
Time Perspective and Proto-Indo-European Culture

Author(s): J. P. Mallory

Source: *World Archaeology*, Vol. 8, No. 1, Archaeology and Linguistics (Jun., 1976), pp. 44-56

Published by: [Taylor & Francis, Ltd.](#)

Stable URL: <http://www.jstor.org/stable/124298>

Accessed: 13/03/2014 19:45

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Taylor & Francis, Ltd. is collaborating with JSTOR to digitize, preserve and extend access to *World Archaeology*.

<http://www.jstor.org>

Time perspective and proto-Indo-European culture

J. P. Mallory

Introduction

The use of linguistic palaeontology to reconstruct the culture of the prehistoric speakers of the Indo-European (IE) language family is now well over a century old, and its basic methodology is generally known. A comparison of cognate words among the IE languages affords one the possibility of reconstructing the earlier phonetic shape and meaning of their proto-form. For example, the series of cognates evidenced by Sanskrit *áviḥ* 'sheep', Greek *ó(w)is* 'sheep', Latin *ovis* 'sheep', Lithuanian *avis* 'sheep' etc., permits one to posit a Proto-Indo-European (PIE) **owis* 'sheep' and assign this item to the cultural universe of the PIE speakers. Optimistically, many scholars hoped to correlate the linguistically reconstructed culture traits with archaeological evidence of the Late Neolithic-Early Bronze Age in order to delimit the prehistoric distribution of the PIE language. In actuality, even the most spatially restricted PIE faunal, floral and technological items have proved so extensive that they accommodate nearly all of the conflicting solutions to the IE 'homeland' problem independently proposed by archaeologists. Moreover, the numerous instances of egregious overinterpretation of the linguistic data and the very real methodological problems involved in producing a reasonably convincing reconstruction of PIE culture have cast a good deal of suspicion on the results of linguistic palaeontology. Among the numerous methodological issues, the problem of co-ordinating the time depths of the reconstructed cultural items with each other and with the archaeological evidence has been of constant interest to prehistorians. This brief review of the time depth problem will attempt to sample the possibilities and pitfalls of linguistic palaeontology in that language family where it has been most extensively applied.

The problem of synchrony

Even before the twentieth century it was argued that linguistic palaeontology did not provide a valid cultural picture of the speakers of the IE proto-language since there was no guarantee that the reconstructed proto-forms were synchronic with one another. According to Paul Kretschmer, the theoretical basis of linguistic palaeontology rested on the fallacious equation of two distinct concepts: the real PIE language from which the attested IE languages must have been genetically derived, and a Common-Indo-European (CIE) representing the linguistic reconstructions generated by the comparative

method. There was no certainty that each proto-form appearing in CIE was actually inherited from the time of the real PIE language rather than the result of inter-language borrowing after the expansion/diversification of the PIE language. One could only determine the relative order of the phonetic changes which a word underwent before emerging in the historically attested IE languages. For example, PIE **g^wōus* 'cow' is reconstructed from Sanskrit *gáuh*, Old High German *chuo*, Greek *boūs*, Umbrian **bōs* Old Irish *bó* etc. One might then conclude that a word **g^wōus* 'cow' had spread among the prehistoric speakers of the IE language family before the **g^w* of **g^wōus* had become *b* in Greek, Umbrian and Old Irish. There was no certain evidence that a real PIE community at the unknown time of its existence was familiar with this word or the cultural item to which it referred. Kretschmer contended that 'the diffusion of the individual words which one was accustomed to lump under the term "PIE" not only could but no doubt did fall in quite different periods of IE linguistic history' (Kretschmer 1896: 22).

Kretschmer's criticism has been echoed throughout the twentieth century. J. Fraser argued that linguistic palaeontology could only offer a misleading 'composite photograph' of the culture of the IE speakers through time. There was no certainty, for example, that the IE speakers acquired their word for 'beech' in the same area or at the same time as their word for 'horse'. Fraser offered a cautionary tale based on a linguistic reconstruction of 'Proto-Romance' culture from the Romance languages wherein we should be able to retrieve words for 'king', 'priest', 'bishop', 'coffee' and 'tobacco', and thereby produce a quite ludicrous image of Roman culture (Fraser 1926: 268). More recently, Ernst Pulgram has warned that the application of linguistic palaeontology 'can only result in illusory findings' since it confuses the reconstructed language with a real PIE language 'which is not actually placeable in time and place' (Pulgram 1959: 424). The criticism that the culture attributed to the speakers of the IE proto-language may be an erroneous compilation of chronologically different culture traits has not so much undermined linguistic palaeontology as prompted attempts to seriate the reconstructed lexicon. Indo-Europeanists have employed three different approaches for stratifying the lexicon of the IE proto-language:

- 1 an approach based on the morphological complexity of the reconstructed words,
- 2 one founded on the semantic development of commonly inherited words in the IE daughter languages, and
- 3 a method founded on the geographic distribution of the cognate words themselves.

