

Tocharian Agricultural Terminology: Between Inheritance and Language Contact¹

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The agricultural terminology of the Tocharian languages is much debated. On the one hand, the meanings of the individual terms are difficult to determine, principally because most occur only in economic documents that often do not provide sufficient context. On the other hand, it turns out to be difficult to establish the etymology of the terms of which the meaning is known. In this paper, agricultural terminology is investigated both from a synchronic and a diachronic perspective. The following semantic categories are considered: grain, seeds and derived products, plowing, and agriculture in general. A number of terms that can be derived from Proto-Indo-European has secondarily acquired a technical meaning in Tocharian; the proportion of words inherited from the proto-language in a technical meaning is low. Some other terms are borrowed from Indo-Iranian and Chinese, and the rest is of unknown origin.

When the manuscripts in Tocharian A and B were written, in the second half of the first millennium of the Common Era, agriculture was an important component of the economies of the “Tocharian” oases of Kuča, Yānqí / Qarašähär and Turfan in the Tarim Basin in the northwestern region of Xīnjiāng of present-day China. Yet it has proved difficult to determine the corresponding vocabulary. The main reason is that the majority of the texts is of Buddhist content. These texts are all set in India and make hardly any reference to the local environment and society. For instance, although the Tocharian oases are on the Silk Road trade network, we are still in the dark about a seemingly basic word as ‘camel’ (Adams 2013: 218 is in favour

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of *koro*^{*} meaning ‘camel’; Pinault 2008: 391 suggests instead ‘mule’²), and the word for ‘silk’ could only be identified recently by Ching (2011) on the basis of ingenious and intricate argumentation. Nevertheless, when agriculture occurs in Buddhist texts, mostly in metaphors illustrating elements of doctrine, this may yield a wealth of information. Otherwise, we are dependent on the small portion of the corpus, almost exclusively in Tocharian B, that is non-religious. Many of the non-religious documents are monastery accounts, in which goods bought and sold are listed. Since these accounts are lists that hardly provide any clues to the identification of the terms for goods that occur, the arguments to establish their meanings are often particularly involved. And even when terms are identified with relative certainty, it turns out that the agricultural vocabulary is strikingly resistant to successful etymologizing, also for Tocharian standards. Notable contributions on the topic are, amongst others, Sieg (1950), Schmidt (2002), Ivanov (2003), Pinault (e.g. 2008: 368–371), Carling (2009), Ching (2010 and 2016), and Adams (2013).

In view of the possible scenario, commonly found in the literature, that after Anatolian Tocharian was the second branch to leave the Proto-Indo-European language family, Tocharian agricultural terminology is potentially informative on the question of whether and to what extent the early Proto-Indo-Europeans knew agriculture. It may further shed light on the prehistory of the Tocharian languages and the route that the ancestors of the Tocharians took from the Proto-Indo-European homeland in the steppes of Eastern Europe to the oases in the north of the Tarim Basin. A crucial point for the latter question is when the ancestors of the Tocharians entered the Tarim Basin. Did the Tocharians bring agriculture to the Tarim Basin, was agriculture already practised in the Tarim Basin when they arrived, or was it introduced later when the Tocharians were already there?

Although the importance of these questions is beyond doubt, they are not at all easy to answer, and in all probability the answer would be mixed: even when agriculture was

²An obstacle to Pinault’s argumentation is that recently the new word *etswe* ‘mule’ could be identified (Peyrot 2015: 222–223); see also below.

established in the Tarim Basin, innovations may have been introduced from elsewhere later. The fact that agriculture has a relatively long tradition in the Tarim Basin is proved by the archaeological record: in Gǔmùgōu / Qāwrigūl, the oldest Bronze Age site from the first half of the second millennium BCE, grains of two varieties were found (Debaine-Francfort 1988: 15b; cf. also Mallory 2015: 31); Xīntālā / Yeñidala, from the middle of the second millennium BCE, has yielded grains of foxtail millet (*Setaria italica*) and wheat (Debaine-Francfort 1988: 18a); among the finds of the Wǔpù / Qizil Čoqa group of the second half of the second millennium BCE were millet pancakes, ears of barley and a 90 cms long wooden plow (Debaine-Francfort 1988: 19a and image 6 on p. 17); etc.

Apart from the ancestors of the Tocharians themselves, who may have brought certain agricultural techniques and the corresponding vocabulary from Proto-Indo-European and the Proto-Indo-European homeland, the most obvious possible early sources for agriculture and agricultural innovations in the Tarim Basin are 1) the Bactria-Margiana Archaeological Complex in present-day Turkmenistan and Afghanistan; 2) the late Indus civilization, which had spread in part as far north as Gandhāra and continued in the second millennium BCE as the Cemetery H culture (Parpola 2015: 22–24); and 3) central China. While millet cultivation in Northern China is as old as the early 5th millennium BCE (Bray 1984: 434; Debaine-Francfort 1995: 315³), it is generally held that wheat and barley were introduced from the Near East (Bray 1984: 459–463; Debaine-Francfort l.c.). According to Debaine-Francfort (1995: 340), it is plausible that wheat was introduced into central China through the intermediary of Xinjiāng, where it is well attested from about 1700–1600 BCE.

