

is confirmed by the fact that whereas 62% of the Old English basic vocabulary has exact cognates in Gothic, only 21% has exact cognates in Latin. The percentages are much higher between, for instance, Lithuanian and Old Church Slavonic or between Avestan and Vedic, which accords well with the phonological and grammatical evidence for their respective affinities.

It is not easy, however, to convert indices of affinity into criteria for measuring the length of time that separates two affine languages from their parent language. When the glottochronologists of 30 years back came out with the preposterous conclusions that English and Dutch must have diverged in the mid-9th century and Italian and French in the 16th or that Greek diverged from Armenian four centuries before it diverged from Latin (pp. 115–16), it was no wonder that the whole enterprise was discredited.

The trouble was twofold. First, the generalized figure of 14% (or with a larger basic vocabulary 19%) was based on very crude and simplistic analyses of the data. It can be shown, for instance, that 65.2% of the basic vocabulary of Old English survives in Modern English with its original morphology and meaning and only 4% has disappeared entirely. On the other hand, 12.9% of the Modern English basic vocabulary has no Old English ancestry whatever. However, not only were the glottochronologists' figures unreliable: there is also, as Renfrew insists (pp. 117, 123), no justification for their hypothesis that the rate of lexical replacement is always constant. It is determined by many variable factors, such as bilingual interaction with neighbours, elite dominance, and other forms of population mixture, and is therefore as language-specific as the tempo of phonological or grammatical change.

The second relevant linguistic procedure is the comparative reconstruction of the Proto-Indo-European lexicon. From the range of cognate semantic equivalents in different languages it is possible to build up a picture of the proto-lexicon and from it to infer something of the physical surroundings and culture of the Proto-Indo-European-speakers. The arbitrary and unrigorous methods that have characterized much of this linguistic palaeontology certainly deserve Renfrew's scepticism (p. 75). Nevertheless, some progress has been made, and more is possible.

Most of the lexemes that can be confidently assigned on the basis of widespread attestation (e.g., \*g<sup>w</sup>her- 'hot', \*ped- 'foot', \*penk<sup>w</sup>e 'five', \*en 'inside', \*bher- 'carry', \*swep- 'sleep') do not tell us much.<sup>1</sup> Where the same

meaning is carried by two or more lexical roots, it is often difficult to decide whether (a) one is original and the others innovatory, (b) more than one belonged to the proto-lexicon but there were differences in meaning, or (c) all are innovatory, either because the original word has been lost or because the thing itself did not belong to the Proto-Indo-European "world" before the dispersal.

Thus, while \*w<sup>l</sup>k<sup>w</sup>o- 'wolf' and \*g<sup>w</sup>e<sub>3</sub>w- 'cow', for instance, are widely enough attested to justify their places in the proto-lexicon, many other roots are more problematic. Thus four different roots are used for "wheel": (1) \*dhregh- 'to run' in Greek *trokhós*; (2) *reth-* 'to run, roll' in Latin *rota*, Lithuanian *rātas*; (3) \*k<sup>w</sup>el- 'to rotate, turn' in Old Church Slavonic *kolo*; and (4) its reduplicated form \*k<sup>w</sup>ek<sup>w</sup>lo- in Old English *hwēol*, Vedic *cakráh*, Tocharian *kukāl*. Some languages attest more than one, as Old Irish *droch* and *roth* 'wheel', *cul* 'cart' and Avestan *čaxrō* 'wheel', *raθō* 'chariot'. From all this it looks as if "wheel" was not in the proto-lexicon and the various words for it were created independently after the dispersal, in some areas no doubt by loan-translation from adjacent Indo-European dialects/languages.

The horse also figures prominently in discussions of Indo-European prehistory (see pp. 38–39, 137–38, 194–95). Five different roots are attested: (1) \*marko- in Old Welsh *march*; (2) \*kurs- (?) 'to run' in Old English *hors*; (3) \*<sub>2</sub>er- 'to plough' in Lithuanian *arklūs*; (4) \*kob- (?) in Old Church Slavonic *konjъ*; and the widespread (5) \*ekwos in Old Irish *ech*, Latin *equus*, Vedic *ásvah*, Avestan *aspō*, Tocharian *yakwe* (and perhaps Greek *hippos*). Here we might infer that the proto-lexicon contained several words for the animal, depending upon its functions, as Lithuanian has *žirgas* 'steed' beside *arklūs* and Old English *eoh* (< \*ekwos) 'war-horse' beside *hors*, or that the animal was known only in some areas of Proto-Indo-European speech and the original word, \*ekwos perhaps, was therefore dialectal and the others innovatory after the dispersal. However, the fact that in modern Europe Greek *álogo*, Italian *cavallo*, and German *pferd* are all innovations, as against *hippos*, *equus*, and *hors* respectively, counsels caution. A single root across the languages would be conclusive for the proto-lexicon; a multiplicity of roots is inconclusive either way.

Lexical arguments for the reconstruction of Proto-Indo-European cultural institutions and concepts are even more hazardous. The triadic speculations of Dumézil and his disciples deserve even more sceptical treatment than Renfrew gives them (pp. 251–55), and even Benveniste's work in this field, mentioned more approvingly (p. 261), is often more stimulating than persuasive. Renfrew himself has little positive to say about all this, partly because his main concern is with the interface between archaeology and linguistics, partly also because his theory of the original Indo-European community leaves little room for institutions.

And yet the "egalitarian peasants" who spread slowly out of eastern Anatolia from around 6000 B.C. onwards, introducing their new technology and their language to such hunter-gatherers as lay in their path (pp. 148–50, 205–6, 266), can hardly have been an incoherent rabble.

1. *k<sup>w</sup>* and *g<sup>w</sup>* denote post-palatal stops with lip-rounding (labio-velars), *a<sub>1</sub>a<sub>2</sub>a<sub>3</sub>* the so-called laryngeals, probably voiced fricatives, *a<sub>2</sub>* imparting an *a*-colour, *a<sub>3</sub>* an *o*-colour to the adjacent vowel. The conventional reconstruction of the Proto-Indo-European occlusives is retained throughout, viz., for the labials *p b bh* (and a more recent *ph*) rather than *p/ph p' b/bh*, as advocated by Gamkrelidze (1981) and Hopper (1981). The allophonic variation assumed in the new "glottalic" theory raises a host of derivational problems, and the typological arguments mounted against the conventional theory lose much of their force if the system *p b bh* is assumed to belong to a transitional state. The glottalic theory may well be appropriate at some earlier stage of Proto-Indo-European (see Martinet 1986), but for the terminal stage reflected in the attested languages the conventional theory is still the least unsatisfactory.