Morphology and lexical-cultural seriation

The employment of morphological (grammatical) evidence to lexical data in order to recover a relative chronology is a familiar approach to lexical-cultural seriation. The relative antiquity of stockbreeding among English speakers, for example, is linguistically supported by the irregular (archaic) plural formations of such terms as *ox/oxen*, *cow/kine*, *sheep/sheep* etc., and is contrastive with more recent cultural pursuits which consistently display the more regular *s*-plural formation (Anttila 1972: 573). A similar

approach has been extended to the prehistoric IE vocabulary, especially by A. Nehring (1936), F. Specht (1944), and H. Kuhn (1953).

A. Nehring proposed that the nouns of the reconstructed PIE lexicon could be assigned to three general linguistic periods. The earliest of these periods was linguistically marked by nouns that formed their nominative case with one stem suffix but employed a different stem for the other cases. Nouns so formed were believed archaic since such irregular formations (heteroclitics) were not active in the IE daughter languages. The antiquity suggested by the linguistic evidence was supported by the semantic field of the heteroclitics since they designated only the most basic cultural terms, *e.g.* 'light', 'day', 'year', 'water', 'fire', the seasons, parts of the body etc. (Nehring 1936: 149). The second period was marked by all other stem formations except the *o* and *ā*-stems, and was thus defined as the period mediating the oldest and most recent formations. The final period was linked to the *o* and *ā*-stems which were quite productive in most IE languages and filled out a culturally more recent semantic field. For example, a root stem PIE **sūs* 'wild pig' was assigned to the second period and was followed by PIE **por̥kos* 'domesticated pig', an *o*-stem which was both morphologically and culturally later than PIE **sūs*. Similarly, PIE **ek̑wos* 'domesticated horse' was assigned to a more recent stage of the PIE language on both morphological and cultural grounds (also Wagner 1958: 64).

Co-ordinating archaeological data and his scheme of lexical-cultural seriation, Nehring went on to draw a number of inferences about the location and development of the IE language family. For example, since PIE **k̑won* 'dog' was not a heteroclitic formation of the earliest period, this argued against setting the IE homeland in Northern Europe where dog remains had been known dating from the Mesolithic (Nehring 1936: 68). Since PIE **bhereǵh-os* 'birch' was an *o*-stem, it was incongruent with a homeland in Central Europe where the birch had been known from the earliest times (1936: 211–12). Among the IE languages there are a number of cognate sets for 'goat' which usually appear in no more than three daughter languages. Of these, the *o* and *ā*-stems clearly dominated and this indicated that the domestic goat was a very late cultural acquisition of the IE speakers (1936: 110–11).

F. Specht employed a somewhat more cautious and less precise seriation by placing the heteroclitics along with the other stem formations except the *o* and *ā*-stems into the 'irregular' or archaic category. The *o* and *ā*-stems were naturally the repositories of the later cultural items. For example, the words for copper, gold and silver all exhibited archaic stem formatives as opposed to those words in the IE languages for the later metals, *e.g.* Greek *sídēros* 'iron', Latin *ferrum* (<**fersom*) 'iron', Gothic *eisarn* (<**isarno-*) 'iron', all of which were *o*-stems. Where the evidence of Specht's archaeologically determined IE homeland in Northern Europe contradicted the morphologically seriated lexicon, special pleading was introduced. For example, PIE **ek̑wos* 'horse', **wl̥k̑wos* 'wolf' and **r̥tkos* 'bear' were all *o*-stems although one might expect them to have been morphologically more archaic since the latter two items were known from the Palaeolithic and the wild horse was known in Northern Europe since the Mesolithic. Therefore, Specht explained **ek̑wos* as an old *u*-stem, ***eku-*, that had been re-formed as an *o*-stem during the later period. The particular root vocalism in the two wild animal names was aberrant for verb-derived nouns, *e.g.* **wl̥k̑wos* 'the ripper', and thus they

too might be considered archaic (Specht 1944: 37). Like Nehring, Specht designated the goat as a late cultural acquisition since it was not reconstructible from more than three IE subgroups. This was believed to accord well with the archaeological evidence that the Corded Ware culture (IE speakers) had expanded southwards and only gained the goat from the Balkan agriculturalists who had been practising goat breeding throughout the Neolithic (Specht 1939: 13).