In my treatment of the Tocharian agricultural terminology further below, I have relied heavily on the works mentioned above, and in particular on Ching (2010 and 2016). I have also made extensive use of CETOM. As a general caveat, I must emphasize that the meanings of many terms remain uncertain, that many other terms are unknown completely, and that

³Early rice cultivation in the wetter Yangtze area and southward is of approximately the same period (Bray 1984: 486).

etymologies are difficult to establish. Overall, I have found that the proportion of words inherited from Proto-Indo-European is low, certainly if words that did not yet have a technical meaning in the proto-language are not considered. Also the proportion of borrowings from Indo-Iranian is small, certainly compared to the relatively high number of Iranian borrowings in other semantic fields (cf. Tremblay 2005).

A word inherited from Proto-Indo-European in a technical meaning is: Tocharian A (TA) *āre** ‘plow’ < **h₂erh₃-* ‘plow’. The derivation of Tocharian B (TB) *tāno* ‘seed’ and TB *āka* ‘millet’ from Proto-Indo-European is difficult.

Words inherited from Proto-Indo-European, but with a secondary technical meaning are: TB *ysāre* ‘wheat’, TA *wsār* ‘grain’ < **ues-r* ‘spring’; TB *sātre* ‘grain’ < **g^wih₃u-* ‘live’; TB *kāta-* ‘strew, sow’, TB *śāktālye* ‘seed’, TA *śāktālyi* ‘id.’ < **(s)kedh₂-* ‘scatter’; TB *sarya-* ‘plant’, TA *sāryā-* ‘id.’ < **ser-* ‘attach’; TA *kam ā(r)e* – ‘plowshare’ < **gomb^ho-* ‘tooth’; TA *pate* ‘plowing’, TA *pātā-* ‘plow’ < **b^hed^hh₂-* ‘dig’.

Words borrowed from Indo-Iranian are: TB *yap* ‘barley’ ← Ir. **yawa-*; probably TB *tāno* ‘seed’ ← Ir. **dānā-*; possibly TB *ñemek* ‘harvest’ ← Ir. **ni-yama-ka-*; TB *miše* ‘field’, TA *miši* ‘id.’ ← Khot. *mišša-?*; TA *kappāñ* ‘cotton plants’ ← Middle Indian *kappāsa* (Skt. *karpāsa*).

Words borrowed from Chinese are: TB *tsāñkana* ‘naked barley’ ← Chin. *qīng* 青; TB *klu* ‘rice’, TA *klu* ‘id.’ ← Chin. *dào* 稻.

Words of unknown origin are: TB *lyeksiye* ‘millet’; TB *āka* ‘millet’; TB *proksa* ‘?’; TA *ñomes* ‘halter’ (?); TA *muk* ‘yoke’; TA *laši* ‘strap of the yoke’ (?).

Even though the proportion of items inherited from Proto-Indo-European is very small, it is difficult to draw any definitive conclusions from this. It is perfectly conceivable that agricultural terms were lost and then newly created or borrowed from elsewhere, or that they were simply replaced with the introduction of innovative technology. Nevertheless, Tocharian can obviously not be used to prove that Proto-Indo-European agriculture was advanced in any way. It may in addition be noted that PIE **melh₂-* ‘grind, mill’ does not have a technical meaning in Tocharian. The corresponding TB *meľ-*

and TA *maľw-* rather mean ‘crush, squeeze’ (Malzahn 2010: 776).

The most interesting case of borrowing from Indo-Iranian is probably TB *yap* ‘barley’. Since barley was introduced into China from the west, one might be tempted to think that this is the reason why Tocharian has a word of Iranian origin for it. However, as noted above, barley in the Tarim Basin dates back at least to the second half of the second millennium BCE. It is possible that there were Iranians in Xīnjiāng already before the first millennium (Kuzmina 2008: 98–107), but *yap* does not conform to the characteristics of the oldest stratum of loanwords in Tocharian; instead of *yap*, ***yepe* or ***yewe* would have been expected from **yawa-*. Otherwise, the presence of Indo-Iranian words in technical vocabulary is not surprising. To illustrate the case, the newly identified TB *etswe* ‘mule’ may be mentioned, an early borrowing from Ir. **atśwa-* ‘horse’ (Av. *aspa-*, Khot. *aśśa-*; see Peyrot 2015: 222–223).

