn may be taken back to a series of vowel + R, (8, i) If some of these Rs were pharyngeals, then these may have given rise to front vowels by causing low first formants in adjacent vowels, a process known as emphatic palatalization (Colarusso 1985). This would enable us to explain the typologically unusual mon-vocalic roots seen in Turkic and

Hunnic, as in (8, ii). This early fronting may have given rise to vowel harmony in Turkic. Careful examination of laryngeal-liked traces across all of Altaic may lead to a deeper understanding of vowel quality, vowel harmony, and root typology. See the summary in (8). Any reconstruction of source feature contrasts would also have to take cognizance of these vocalic and sonorant effects.

(8) Long vowels, tense vowels, and "laryngeals"

i. *V[+long] → V[+tense], implies *VR → *V[+long]

ii. *V roots are unusual (PHT /ö-/ 'to think'), perhaps *RV- → *V-

iii. old laryngeal source of VH due to low first formant:*ḫo- → *ḫö- → ö-

iv. Lost laryngeals of PA could have set stage for VH and for long([+tense]) Vs.

Another hurdle in comparing Altaic to Pontic is the poor match between the morphological systems. In PIE the dominant pattern is R(oot)-sfx with some pfx-R forms; in PNWC its is pfx-R with some R-sfx forms; in Altaic the dominant pattern is R-sfx-sfx-…, often called agglutinating. Two comments are in order. First, whether a language uses prefixes or suffixes is to some extent determined by its preferred word order. V(erb)S(ubject)O(object) order tends to favor pfx-R morphology, while SOV order favors R-sfx patterns. SVO order shows mixed morphology. The variations between the families therefore is not in itself an independent distinction, nor is it an unbridgeable gap. In fact, Pontic tends to be of mixed morphological type, pfx-R-sfx, suggesting an old SVO order, now beyond retrieval from the daughter languages, which tend to be SOV in their oldest forms. Morphological typology was no serious encumbrance to reconstructing the lineaments of Pontic. Second, the agglutinating aspects of Altaic are perhaps due to secondary creolization since the Turkic languages, at least, are highly regular and the oldest Turkic, the Orkhon inscription, seems to have had modest suffixation. In addition PNWC and the oldest level of PIE are modestly agglutinating. Therefore, there is no serious morphological hurdle in comparing these families.

With limited resources (largely Menges' monograph in manuscript form) and time I was able to put forward only seven number of cognates for my Post-Glacial proto-

phylum. Two of these are old putative cognates, marked as [OLD]. They are root cognates, with morphology assumed to be later developments in emerging branches.

(10) Root Cognates (OLD) [new are unmarked] (with many Uralic forms)

i. (OLD) 'skin, bark' PG. *kˤo-(ʕ)-z-: Uralic: *kōr-→ Finn kārna, kuari, Lapp ǥoaran; PA *kˤōz- → Tung, Solon xēr-, Turk qāz; PIE *kor- → Slav kora, Lith karnà , Lat cortex, (NO Pontic)

ii. (OLD) 'cold, to grow cold, shiver' PG. *kʾ(e/o)-ƛ-: Uralic *kVl- → Finn külmä, PA *koƛ- (*kʾoƛ-) → Tung kelde, Mong kül-dä-, Turk kösü-, PIE *kʾəl- → Lat gelidus, PIE *kʾal- → Gmc *kaliz → Eng cold.

?iii. 'dark, dusky, obscure' PG. *koλ- → PA *qara- ; Pontic *qoλ- → Circ qˀaλaź, qˀaaɣa 'raven', PIE *qˤər-(s-)/*qər-(s-) → Skr krsnah, Pers kur- (taboo distortion), Gmc *xer-yo- → Gm herr, PGk *kor-yo-, Lat car- 'army; warrior, dark one', Russ. černyj.

iv. 'to go' PG *ʔey-/ *ʔy- → Pontic*ʔ(ə)y- → PIE *ʔ(ə)y- → Lat i-te, Skr ayanam 'a going away', PWN *y- → Abaza y-ra, PA *ya- → T. yadaɣ 'on foor', -iyor- 'continuous aspect', Mong yada-ɣu, 'weak, poor'

?v. 'to do, to set hand to, hand' PG *kʾɯ- → PA *qɯ-ɬ- → T. qɯ-ɬ-, Mong ki-, Tng Evenki kö- 'to do, to have in mind', Pontic *ʔa- → Abkh -qʾ-…(-cʾa-) 'to do, to set hand to', Circ -qa- 'in hand verbal prefix', PIE*ʔə- → e- augment of past tense in Greek, and a- in Skr.