The most recent attempt at lexical-cultural seriation on morphological grounds has been made by Hans Kuhn (1954) who disregarded stem suffixes as chronological diacritics and proposed that the mechanism of vowel alternation (ablaut) and the appearance of an *a*-vocalism in the root were the most distinctive markers of time depth in PIE. Kuhn advanced the theory that the names of the domesticated animals and the terms for agriculture and metallurgy all sprang from a period when ablaut ceased to be an active mechanism in PIE and the *a*-vocalism, an aberrant vowel in the reconstructed IE phonetic system, was introduced. According to Kuhn, none of the names of the domestic animals indicated that they were formed when ablaut was still active, i.e. the evidence of the cognates uniformly reconstructed the same root vocalism. Even the wild animals such as PIE **wlkʷos* 'wolf' were also post-ablaut and culturally more recent terms. Kuhn argued that the wolf would not have gained cultural significance until it had become a threat to the IE domestic livestock, therefore, it would lexically date to the same period as the domestic animals. The agricultural terminology was also entirely post-ablaut and was frequently characterized by an *a*-vocalism in the root, e.g. PIE **dam-* 'to tame', **ar-* 'to plough', and **ag-* 'to drive cattle'. Like Nehring and Specht, Kuhn also regarded the domestic goat as a later cultural item since there was no evidence for ablaut in the six cognate sets. The occurrence of this *a*-vocalism in the names of the earlier metals, e.g. **ayes* 'bronze' (?), Latin *aurum* 'gold', *argentum* 'silver' in contrast to the different root vocalisms of the later metals, e.g. Greek *sidēros* 'iron', Latin *ferrum* 'iron' etc., all indicated that the period of the *a*-vocalism flourished from the Neolithic to the Bronze Age and had ended by the Iron Age (Kuhn 1954: 158–9). Kuhn associated the *a*-vocalism agricultural terms with the expansion of the PIE speakers out of the east into the Balkan and Central European Neolithic communities where there was also evidence for a system of allegedly non-IE river and place names in which the *a*-vocalism dominated.

Semantics and lexical-cultural seriation

W. Brandenstein contended that it was not morphological complexity but rather the semantic development underlying the common roots inherited in the individual daughter languages that provided the most sensitive indices of time depth (Brandenstein 1936a, 1936b, 1957). He reasoned:

The various IE peoples became independent at various moments in the semantic developments [of the inherited PIE words] and have either maintained this moment of development or have gone on from there on their own course. Because of this, the various phases of semantic change have been collected by us. Moreover, it happens that we are able to order these phases chronologically . . . (Brandenstein 1936a: 25).

Brandenstein observed, for example, that several reconstructed meanings could be assigned to the root **sē(y)-*: 'to throw', 'to throw dice', and 'to sow'. Indo-Iranian evidence indicated only the first two meanings whereas the European IE languages all evidenced the sememe 'to sow'. Although the phonetic shape of the root was the same, there appeared to be a semantic break between Indo-Iranian and European. The division was consistent with a cultural break between the two language areas which indicated different periods of IE cultural development. The first was one in which all of the IE languages shared common meanings for the same roots and exhibited an economy based on pastoral nomadism. The second period occurred after the separation of the Indo-Iranian speakers from the ancestors of the European languages who went on to develop an economy based on settled agriculture. For example, PIE **agros* found its meaning petrified in Indo-Iranian as 'meadow, plain', while in European it had further developed to mean 'cultivated field'; **mel-* meant 'to soften, to weaken' from the Indo-Iranian evidence, while the European speakers had extended it to mean 'to mill, to grind grain' etc. This caesura was augmented by differences in other semantic spheres. The early period, for example, was replete with terms for hills, cliffs, running water and warm weather, while the second period was marked by the further semantic development or even the creation of new terms in the European languages indicating a moister climate, marshlands etc. Brandenstein concluded that the IE languages had been formed in the area of the Kirghiz steppe near the original stockbreeding centre of the Near East. The second period reflected the economic and environmental shift to Eastern Europe, captured in the common semantic developments of the European languages.

Geolinguistics and lexical-cultural seriation

Attempts to seriate the cultural development of the IE languages on spatial criteria are associated with the norms arising from the geolinguistic (or neolinguistic) school of M. Bartoli, who advanced several norms for determining the age of a linguistic feature by the geographic distribution of different cognate words (the age and area hypothesis). This approach has been extended to IE cultural words, especially in the works of G. Devoto (1931, 1941, 1962) and G. Bonfante (1934, 1939).

Devoto illustrated the method by which a relative chronological ordering of lexical-cultural terms might be accomplished through geolinguistics. A PIE **egnis* 'fire' is found in a number of non-contiguous IE languages, e.g. Latin *ignis*, Lithuanian *ugnis*, Sanskrit *agnih*. On the other hand, PIE **pūr* 'fire' is found in a more central group of languages, e.g. Greek, Umbrian, Germanic, Old Prussian. Since the independent development of **egnis* in the peripheral languages can be *a priori* excluded, one then assumes that this word was once spread among all of the IE dialects but has since been left in the outer periphery with the more recent **pūr* replacing it throughout the more central area (Devoto 1962: 187–88). There was even an underlying semantic distinction between the two words that indicated a cultural shift among the IE speakers. PIE **egnis* falls in the animate gender and was deified by the ancient Indians as a 'mysterious vital force' whereas its later replacement, PIE **pūr*, was a neuter connotating fire only as a material instrument (Devoto 1931: 91). This downgrading of its religious connotations was part

of one of the favourite concepts of the geolinguistic approach to the IE lexicon – the ‘democratic revolution’ of the centre.