The fact that there are borrowings from Chinese is not surprising. It may nevertheless be pointed out that the shape of the Tocharian A and B word *klu* ‘rice’ proves that this word was borrowed from Old, not from Middle Chinese. Old Chinese and the different stages leading towards Middle Chinese cannot be dated precisely, but a date before the middle of the first millennium BCE would seem plausible. In this case, it must be noted that it is certainly possible that the word was borrowed through an intermediary language.

Finally, words of unknown origin are difficult to interpret. It is of course conceivable that they represent in part vestiges of large languages that are completely lost, in particular the languages of the Indus civilization or the Bactria-Margiana Archaeological Complex (Pinault 2006). An example of a word presumably from the latter language is Tocharian B *kercao* ‘donkey’, which is similar to Vedic *gardabhá-* ‘id.’ without there being an exact reconstruction possible (see Pinault 2008: 392–395). However, obscure lexicon need not be attributable to any known source, and often it is not. There may have been other languages in the Tarim Basin that have disappeared altogether, and this is all the more true of the regions bordering it in the north and in the east. Further, terms for technological innovations may well have travelled farther than usual and

undergone more changes, and it would therefore be naive to think that the prehistory of the whole semantic field should be recoverable.

GRAIN

In the second half the first millennium of the Common Era, the principal grains in the Tarim Basin were wheat, barley and millet. As an example, the corresponding terms in Khotanese may be given. The various interpretations are given according to Bailey (1979), Yoshida (2008: 118; with Chinese and Tibetan equivalents) and Rong and Wen (2008: 109; with Chinese equivalents, and based on Khotanese – Chinese bilingual tallies).

Khotanese	Bailey	Yoshida	Rong and Wen
<i>ganam</i>	‘wheat’	‘wheat’ (<i>xiǎo mài</i> 小麥 / <i>gros</i>)	‘wheat, <i>Triticum aestivum</i> ’ (<i>xiǎo mài</i> 小麥)
<i>rrusa</i>	‘barley’	‘barley’ (<i>dà mài</i> 大麥 / <i>nas</i>)	‘highland barley, <i>Hordeum vulgare</i> var. <i>nudum</i> ’ (<i>qīng mài</i> 青麥)
<i>gau’sa</i>	‘millet, <i>Panicum italicum</i> ’	‘millet, <i>Panicum italicum</i> ’ (<i>sù</i> 粟 / <i>khre</i>)	‘millet, <i>Setaria italica</i> ’ (<i>sù</i> 粟)
<i>āysam</i>	‘millet, <i>Panicum miliaceum</i> ’	‘millet, <i>Panicum miliaceum</i> ’ (<i>mén</i> 糜 ⁴ / <i>chi tshe</i>)	‘millet, <i>Panicum miliaceum</i> ’ (<i>mén</i> 糜)
<i>aśparaji</i> <i>jsāra</i>		‘horse fodder’ (<i>qīng mài</i> 青麥 / <i>rta bra bo</i>)	

Alternative terms are, amongst others, “foxtail millet” for *Panicum italicum* and *Setaria italica*, and “broomcorn millet” for *Panicum miliaceum*.

These were not the only cultivated crops at the time. Ching (2010: 62) lists for the kingdom of Yānqí / Qaraśāhār

⁴This character has variant readings. Next to *mén*, also *mí* and *méi* occur. For the sake of clarity, I will only cite it as *mén*.

(apparently in origin Tocharian A speaking, see Ogihara 2014) the following crops based on the *Zhōu Shū* 周書 (Book of Zhou): rice, foxtail millet, soybeans, *mài* 麥 (barley or wheat). From Xuánzàng 玄奘 she lists for Yānqí: broomcorn millet, *shǔ* 黍 (perhaps a kind of broomcorn millet), rice, *mài* 麥 (barley or wheat), fragrant jujubes, grapes, pears, and *nài* 柰 (apples or crabapples). And again from Xuanzang she lists for Kuča (in origin Tocharian B speaking): broomcorn millet, “non-waxy rice”, grapes, pomegranates, pears, *nài* 柰 (apples or crabapples), peaches, and apricots. In Chinese documents from Turfan (where manuscripts in both Tocharian A and B have been found), the following are the most common, according to Ching: barley, wheat, broomcorn millet, foxtail millet, and highland barley.

In my treatment of the terms for grain below, I base myself on the important work of Ching (2010 and 2016),⁵ which I recommend in general for further reading and references.

TB *yap* ‘barley’

That Tocharian B *yap* denotes a grain has been known for a long time. The discussion has centred on two points: whether the word means ‘barley’ or ‘millet’ and whether it is inherited directly from Proto-Indo-European or borrowed from Indo-Iranian. The two questions are related: since the word means ‘barley’ in Indo-Iranian, as *yava* in Sanskrit, a borrowing from Indo-Iranian is hard to imagine if the Tocharian word means ‘millet’.