vi. 'to strike, injure by striking, kill' PG. *w- → PA*wā-'to kill', PNWC*-w-'to strike (out) at', *-w-a- 'to strike-in-, to injure', no PIE

?viii. 'girl' PG. *x̌a-, Pontic*śumcʾa → PNWC*x̌a- → Ub x̌aɣˀa 'you (fem. slave), *śumcʾa → WC śˀəz 'woman', x̌ˀ-śˀəmcʾa → Bzyb Abkh ḫˀšša 'girl'; → PIE *-x̌a → -ā fems. and abstracts,*swəsar (*swesor) 'sister'; PA *x̌ə-śəmcʾa → PHT *x̌ə-śəz → T. qyz 'girl'.

My preliminary search for morpheme cognates was substantially more successful, yielding eighteen matches, three of them old. Of these three are typologically unusual

(11, 12, 13) and offer the strongest case for some distant form of relationship between the languages involved.

(11) (OLD) Interrogative, and Relative Pronouns

a.	Uralic	Altaic	PIE	PNWC	Pontic	PG
interrogatives	*ku-	*ku-/ki-	*kˀa-	*śa-, *z-	-	*ku-
relatives	*yo-	*nä-	*ya-	*y-/*-z-	*y-/-z-	*ɲa-

All languages have interrogative and relative morphemes. It is typologically "normal" for a language to utilize interrogative forms to introduce relatives clauses modifying persons while it prefers a general subordinator for relatives of things. So, one might have 'the man who/that…' or 'the idea which/that …,' with 'man' preferentially taking 'who' and 'idea' preferentially taking 'that.' When an interrogative is used for a relative clause it is extending its function of requesting information to that of offering of extra information. What is not normal is to find a language in which interrogatives are prohibited from any relative role. Yet, this is precisely what has long been recognized for Uralic, Altaic and PIE. This is so odd as to stand almost alone as proof that these families have some sort of close and very ancient link. Borrowing is unlikely because languages rarely borrow pronouns. The only example I can think of comes from English where they, them, she are Viking, -'em, her are native. Theerfore the parallels in (11) suggest an old phylum.

The personal pronouns have also been recognized as having strong similarities, as in (12).

(12) (OLD) 1st, 2nd pronouns and endings (clitics)

	Uralic	Altaic	PIE	PNWC	Pontic	PG
first sg	*mon	*ma-	*ʔə-k'-an(s)	-s-	*-k'-	*ma-, *-m-
		(*ba-)	*ʔə-m-	*-m-		
first ending	-m	-ym	-m-i	-s-	*-m-	*-m
2nd sg	*ti(n)-	*t- (*s-)	*tʿu-	*tw-	*tʿw-	*tʿi-/*tʿu-

2nd, pl.	*-tte	ti-(Mong)	*-swa-	*ś˚-	*św-	*św-i-

Pronominal systems seem to draw from a restricted phonological inventory, so caution is needed here. Note, for example that Alsea (a language isolate of California) has Proto-Salishan verb-endings, and Proto-Eastern Miwok (North California) has verb-endings that look like those of PIE. Also Mednyj Aleut has borrowed Russian verb-endings (all from Campbell 1997: 246, 247, 245). Furthermore, for the second plural it is assumed that some sort of dissimilation has been at play between the original fricative and */w/, with the phonological skeleton's two slots still preserved in Uralic. Still, the forms in (12) suggest remote cognate status.

The old ordinal suffixes in (13) are less striking, but still offer some support for cognate status. The forms suggest an old use of the oblique case, seen in (17, b).

(13) (OLD) ordinal suffix:

i.Hunnic (Chuv) -măš,

iii. Turkic (5, 8, 9, 10) -am,

iv. PNWC -ana

v. PG *-ama

Two new morpheme cognates, however, offer evidence that is as striking as that in (11) or (12). Proto-Hunno-Turkic (PHT, as opposed to all of Altaic) offers two unmotivated causatives. Cognate causatives occur in PNWC where they split according to the plurality (14, i, ii) or singularity (14, iii, iv) of the affected argument.

(14) Causative: sg ~ pl split:

i. PHT *-ɣur/*-qur, PNWC *-ɣa-caus.pl,

ii. Pontic *-ĝ(a)- → *-ɣa-, PIE*-əy-

iii. PHT *-t(ur), Ubykh -d-caus.sg

iv. PG causatives *-ĝ-(pl), *-tʿ- (sg)

This is typologically very unusual and strongly supports a distant genetic link.