G. Bonfante argued that the presence or absence of a word such as PIE **rēgs* ‘king’ among the different IE subgroups could not be due to chance since the term was too full of socio-political import. IE cognates for this word only occur in the marginal languages: Celtic, Italic and Indic, and not in those languages constituting the geographic centre of the IE speaking world. The geolinguistic norm that marginal areas tend to preserve archaisms while the central zone is more innovative suggested that the IE peoples were earlier under a strong authoritative system, evidenced by **rēgs*, which was later displaced – still in prehistoric times – by a revolution ‘which destroyed the politico-religious edifice of the ancient Indo-Europeans’ (Bonfante 1934: 269). This central area, approximating to that of the present-day Slavic languages, shared a number of such aristocratic losses or the social downgrading of previously upper class words; for example, PIE **ner-* ‘aristocratic warrior’ or **pāter* ‘father’ (with important juridical connotations) were both lost in Baltic and Slavic but retained on the IE periphery (also Devoto 1931; 1941).

The geolinguistic approach did not distinguish a relative chronology for the names of the domesticated animals except for the goat, which was again interpreted as a late acquisition because of its weak overall attestation (Devoto 1962: 259).

Observations

Even ignoring the validity of the methodological approaches, one may dispute many of the lexical-cultural conclusions so far presented on purely substantive grounds. For example, most Indo-Europeanists would agree with E. Benveniste (1949) that the distinction between PIE **sūs* and **porkos* was not between a wild and a domesticated pig as suggested by Nehring but rather between the adult and young domesticated pig. Kuhn’s proposition that the names of the domesticated animals postdated PIE ablaut is directly contradicted by PIE **gʷōus* ‘cow’ in both declension and composition (Thieme 1954: 62–63) as well as by other examples. Brandenstein’s conclusions were frequently supported by invalid evidence, e.g. PIE **mel-* does underlie Sanskrit *mṛṇtāi* ‘to mill, to grind grain’ (Thieme 1939; Mayrhofer 1956: 672–3), which contradicts the conclusion that Sanskrit did not inherit a sememe of the agricultural sphere with this root. Rather than discussing these and similar issues of more limited philological interest, I shall confine my remarks to the more general problems of time depth and the IE proto-language.

At the very best, linguistic palaeontology reconstructs the cultural vocabulary of prehistoric communities immediately prior to the diversification of the attested IE languages. Indo-Europeanists have been rather consistent at estimating this period – the ‘real’ PIE of Kretschmer and Pulgram – to c. 3000 B.C. ± 500 years. Attempts to apply glottochronology to dating PIE (for those who believe in its efficacy) have generally found major language separations by 3500 B.C. (Swadesh 1960: 245–52; Wittmann 1969: 5; Tischler 1973: 100, but note that Tischler rejects the method altogether). The problem of setting a *terminus ante quem* on linguistic evidence can only be answered with the first historical attestations of already individualized IE languages. Hittite appears c. 2000 B.C. while Indic (already separate from Iranian) and Greek are known

DWA

from c. 1500 to 1300 B.C. Employing the minimum extrapolation, we should imagine that major language splits occurred at least by the period 2500 to 2000 B.C. (cf. Crossland 1972).

If one wishes to employ archaeological correlations with the PIE vocabulary to set a *terminus ante quem* for the maintenance of linguistic unity, then the wheeled vehicle and associated terms are temporally most diagnostic, i.e. the most recent technological concept solidly reconstructed from most of the IE languages. Wagon remains are known in Transcaucasia for the Kura-Araxes culture (Piggott 1968) which may fall c. 3700 to 3400 B.C. in the recalibrated radiocarbon chronology (Gimbutas 1973: 171–5). The wagon may be known in the North Pontic as early as Gimbutas' Kurgan II period, c. 4000 to 3500 B.C. (Gimbutas 1974: 298), and it appears in south-eastern Europe as clay models in the Baden culture, which would set it to c. 3400 to 2850 B.C. (Neustupný 1969: 805), and later throughout the rest of Europe. If the first appearance of the wagon in all of these areas is proximate to the dates cited, the relative linguistic uniformity of the dialects ancestral to those historically attested in the IE family should have existed up to at least c. 4000 B.C. if not considerably later, depending on the location of the homeland area.