Sieg assigned to *yap* the meaning ‘barley’ and suggested that it is a loanword from Skt. *yava* (1950: 213). Shortly afterwards, the alternative interpretation ‘millet’ was introduced through an unspecified suggestion of Walter Couvreur (cited in Thomas 1957: IX; followed by Schmidt 2002: 2–3). On the basis of the time of harvest and the relative price of cereals, Ching (2010: 384; 2016: 46–52) could finally prove that *yap* is to be identified as ‘barley’.

⁵An oral version of this paper was presented at a conference at the Russian State University for the Humanities in Moscow on 26 August 2008 (cf. also Ching 2012).

The rejuvenated argumentation for the meaning ‘barley’ in turn makes a borrowing from Indo-Iranian highly likely, especially since there are formal obstacles to a direct derivation from Proto-Indo-European. The main problems for the assumption of inheritance from a Proto-Indo-European preform **ieum*⁶ are: 1) the lack of the thematic vowel *-e* < PIE **o* in Tocharian B; 2) the *p* instead of the expected *w*. The expected form of the word if inherited would have been ***yuwe* (Pinault 2008: 371).

Both Pinault and Adams nevertheless opt for inheritance. Adams (2013: 519–520) suggests that “manner dissimilation” took place, changing **ieum* to **ieb^(h)om*, and that the reflex Ø for **-om* is regular: “unstressed **-o-* before a resonant in a final syllable becomes *-ä-*”. The assumed manner dissimilation is *ad hoc*. For **o*, zero reflexes are indeed found, but the conditioning is not fully clear. In any case, the regular outcome of **-om* is most certainly *-e* in Tocharian B, compare TB *kante* ‘100’ < **dkmtóm*.

According to Pinault (2008: 371), consonantal **u* (**u̥*) may develop into Tocharian B *p* through **β*. To explain the lack of a reflex of the final **-o-*, he assumes a different formation: **ieu-it-*, parallel to Hitt. *šēppit-*, a kind of grain, and Gk. ἄλφι ‘barley-groats’. He considers the possibility (2017: 135–136) that the perl.sg. *yaptsa* could prove that *yap* originally had a suffix in *-t-*. Pinault argues that the *t* in *yaptsa* cannot be due to *t*-epenthesis because this occurs in *ns* > *nts*, *ms* > *mts*, *ls* > *lts*, but not in *ps* on the evidence of *yopsa* ‘he entered’, *yerpsa* ‘he took care of’ and *šerpsa* ‘he indicated’. Nevertheless, he ultimately rejects the evidence of the *t* of *yaptsa* and opts for a secondary change of *ps* to *pts*. I fully agree that the *t* in *yaptsa* is secondary, but I think it is simply epenthetic, since the *t* can have been removed at any point in these *s*-preterite forms, as they are clearly *|yop-sa|*, *|yerp-sa|* etc. Indeed, *t*-epenthesis in the cluster *ps* is attested (cf. also Catt 2016: 14–16): *aptsaradarśamne*, a meter name with Skt. *apsaras* as the first element; NS19b4 *aptsarnta* ‘apsarases’; B190b2, B197a2 *svabhāpts(a)*, perl.sg. of *svabhāp* ‘nature’ (Skt.

⁶Or **ieuh₁om* if we follow Beekes (2010: 497), who sets up **ieuh₁-* to account for the first compound member variant ζει- of Gk. ζειαί ‘one-seeded wheat, spelt’, which “may stand for ζε(φ)ε- (from **ieuh₁-*)”.

svabhāva); B525a5 *abhyantarakālptsa*, perl.sg. of *abhyantarakālpa* (Skt. *abhyantarakalpa*); THT1371e.b2 *ruptsa*, perl.sg. of *rūp* ‘form’ (Skt. *rūpa*). The small number of instances and the fact that all concern loanwords from Sanskrit are explained by the fact that there are simply very few genuinely Tocharian nouns ending in *-p*.

On the other hand, the only obstacle to the assumption of borrowing from Indo-Iranian is that for any short *a* one would expect /a/, i.e. <ā> in Tocharian B, as pointed out by Pinault (2008: 371).⁷ The fact that we find *p* for Skt. *v* or Iranian *w* is not problematic: this correspondence is frequent, especially in loanwords from Sanskrit (cf. *svabhāp* from *svabhāva* and further examples in Ivanov 2003: 195).