The plethora of plurals and collectives attested in Altaic also find detailed parallels in PIE, PNWC, and at the level of Pontic, as in (15).

(15) Plurals and Collectives:

i. PHT *-t coll(ective), PIE *-tʿa coll, PG *-tʿ

ii. PHT *-r coll, PIE *-r pl, PNWC *-r- 3rd.pl, Pontic *-r-, PG *-r

iii. PHT *-yz pronominal pl, PIE *-s pl, PG *-z

iv. PHT *-la pl, Uralic Mordvin -wylä , Ub -ɬa- coll., PG *-ƛa

Given the extra syllable ion the Mordvin form one might even fancy that the Chukchi self-designation, 'people', is remotely cognate with 'free (people)' in PIE plus an old Post Glacial collective, Luorawetlan (Cukchi, Kerek, Koryak) luora-weƛa people-pl, and PIE *ʔl-əw-d-a- 'free (people),' plus PG * -wə-ƛa. This sort of tantalizing parallel, merely a coincidence as it now stands, could if supported by further parallels lead to assigning the languages of this easternmost Asiatic family to an ancient southwestern family. Chukchi would then be a surviving first wave PG-1 language. This state of affairs would make the Luorawetlan languages intrusive into northeastern Asia and would explain the discontinuity between the Sino-Tibetan and Na-Dene families, which have been linked at a phyletic level (Shafer 1952).

The remaining morpheme cognates (16) – (28) are less striking, but nonetheless decent examples. In aggregate, they form a respectable case for Post-Glacial as a super phylum. Where a form can be taken beyond Proto-Hunno-Turkic, I have lebelled it as PA, Proto-Altaic.

(16) Adverbial Endings

a. PHT *-ra direction, Pontic *-r-id., PG *--r-

b. PHT *-(y)la(n) with, Pontic *-l- instrumental, PG *-la-

c.

(17) Cases, Directional Suffixes

a. dative: PA *-a, PIE -i, PNWC *-a, Pontic *-y-a, PG *-y, *-a

b. lative: PA *-n, Pontic *-m oblique case, PG *-m

(18) Auxiliaries, Con-verbs

a. durative: PHT *V-w+tur, Pontic V-w+tʿ-w/-r -pred+stand-pred/-pr.part,
PHT V-p+tur, Abkh -p' pres.stative, PG *-p+tʿ-, *-w-tʿ-

b. 'to run, walk': PHT *V-yorɯ, Pontic -y-a-r 'go-th.v.-smooth. motion',
PG *-y-a-r-

c. 'to give': PHT *V-ber, PIE *ber (*bher-) 'to carry', PG *-βer

d. 'to remain': PHT *V-qaɬ, PNWC *-ʔa-ƛ 'horizon-lie' ("to stay"), PG *-ʔa-ƛ-

(19) Equative/Comparative

PHT *-ča, PNWC *-šʿʸ, Ub ċa-, PIE *-y-s-tʿa, *-y-s-da, Pontic *-(y-a-)ćʿ də(+da),
PG *-can

(20) Intensive

PHT *-k-, PNWC *-sx̂o, PIE *-skʿ(ə/a)-, Pontic *-sx̂-, PG *-skʿ-

(21) Definite Perfective

PHT *-t-/-d-, PIE *-t-/-d- 3rd.past, PG *-t-

(22) Aorist

PHT *-(V)r,PIE *-r 3rd.impersonal endings, PNWC *ra- id, *-ra- indef.pres,
Pontic *r-, *-ra, PG *-ra

(23) Subjunctive/Optative

PHT *-t/da future, Tung, -da supine, Mong -tu- imperative,
PIE *-da (*-dha) medial, PNWC *-t- indef.fut, Pontic *-t- subj/opt,
PG *-ta

(24) Gerund

PHT *-(V)p, Tung -pi, Manchu -fi, Abkh -w-p', PG *-pʿ/-p' (??)

(25) Deverbal Nouns

PHT *V-a, PIE *CəC- → *CaC-, PNWC N → V Cə- → Ca-,

Pontic *-a, PG *-a

(26) Old Suffixes

PHT *kö-r 'to see', *kö-z 'eye', PNWC *-r 'smooth motion', *-z past.part,
PG. *-r verbalizer, *-z gerund

(27) Old Formative

PHT *-ma, PNWC*-ma, PG */-ma/

(28. Compounding

PHT *W+m+W, PNWC *W+n+W [typologically unusual!],
PG *W+M+W

All the preceding may be very tempting, but there are at least eight impediments remaining before any of it can be considered as proven. Suspicion and plausibility are not enough.