Deciding the chronology of PIE purely on archaeological evidence seems to be the most dubious approach to the time depth problem. One might assume, for example, a general homeland region such as the North Pontic-Volga steppe region proposed by M. Gimbutas (most recently, 1974) and supported by many others, and then argue a chronology of linguistic differentiation from the evidence of cultural expansion. The expansion of the Kurgan (PIE?) tradition from the North Pontic into Romania occurred by c. 4000 to 3500 B.C.; and if one should further assume that it would take a millennium for a linguistic split to occur between the home and colonial area, then we might expect linguistic differentiation by 3000 B.C. Also, one would need to assume that the colonial area was invaded by immigrants speaking a language directly ancestral to historically attested languages and not some pre-PIE language which plays no part in the PIE diachrony as we perceive it by the comparative method. All of this discussion requires appeals to general norms for the temporal and spatial vectors that would affect linguistic divergence of a particular language occupying a particular geographic area with specific variables of social organization and communication systems – none of which have been yet established with empirical data. Finally, we might attempt to set a *terminus ante quem* with the dates of the Battle-Axe and Bell Beaker cultures of Central and Eastern Europe which fall c. 2900 to 2400 B.C., since they are generally held to be ancestral to already differentiated IE speaking groups. Given the questionable theoretical foundations of these archaeological approaches to chronology, I doubt that they can provide specific chronological diacritics. It would seem then that PIE, the linguistic phenomenon immediately prior to the differentiation of the IE daughter languages, can only be very loosely confined to a diachrony of c. 4000 to 2500 B.C.

The reconstructed PIE language should also be envisioned as a diachronic phenomenon. To be sure, Kretschmer's reduction of the comparative method to the simple ordering of phonetic changes has rightly been refuted by P. Thieme, who found in the comparative evidence an ancestral linguistic system that could only have existed when 'we project the scattered examples in all the individual languages back to a common period in which they were all associatively combined with one another' (Thieme 1954:

63). Whether it is a century or a millennium that might accommodate this ‘common period’ seems impossible to determine; and I believe that we must reckon with lexical reconstructions that may not be wholly synchronic. This is in part due to the gradually created language splits between the different communities. A solid PIE reconstruction normally requires cognates in most of the IE languages, cognates in geographically non-contiguous languages, e.g. Celtic, Greek, and Indic, or cognates of such considerable morphological complexity that borrowing may be reasonably excluded. Since every reconstruction is not based on identical criteria, it is possible that we may reconstruct to PIE terms that are not wholly synchronic. For example, neither of the two common PIE terms for ‘wheel’ (**k^wek^wlos* and **roto-*) are known from Hittite texts, but rather we find *hurki-*, a word of IE derivation but unconnected with the reconstructed PIE wagon nomenclature. Possibly the common PIE forms have merely been replaced; possibly the dialects ancestral to Hittite already separated from the other IE dialects before **k^wek^wlos* and **roto-* were current throughout the remaining PIE-speaking area. There might then be a chronological difference between **k^wek^wlos* and, for example, **rt^kos* ‘bear’ which is attested in Hittite and the other IE languages.

The whole problem of erroneously assigning late lexical borrowings to the PIE period should be approached along the lines suggested by W. Dressler: we should only accept as PIE inheritances those words for which there is sufficient linguistic evidence to argue against late inter-language borrowing (Dressler 1965: 36–48). It would seem unlikely that after *c.* 2500 B.C., the period by which considerable linguistic differentiation should have been under way, many loan words would be mistakenly interpreted as *solidly* reconstructed to PIE. Again we must reckon with a loose diachrony for the lexically reconstructed proto-culture of the IE language family.

The lexical-cultural picture gained by linguistic palaeontology does provide a ‘composite photograph’ of the cultural accumulations of the IE speakers up through the period of the PIE diachrony. This is natural since culture itself is cumulative. That PIE might have contained archaisms as Fraser warned is, of course, possible, but it seems unlikely that we should be able to provide a solid reconstruction for a proto-word which had lost its referent in the proto-culture, since this would involve the retention of a linguistic archaism in different subgroups and its parallel reapplication to the same cultural item.

Lexical-cultural seriation founded on morphological evidence assumes that we may treat reconstructed PIE on a synchronic plane and argue chronology from internal evidence. In an absolute sense this is probably false since we have no way of confining the linguistic evidence to anything less than a time plane of a millennium and a half. Whether this is too great a period to assume a heuristic synchrony or is not so great as to affect the validity of the morphological approach seems impossible to assess.

The internal reconstruction employed in morphological seriation can at best order the flexional type, not the root morphemes. For example, the inherited English reflex of PIE **g^wōus* ‘cow’ appeared in Old English as *cū/cȳ*, in Middle English as *cou/kine*, and is now *cow/cows*. Although there have been three different plural formations in the last 1,500 years, the root morpheme signalling the meaning ‘cow’ has continued through this entire period. It would be preposterous to assume that, given only the contemporary evidence, the lexical item *cow* is only as old as its *s*-plural period. Equally specious are

any conclusions regarding the age of the root morpheme in **ekwos*, **wlkʷos* etc., as discussed by the scholars reviewed above. Neither the root morpheme nor its referent are necessarily tied to the age of the flexional type (cf. Arumaa 1949).