Unfortunately, the exact source of the borrowing is hard to determine. A borrowing from Sanskrit does not seem likely for cultural reasons: Sanskrit was the religious language, and *yap* is not in any way a religious term. A borrowing from a Prakrit would be more probable (attested are e.g. Niya Prakrit *yavi* KI 83 cov/rev 4 and KI 572 und/obv 2), but the reason for such a late borrowing, from about the beginning of the Common Era, is hard to understand. An earlier borrowing from an Iranian source seems the best option. Although the word has not so far been found in Khotanese, it is well attested in Bactrian (*ṭaol*, *ṭao*, *ṭaoo*, i.e. /yaw/ ‘grain, corn’; Sims-Williams 2007: 216–217) and Sogdian (*yw-*, i.e. /yaw-/) and in the Iranian languages in general. Finally, it should be noted that it cannot be excluded that this word was borrowed from Iranian through an intermediary language.

GHOST: TA *yap*

In the scientific literature, a Tocharian A equivalent *yap* of TB *yap* ‘barley’ is found (e.g. Adams 2013: 519). I have not been able to trace this word in the texts and I suppose that it is a ghost word. The source may be the *Elementarbuch*, since TB *yap* is listed there in the Tocharian B glossary (Thomas 1964: 224) as “*yap* [= A]”, which in their system means that the

⁷Alternatively, for a word belonging to the oldest layer of loanwords from Iranian into Tocharian, the expected form would be ***yepe* or ***yewe* (Tremblay 2005: 422).

Tocharian A equivalent has the same shape. However, in the Tocharian A glossary, the alleged *yap* is not listed, which suggests that the word is a ghost, going back to an editorial error.

TB *ysāre* ‘wheat’, TA *wsār* ‘grain’

The exact meaning of Tocharian *ysāre* ‘wheat’ could also be established on the basis of the time of harvest and the relative prices by Ching (2010: 384; 2016: 46-52). TB *ysāre* has a cognate in TA *wsār*, whose meaning cannot be determined exactly, but which certainly denotes grain or a kind of cereal. The context is a simile in which virtuous life that is not continued is compared with grain that is eaten too early instead of stored (A65b4–6):⁸ (*kāruṇik nātāk se pākṣi*)ññā-ñi *kucne tu wsār pālkorāṣ weñāṣt kupprene tsmāraṃ mā tāppus tāṣ mǎnt nu wsār tsmāraṃ tā(ppus tākiṣ · māskit trānkāṣ mā māski) kāršnāl saṃ wraṃ k_uyalte yusār praṣṭā wrasom wsār tāpaṣ kucne tmāṣ oko kālpāl tāṣ cam sā(m neṣā tāppu tāmyo tsmāraṃ t)āppus sām wsār māskatār* ‘«(Compassionate lord, [my] son), explain to me what you said with respect to the grain, “if it is not consumed at the root”. How (could) grain be consumed at the root?» (The prince says): «This matter [is] (not difficult) to understand. Because if a being consumes the grain in the season, what he might have been able to obtain from it as fruit, that he (has eaten before. Therefore) that grain is eaten at the root.»’ The word *wsār* in this passage has been variously rendered with “Getreide” or “Getreidehaufen” (see also Thomas 1964: 144, “Getreide (haufe)”). To me, “Getreidehaufen”, based on the German translation of a Tibetan parallel by Anton Schiefner (see Sieg 1952: 17), would not seem to make sense in the passage, nor would it be logical if the metaphor contained the specific term for ‘wheat’. The most plausible option appears instead that *wsār* was a generic term for ‘grain’.

The comparison of TB *ysāre* and TA *wsār* leads to a Proto-Tocharian (PT) reconstruction **wāsare*. A difficulty of the reconstruction resides in the gender: the Tocharian A word is feminine and the Tocharian B word is often masculine and has

⁸Restored and completed after Sieg (1952: 25). See also Peyrot (2013: 277, 648) and Pinault (1993: 147).

a typically masculine ending. Nevertheless, as pointed out by Adams (2013: 567–568), TB *ysāre* may also be feminine, e.g. Cp3.3, .4 *śwasiṣṣai ysāre*; Cp8a14 *āyusa ysāre*; Cp34.4 *oko(ś)ai (ys)ā(r)e*; SI/P139g.1 *śeśusa ysare* (readings from Ching 2010 and Pinault 1996). Since feminines in *-e* are exceedingly rare, the feminine gender can hardly be secondary: probably the word was originally feminine and became masculine because of its masculine ending *-e*. The Tocharian A word by itself would of course also allow a reconstruction **wāsara* or **wāsaro* (with more feminine-looking finals). Adams (l.c.) also notes that occurrences of the combination *oko ysāre* ‘fruit [and] *ysāre*’ suggest a more general meaning ‘grain’ instead of just ‘wheat’ for Tocharian B (B476.1, B477.2).

