

Many thanks to David, Robert, and the other bloggers for the kind words! I'll certainly keep sending Mark chunks to post. Here are some quick answers to Robert's questions.

The Hittite word for 'wheel' is *hūrkiš*, and it resembles Tocharian A *wärkänt* and Tocharian B *yerkwantai* (oblique case; the nominative is not attested) enough to make us want to derive them from the same inherited root. The obvious choice is the ancestor of Vedic Sanskrit *vṛj-* 'twist' (aorist 3sg. injunctive *várk*, subjunctive *várjati*, etc.), and it's straightforward to reconstruct a PIE root **h₂werg-* 'turn'. (There are probably other cognates too—Latin *vergere* 'to bend, to incline' looks like it ought to fit—but I haven't got all the relevant references here at home.) But when you investigate these 'wheel'-words in detail, the results are dismaying: even the Tocharian words can't reflect exactly the same preform, and the Hittite word is obviously an independent derivative. Here's what I mean about the Tocharian forms. From the fact that an initial **w-* has been palatalized to *y-* in TB we can infer that the following *e* must reflect pre-Tocharian long **ē*. But TA *ä* can't reflect **ē*; the closest sound that it could reflect is short **e*. Moreover, if the preform had a second **w* after the **k*, as the TB form clearly does, then the second TA *ä* should have been rounded to *u*; but clearly that has not happened. For those reasons we can't even reconstruct a Proto-Tocharian form for 'wheel'; we can't say exactly what Tocharian word replaced the inherited word when the latter's meaning was shifted to 'wagon'.

So though the Hittite and Tocharian words are probably derived from the same PIE root, it seems clear that they were derived independently—and that obviously offers no support at all for a PIE word for 'wheel'. In the current state of our knowledge, the most we can say is that the common ancestor of the non-Anatolian branches had a word for wheel (which of course could have been invented not long before the pre-Tocharians took off for the Altai).

As for cases of **e* becoming *i* in Greek: there are few, and most of them are confined to single dialects and are obviously very late developments. (For discussion of individual cases see e.g. Carl Buck's book *The Greek dialects*, U. of Chicago Press 1955.) But now that you mention it, there's an odd word that shows an unexpected vacillation between *e* and *i*. In Homeric Greek it's *δέπας* /*dépas*/, and it refers to some kind of drinking vessel. The same word apparently shows up on the Linear B tablets,

roughly half a millennium earlier, but there it's spelled *di-pa* (the syllabary doesn't allow for the spelling of most syllable-final consonants). Since there is no good IE etymology for such a word, the best guess is that it was borrowed from some non-IE language which had a different vowel system. It wouldn't be that surprising if 'horse' were somehow implicated in all this. But of course we need more evidence (a lot more!).

On the domestication of horses the leading authority is David Anthony, who has been working on that and related problems for almost thirty years. (He finished his dissertation in our Dept. of Anthropology in 1985.) He says a good deal about it in *The horse, the wheel, and language* (Princeton U. Press, 2007), which is a good read; I found the hard-core archaeological chapters in part two especially interesting and informative.