It is also erroneous to assume that inherited inflexional types or root morphemes need reflect the 'original' word for a given cultural item. To imagine, for example, that PIE **wlkʷos* 'wolf' need be somehow correlated with the IE speakers' first acquaintance with the wolf is to assume that the proto-language existed at a time proximate to the origin of speech itself. To paraphrase N. Collinge's study of linguistic palaeontology (1970), PIE is simply 'post-wolf IE', and the linguist can say little of its earlier lexical-cultural existence. Even among the domesticated animals we have reason to expect a considerable time lag between their first appearance among the pre-PIE speakers and the proto-language diachrony from which we inherit the lexical forms. The IE speakers were likely to have known the domesticated cow by *c.* 5000 B.C.; perhaps they referred to it under a form similar to **gʷōus*; perhaps a root morpheme **gu-* existed with a flexional type we have not inherited or cannot reconstruct since it was remodelled by the PIE period; or perhaps they called the object a **moo* and only replaced it with the form we reconstruct *c.* 3500 B.C. The only possible aid here is an archaeological correlation where we might assess the distance between when an item may have been known and the projected dates for the proto-language itself. For example, since wheeled vehicles among the IE speakers would seem to be a quite late development, it is less likely that there has been considerable change from the initial referent to the inherited form. In any event, discussion begins with archaeological parameters for potential time depths of items, and chronological conclusions can never be safely drawn from the linguistic evidence alone.

One must be cautious in utilizing archaeological parameters since linguistic referents are not necessarily direct correlates of prehistoric items. For example, the word for goat in seriation studies has been frequently judged very recent and the item assigned to late PIE or post-PIE. As a prehistoric item, however, the domestic goat is known throughout the proximate IE homelands from the same time as the other well reconstructed animal names (cf. Murray 1970; Bököny 1974). There are thus no archaeological grounds to believe that the goat itself was not known to the IE speakers at the same time as the other basic domesticates. To account for its lexical treatment one can suggest several hypotheses: (1) the goat is well anchored in the PIE diachrony (Thieme 1954: 42–7); (2) the attested forms for goat are later replacements for an earlier name, e.g. Germanic *horse* replaced the PIE **ekwos*, Old English *eoh* in our own language; (3) the ancient PIE speakers did know the goat but did not classify it lexically under a separate word from **owis* 'sheep' until the latter term became wholly attracted to the wool bearing animal during the Late Neolithic, thus prompting the creation of new terms for the non-sheep, i.e. goat. The last hypothesis is purely conjectural and is merely intended to emphasize that an archaeologist deals with his own sets of cultural categories and that these need not be equivalent to those of the language whose cultural remains he is studying.

Chronological judgement can only be made from morphological evidence when we have a root morpheme associated with a non-productive flexional type, and we can date when it ceased to be productive. In reconstructed PIE this borders on the impossible. Although the heteroclitics constitute the best case for non-productivity in IE, even they continue on into Hittite in some ostensibly late semantic concepts, e.g. *ašumar* 'pen,

fold'. And even if we can determine the loss of productivity, we can say no more than that the root morpheme was probably as old as the flexional type; we cannot say that root morphemes associated with this type are necessarily older than those associated with later flexional types since we can generally expect considerable remodelling of non-productive types, e.g. *oxen* is not older than *cows* in a cultural sense (cf. Sapir 1949: 442).

Brandenstein's lexical-cultural seriation of the IE language family on semantic grounds was theoretically founded on a dubious 'law of the irreversible semantic shift'. While criticism of Brandenstein's handling of evidence is considerable in itself (e.g. Pisani 1937; Specht 1939), the major theoretical objection should concern his one-way semantic change. In an illustration of the simple clarity of this concept, Brandenstein offered the following short example: 'When Germanic **fehu* "livestock" (= Latin *pecu* "livestock") has the meaning "wealth" in Gothic *faihu*, then the semantic shift in question is only possible in this direction: "livestock" > "livestock possessions" > "possessions" > "monetary possessions" > "wealth", just as Latin *pecunia* means first of all "livestock possessions" and only secondarily "possessions" and "wealth"' (Brandenstein 1957: 24). In a more recent study of this word from PIE on into Indo-Iranian, E. Benveniste has attractively argued that the original meaning was actually 'movable personal property' and was later attracted into increasingly tighter semantic classes: 'livestock' > 'small livestock' > 'sheep' (Benveniste 1970). Without going into the details of Benveniste's exegesis of this word, it should be enough to observe that one can make an excellent case for reversing the 'irreversible semantic shift' proposed by Brandenstein. The use of semantic criteria to establish a lexical-cultural seriation – at least by W. Brandenstein – appears to have been founded on a method too arbitrary to produce convincing results.