Proto-Tocharian **wāsare* may be related to the Proto-Indo-European word for ‘spring’: Gk. *ἔαρ* ‘spring’, Lith. *vāsara* ‘summer’, Av. loc.sg. *vañri* ‘in spring’, etc. < **ues-r*, **ues-n*- (Adams 2013: 568; Schmidt 2002: 3; Pinault 2008: 370). The Tocharian etymon could represent **uesōr* enlarged with a suffix. The semantic development would be metonymic from ‘spring’ or ‘summer’ through ‘grain time’ or ‘grain harvest time’ to ‘grain’.⁹ Unlike Adams (l.c.), I would say that the generic meaning ‘grain’ appears to be older than the more specific one ‘wheat’.

Tocharian B *ysāre* seems to have been borrowed into Khotanese *jsāra-* /*dzāra-*/ ‘grain, corn’ (Bailey 1979: 115a; Pinault 2008: 370). The details of this comparison are difficult. It is especially unclear why *js-* /*dz-*/ was taken to render *ys-*. On the other hand, the final is not problematic; the nom.sg. *ysāre* was close enough to the nominative singular *jsārā* or a preform of it, and both words belong to fairly frequent, default stem classes.

⁹Bray notes that wheat and barley were winter crops in China, “that is to say they are sown in the autumn or winter and harvested in the late spring” (1984: 464). This would fit the above derivation. However, Ching (2010: 384; 2016: 45) indicates that in the Gāochāng kingdom in Turfan region, contemporary with the later phase of Tocharian, the deadlines for tenancy payment were the Chinese 6th month for barley (approximately July) and the Chinese 7th month for wheat (approximately August). Tenancy payments were normally made shortly after the harvest.

TB *lyekšiye* ‘millet’

According to Ching (2010: 384; 2016: 50 and *passim*), both *lyekšiye* and *āka* are millets, but she could not so far determine the two terms more precisely. She notes, however, that the pair *āka lyekšiye* as attested in Cp8a2, a4, a7–8, a10, a13 must correspond to Chinese *ménsù* 糜粟, a general term for ‘millet’ not distinguishing between *mén* 糜 ‘broomcorn millet’ and *sù* 粟 ‘foxtail millet’. Which of the two is which remains, however, unclear; an equation of *āka* with *mén* 糜 and *lyekšiye* with *sù* 粟 on the basis of the order of the paired terms is probably too uncertain.

The forms and variants of *lyekšiye* are, as far as I can see, *lyekšiye*, *lyekšye* and *lyekše* for the nominative and *lyekšai* for the oblique. *lyeksai* in Pinault (2008: 368) seems to be a typographical error. Nor have I found a variant *lyekšiye*, so that in my view Adams’ “Late Tocharian tendency to replace -š- by -s-, especially after *k*” (2013: 617) is not only implausible, but also unnecessary (cf. also Ching 2016: 58).

The etymology of *lyekšiye* is unclear. The word seems to follow a genuine Tocharian inflexional pattern, i.e. like *ymiye* ‘way, path’, obl.sg. *yamai*, and as expected, the gender is feminine on the evidence of Lc37.6 *käryausai lye(kšai)* and Cp39+43b3 *šešusa lyekš(y)e* (readings from Ching 2010). However, otherwise the word does not have an Indo-European-looking structure and would require a highly improbable reconstruction of the type **lēKuKi-*. Perhaps it is an old compound, but it seems more likely that it is a loanword from an early stage that was adapted to the Tocharian inflexional system.¹⁰

TB *āka* ‘millet’

Ching (2010: 384; 2016: 50 and *passim*) determines the meaning of *āka* as a kind of millet; on the problem of a more exact identification, see above under *lyekšiye*. The word *āka* is attested as a plural, e.g. Cp41a9, a10 *āka lateṃ*, as well as a

¹⁰The first syllable displays a certain similarity with Chin. *liáng* 梁 ‘millet, sorghum, grain’ < Middle Chinese *ljang* < Old Chinese **[r]aŋ* (Baxter and Sagart 2014, ocbaxtersagart.lsaait.lsa.umich.edu). However, as long as no convincing explanation for the second syllable is found, this is purely hypothetical. Needless to say, the phonetic match is not exact.

singular, e.g. HWB74(1).3 *āka laś* (readings from Ching 2010 and Pinault 1996).