Limited results: need DEEP examination of Altaic and Uralic for old morphology

2. Complex derivational morphology will make disentanglement difficult.
Turkic: ö- 'to think', ö-g- 'thought', ög-ra- 'reason, mind', ögra-t- 'to teach', ögra-n- 'to learn'; morphemes lack cognate contexts, stand isolated.

3. Lack of grammatical class prefixes in Altaic; occur in PNWC, NEC, and Burusha
BUT grammatical class markers did not play a role in PIE, so is surmountable.

' 4. Where to stop? Diminishing residue of cognates will terminate the effort. If a L retains 75% of its word stock per kyr (highly conservative),
then R(esidue) = WStock (exp[-r x n]), r = retention rate, n = number of kyrs:
1kyr R = 75%, 2 kyrs R = 56%, 3 kyrs R = 42%, 4kyrs R = 32%, …, 14 kyrs R = 1.8% (!)

5. How big is Altaic? Hunnic + Turkic + Mongolic + Tunguz-Manchu + Korean + Japanese + …

6. Greenberg would include Luorawetlan 'people' (PIE *leud-; Uralic *-wəƛa, PG *ʔəle-w-ð-wəƛa), and Eskimo-Aleut on the basis of 1st, sg -ig m-, 2nd.sg -ig t-, presumably from earlier *-ig (1st, abs), *m- (1st, obl), *t- (2nd)

7. Others would include Uralic + Yukaghir + (even) Ainu + Gilyak/Nivkh +

Costanoan (+ Miwok) (of California) with Altaic

8. Is PG a northern outlier of Kartvelian (PC) + Asianic (+Sumerian) + Afro-Asiatic?
   a. Kartvelian is very distant from Pontic/NC, was more southerly originally, sound systema and root structure are similar, plus extensive ablaut, but no obvious "laryngeals;" part of "Macro-Caucasian," (Hattic (NWC), Vannic, Urartean, Hurrian, Sumerian, sub-strata of Anatolian)
   b. Pontic/NC + K + Semitic + rest of AA might form a chain going south across N Africa, and ending with Ibero-Basque (to the delight of many officianados).

M. Conclusions.

a. CLEAR: PIE + PNWC form a phylum with PNEC somewhat removed, but cognate, let us call it Proto-North-Caucasian.

b. PNC is NOT part of Sino-Tibetan-Burman-(Yeniseyan (Kett-Kott-Baykot-)Dene; these come from an eastern glacial "refugium."

b. Japanese and Korean are distantly related to one another

c. PK-J + Altaic constitute an extended family, "Extended Altaic, "(like Indo-Hittite is extended IE)

d. PNC (+Burushaski)+ Altaic + Uralo-Elamo-Dravidian may constitute an "extended" phylum, "Post-Glacial-x"

e. Post-Glacial-x + Kartvelian + Asianic (Sumerian??) + AA may form a "super phylum," during last glaciation ≥ 15 kyrs BP), in the Caucasus, Middle East, and supra-Saharan Africa. Cognates would be ≤ 1.3% of current word stocks: root patterns: CV-,CVC-, with suffixes, compounds, ablaut, "laryngeals", see (g, below)

f. Alternatively - non-transitive cognate chains with proto-foci (wave theory):
   i. cog(nate)(A, B), cog(B,C), but ~cog(A, C),
   ii. Proto-AB, Proto-BC might be retrievable, but Proto-AC would not be or would look vague at best and not satisfy criteria of proof

g. "super-phylum"G (a dream of suspicion without proof!):

pᶜ	p	p'	β		m	w		i	u
tᶜ	t	t'	ð	s	n			e	o
cᶜ	c	c'	ʒ			r		a	

ƛˁ	ƛ	ƛ’	ƛ	ɬ		l
čˁ	č	č’	ǯ	š	ɲ	y
kˁ	k	k’	ĝ	x̂	ŋ	
			ʕ	ḫ		
		ʔ		h		

(1994, c) Proto-Northwest Caucasian, or How to Crack a Very Hard Nut, The Journal of Indo-European Studies 22.1-2: 1-35 [reprint of an article in Howard I. Aronson (ed.), The Non-Slavic Languages of the USSR, Linguistic Studies, University of Chicago: Chicago Linguistic Society, 1989, pp. 20-55].