Lexical-cultural seriation founded on geolinguistics has frequently made invalid use of negative evidence. The 'democratic revolution' of the central area, for example, rests on the non-attestation of certain political terms such as **rēǵs* 'king' among languages that are only themselves attested in comparatively late times. One cannot project back into the late PIE period conclusions founded on the non-attestation of words in Slavic which is not recorded until the ninth century A.D. and in Baltic which does not emerge until the fourteenth century. Even if all the norms of geolinguistics were true (and there is good reason to reject this assumption, cf. Hall 1946), the evidence employed should be synchronic and chronologically proximate to the period of one's reconstructions.

In addition, lexical-cultural seriation based on geolinguistics often creates lexical isoglosses of supposedly temporal value that contradict the morphological isoglosses of the IE languages. Sanskrit shares a number of supposedly late morphological features with Greek although it retains the 'older' word for fire (**egni*s). On the other hand, two peripheral languages which are frequently considered archaic show different words for this concept, i.e., Latin *ignis* but Hittite *paḥḫuwar*, which is supposedly more recent although it is a heteroclitic. Even the area where the religio-centric **egni*s should have been first replaced exhibits both reflexes for the word for fire, i.e. Lithuanian *ugnis* but Old Prussian *panni*. It seems more logical then to assume that there were two PIE words for fire of indeterminate chronological origin, possibly with a semantic distinction, but where they have been attested is due more to fortuitous factors than reflecting anything of the lexico-cultural development of the PIE language.

Conclusions

Linguistic and archaeological evidence has not as yet suggested any greater temporal precision for dating the IE proto-language than its inclusion within a diachrony of c. 4000 to 2500 B.C. All attempts to effect archaeological correlations with the linguistically reconstructed culture traits should take this diachrony as their field of inquiry. The PIE diachrony should also be conceived as a somewhat arbitrary segment of the linguistic and cultural development of Eurasia. Attempts to achieve greater chronological control of the lexical-cultural development through the PIE diachrony appear unconvincing with respect to methodology as well as their handling of the empirical data. Finally, the conclusion that PIE is a diachronic phenomenon would seem to frustrate any attempts to propose static borders for a PIE culture or homeland defined by the boundaries of a single archaeological culture at a particular time. The spatial delimitation of PIE cannot be expected to be more precise than its temporal definition.

Acknowledgements

I wish to thank Joan Puhvel for a number of useful corrections, R. A. Crossland and Marija Gimbutas for providing me with bibliographical assistance, and J. Jones and E. J. Stern for comments on an earlier draft of this paper.

27.vi.1975

Topanga, California

References

- Anttila, R. 1972. *An Introduction to Historical and Comparative Linguistics*. New York: Macmillan.
- Arumaa, P. 1949. Semantics and age of declension. *Apophoreta Tartuensia*, pp. 73–8. Stockholm.
- Benveniste, E. 1949. Noms d'animaux en indo-européen. *Bulletin de la Société de linguistique de Paris*. 130:74–103.
- Benveniste, E. 1970. Les valeurs économiques dans le vocabulaire indo-européen. *Indo-European and Indo-Europeans*, pp. 307–20 (eds G. Cardona, H. Hoenigswald and A. Senn). Philadelphia: University of Pennsylvania Press.
- Bököny, S. 1974. *History of domestic mammals in Central and Eastern Europe*. Budapest: Akadémiai Kiadó.
- Bonfante, G. 1934. Notas sobre el vocabulario céltico y latino. *Emeritas*. 2:263–306.
- Bonfante, G. 1939. Civilisation indo-européenne et civilisation hittite. *Archiv Orientalní*. 11:84–90.
- Brandenstein, W. 1936a. *Die erste 'indogermanische' Wanderung*. Vienna: Gerold.
- Brandenstein, W. 1936b. Die Lebensformen der 'Indogermanen'. *Die Indogermanen- und Germanenfrage: Neue Wege zu ihrer Lösung*, pp. 231–77. [= *Wiener Beiträge zur Kulturgeschichte und Linguistik*, 4]. Salzburg-Leipzig.
- Brandenstein, W. 1957. Etymologica. *Studies presented to Joshua Whatmough on his sixtieth birthday*, pp. 23–7 (ed. E. Pulgram). 's-Gravenhage: Mouton.