Tocharian B *āka* shows a certain resemblance to Gk. ἄκοστή ‘barley’, Lat. *acus*, *-eris* ‘husk’ and Gm. **ahiz* ‘ear (of grain)’, an *s*-stem **h₂ek-os-* derived from **h₂ek-* ‘sharp’. As pointed out by Pinault (2008: 371), this etymology does not work for Tocharian *āka* because millet is a grain without pointed ears. Also, the expected outcome in Tocharian of such a neuter *s*-stem would be *āke*, pl. *akenta*; *āka* would have to have been remodelled, as if continuing **h₂ek-h₂*. Pinault solves these problems by disconnecting Lat. *acus* etc. from the word for ‘sharp’, reconstructing on the same basis instead a word for ‘grain’, **ak-os* (also reflected in Ved. *akṣá-* ‘die; seed of a.o. *Terminalia bellirica*, bedda nut’), and deriving *āka* as a recent plural from **akə* < PIE **ak-ōs*. In my view, it is difficult to derive *āka* from an old *s*-stem, since the formation proposed by Pinault and the development required have no parallels in Tocharian. Further, the traditional etymology of **h₂ek-os-* as derived from **h₂ek-* ‘sharp’ seems still plausible to me. In my view, Tocharian B *āka* is difficult to connect with the group of Lat. *acus* because of all the problems involved, and the etymology of the Tocharian B word is as yet not solved.

TB *tsänkana* ‘naked barley’

The grain *tsänkana* is by Ching (2010: 384) identified as the equivalent of Chin. *qīngkē* 青稞 ‘naked barley, highland barley’ on the basis of its relative price and because it could be used for brewing. She notes that *qīngkē* 青稞 was often abbreviated to *qīng* 青 and convincingly analyses *tsänkana* as a *na*-plural form to a base *tsänk**, a borrowing from the Middle Chinese form *tsheng* of *qīng* 青 (in the notation of Baxter and Sagart 2014;¹¹ *-ng* = *-ŋ*). Obviously, the final *-k* of the Tocharian B base form is concomitant with the velar nasal *ŋ*; the only way to render the final velar nasal of Middle Chinese was with *-ŋk*.

TB *klu* ‘rice’, TA *klu* ‘id.’

The word for ‘rice’ is known to be *klu* in both languages. The word does not occur in Tocharian B secular documents but

¹¹Cf. the related website ocbaxtersagart.lsa.umich.edu.

only in Buddhist texts (Schmidt 2002: 4; Ching 2010: 383¹²). *klu* has long been recognized as a borrowing from Chinese *dào* 稻 < MC *dawX* < OC **[l]^su?* (Baxter and Sagart 2014: 246; Adams 2013: 243). Evidently, *klu* cannot have been borrowed from a form of the Middle Chinese type with initial *d-*, but must go back to an earlier form with initial *l-* or an *l*-cluster. Unfortunately, the exact reconstruction of the Old Chinese form of the word is not clear. In theory, a cluster consisting of a velar followed by *l* would be a possibility, but Proto-Hmong-Mien **mblau*, certainly related in one way or another, suggests rather a non-velar cluster (Baxter and Sagart l.c.). Therefore, the initial *k-* of the Tocharian word may have to be explained as the reinterpretation of the special feature of the *l-* (a so-called non-division-III initial). Baxter and Sagart reconstruct this feature as pharyngealization (hence the notation *l^s* given above), but it might as well have been velarization (i.e. *l^v* or *k*; cf. Goldstein 2015: 414). Both pharyngealization and velarization of the *l* may have been perceived as a velar element that was ultimately expressed with initial *k-* in Tocharian.

For the sake of completeness, it may be noted that it is impossible to decide when in the relative chronology of Tocharian the word was borrowed. Since Tocharian A and B are identical, it is possible that the Tocharian A word is borrowed from Tocharian B (the reverse is unlikely because almost all other intra-Tocharian borrowings are from B into A). However, it is also possible that the two words reflect a Proto-Tocharian preform **klu*. Schmidt (2002: 4) further notes that TB *klu* may also denote ‘rice porridge’ (i.e., rice prepared as a meal), which is confirmed by PS rouge 10.1 v2, where *klu* glosses Skt. *odana* ‘porridge, boiled rice’ (Peyrot 2014: 170). Nevertheless, the only instances in Tocharian A refer to rice as a crop or to the rice plant (Carling 2009: 178a). The word *klu* seems not to occur in other Central Asian languages. In Khotanese, for instance, ‘rice’ is *rrīysū* (Bailey 1979: 364), in Sogdian *ryz*, and in Sanskrit *vrihi*.

TB *śātre* ‘grain’

The general term for ‘grain’ in Tocharian B is probably

¹²Ching further notes that also in Chinese documents from the Tarim Basin rice is exceedingly rare (2010: 67–68).