- Collinge, N. S. 1970. Prehistory via language: some guidelines. *Collectanea Linguistica*, pp. 49–66. The Hague: Mouton.
- Crossland, R. A. 1972. Recent re-appraisal of evidence for the chronology of the differentiation of Indo-European. *Acta of the 2nd International Colloquium on Aegean prehistory*, pp. 46–55. Athens: Ministry of Culture and Sciences.
- Devoto, G. 1931. Preistoria di lingue e di cultura. *La Cultura*. 10:1–14.
- Devoto, G. 1941. Il problema indeuropeo come problema storico. *Romana*. 5:360–8.
- Devoto, G. 1962. *Origini indeuropee*. Firenze: Sansoni.
- Dressler, W. 1965. Methodische Vorfragen bei der Bestimmung der 'Urheimat'. *Die Sprache*. 11:25–60.
- Fraser, J. 1926. Linguistic evidence and archaeological and ethnological facts. *Proceedings of the British Academy*. 12:257–72.
- Gimbutas, M. 1973. The Beginning of the Bronze Age in Europe and the Indo-Europeans: 3500–2500 B.C. *Journal of Indo-European Studies*. 1:163–214.
- Gimbutas, M. 1974. An archaeologist's view of PIE in 1975. *Journal of Indo-European Studies*. 2:289–307.
- Hall, R. 1946. Bartoli's 'Neolinguistica'. *Language*. 22:273–83.
- Kretschmer, P. 1896. *Einleitung in die Geschichte der griechischen Sprache*. Göttingen: Vandenhoeck and Ruprecht.
- Kuhn, H. 1954. Ablaut, *a* und Altertumskunde. *Zeitschrift für vergleichende Sprachforschung*. 71:129–61.
- Mayrhofer, M. 1956–. *Kurzgefasstes etymologisches Wörterbuch des Altindischen*. Heidelberg: Carl Winter.
- Murray, J. 1970. *The first European agriculture: A study of the osteological and botanical evidence until two thousand B.C.* Edinburgh: Edinburgh University Press.
- Nehring, A. 1936. Studien zur indogermanischen Kultur und Urheimat. *Die Indogermanen- und Germanenfrage: Neue Wege zu ihrer Lösung*, pp. 7–229 (ed. W. Koppers). [= *Wiener Beiträge zur Kulturgeschichte und Linguistik* 4]. Salzburg-Leipzig.
- Neustupný, E. 1969. Absolute chronology of the neolithic and aeneolithic periods in Central and South-East Europe II. *Archeologické rozhledy*. 21:783–810.
- Piggott, S. 1968. The earliest wheeled vehicles and the Caucasian evidence. *Proceedings of the Prehistoric Society*. 34:266–318.
- Pisani, V. 1937. Re. Wilhelm Brandenstein. Die erste 'indogermanische' Wanderung. *Annali della R. Scuola Normale Superiore di Pisa*. Ser. II, 6:177–83.
- Pulgram, E. 1959. Proto-Indo-European reality and reconstruction. *Language*. 35:421–6.
- Sapir, E. 1949. Time perspective in Aboriginal American culture: A study in method (1912), *Selected Writings of Edward Sapir in Language, Culture and Personality*, pp. 389–462 (ed. D. G. Mandelbaum). Berkeley and Los Angeles: University of California Press.
- Specht, F. 1939. Sprachliches zur Urheimat der Indogermanen. *Zeitschrift für vergleichende Sprachforschung*. 66:1–74.

Specht, F. 1944. *Der Ursprung der indogermanischen Deklination*. Göttingen: Vandenhoeck and Ruprecht.

Swadesh, M. 1960. Unas correlaciones de arqueología y lingüística. *El problema indoeuropeo*, pp. 343–52 (ed. P. Bosch-Gimpera). Mexico: Universidad Nacional Autónoma de México.

Thieme, P. 1939. Drei altindische Wurzeln mit Tiefstufemr. *Zeitschrift für vergleichende Sprachforschung*. 66:232–37.

Thieme, P. 1954. Die Heimat der indogermanischen Gemeinsprache. [= *Akademie der Wissenschaften und der Literatur: Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse*, 11]. Wiesbaden.

Tischler, J. 1973. *Glottochronologie und Lexikostatistik* [= *Innsbrucker Beiträge zur Sprachwissenschaft*, 11]. Innsbruck.

Wagner, H. 1958. Indogermanisch-Vorderasiatisch-Mediterranes. *Zeitschrift für vergleichende Sprachforschung*. 75:58–75.

Wittmann, H. 1969. A lexico-statistical inquiry into the diachrony of Hittite. *Indogermanische Forschungen*. 74:1–10.

Abstract

Mallory, J. P.

Time perspective and Proto-Indo-European culture

The problem of reconstructing a synchronic Proto-Indo-European culture from the linguistic evidence is introduced. Some of the major attempts to effect a cultural seriation from the lexical development of the Proto-Indo-European language are briefly examined and criticized. It is concluded that Proto-Indo-European as both a linguistic and cultural phenomenon can only be confined to a loose diachrony dating *c.* 4000 to 2500 B.C.