šātre. Ching (2010: 385; 2012: 308-309) notes that the expressions HWB73(1).2 and HWB73(2).2 *lykaške šātre* ‘fine grain’ and Cp39+43a3 (a)*šāwe lykaške šātre* ‘gross [and] fine grain’ seem to correspond to Chin. *xì* 細 ‘fine’ and *cū* 粗 ‘gross’, used of cereals in contemporary Chinese documents. *šātre* seems to be a derivative of the root for ‘live’, i.e. < **śawe-tre* < **g^wih₃u-o-tro-* ‘living’ (Adams 2013: 682). The semantic development may have been through an even more general ‘food’ as a “Lebensmittel”. As Pinault (2008: 368–369) points out, a difficulty with this – widely accepted – etymology is the complete isolation of the instrumental suffix *-tre* < **-tro-* in Tocharian, which suggests that the formation is of old age. However, I am not convinced that his alternative reconstruction **g^wioh₃-tu-r* (related to OAv. *jiiātu-* ‘life’) is to be preferred instead, since this derivation requires an unmotivated remodelling of the expected ***šāt* < **g^wioh₃-tu-* to the attested *šātre*. It is possible that the restriction of this term to grain is a recent development, certainly in view of the fact that the etymon attested by TB *ysāre* ‘wheat’ and TA *wsār* ‘grain’ appears to have been in origin the general term for ‘grain’.

SEEDS AND DERIVED PRODUCTS

There are a number of words for seeds and derived grain products. Of many of these, the precise meaning is not established so that questions of etymology are premature. Two seeds that are used to make oil are TB *mlyokotau* and *paškaro** (Adams 2013: 517, 387). Neither of these is likely to be ‘sesame’ since ‘sesame’ is known to be *kuñcit* (Ching 2010: 384; 2012: 314). Grain products whose meanings cannot so far be identified are TB *klese*, *wākte* and *yākṣiye* (Ching 2010: 385). *klese* and *wākte* (Adams 2013: 246, 636) could be used for an easy meal called *sāle* that was eaten outdoors (Ching 2010: 236–237; differently Adams 2013: 748, ‘ground’). *yākṣiye* was used to make *kanti*. It is possible, but by no means certain, that *yākṣiye* means ‘flour’ and *kanti* denoted a kind of bread (Adams 2013: 535, 146).¹³ In line with *yākṣiye* being ‘flour’ is the fact that it

¹³If *kanti* means bread, a connection with Av. *gantuma-* ‘wheat’, Khot. *ganama-* < **gandama-* and Skt. *godhūma-* ‘wheat’ and further also e.g. Hitt. *kant-*, is a possibility. However, in view of all the variants of this word, it is

could be made from at least barley and wheat: AS3Aa6 *ypiya yākṣiye* ‘barley flour (?)’ and W37b1 *ysārña yākṣiye* ‘wheat flour (?)’.¹⁴ As an alternative for ‘flour’, Ching thinks that *yākṣiye* may also be hulled grain (l.c.). On Cp.34.24 (and probably THT2897.1) *miśśakane* she cautiously notes that it could be a grain, but also a bean or a fruit (l.c.).

TB *tāno* ‘seed, grain’

Tocharian B *tāno*, obl.sg. *tāna* is used for seed or grain for consumption or the preparation of food, unlike *śāktālye*, which denotes seed for sowing. A number of different expressions are attested: B41b4 *tāna kwāñcītṣai* ‘sesame seed’; IT305b2–3 *uppālāṣṣana tanāñ* ‘lotus seeds’; AS8Ab5 *arkwañāṣṣa tāno* ‘a grain of *Clerodendron siphonantus*’; AS8Ba5 *campākāṣṣai tāna* ‘a magnolia seed’; Cp37+36.36, .40 *eñkaraṣana tānaṃ* ‘eñkara seeds’ (reading from Ching 2010 and Pinault 1996). A diminutive in *-kko* is also attested: B580b3 *rtarya tanākkō* ‘a red seed’; B580b3 *arkwañña tanākkō* ‘a white seed’; AS2Aa2 *tanākkaisa* ‘gradually’; AS2Ab3 *tanākkai · tanākkai* ‘bit by bit’. There is also a compound with *mot* ‘alcoholic beverage’, B407a3–4 *tanā-mot* ‘grain alcohol’, and even B407a1 *tana (tan)ā-motāṣṣai* ‘a grain [soaked in] grain alcohol’.¹⁵

The word *tāno* is usually derived from a PIE **d^hoHneh₂-*, attested by Ved. *dhānā-* [f.pl.] ‘roasted grains’, Khot. *dānā-* ‘grain, seed’, Sogd. *δ’n* ‘seed’, Middle Persian *d’n*, *d’ng* ‘seed, grain’ and Lith. *dūona* ‘bread; subsistence’, Latv. *duōna* ‘slice of bread, heel of a loaf’ (EWAia II: 787). The distribution of this term over the Indo-European languages is peculiar and the neat semantic correspondence between Tocharian and Iranian is highly remarkable, certainly in view of the much more remote ‘bread’ and ‘slice of bread’ in Baltic. Also in Khotanese, for

certainly not Proto-Indo-European, but rather a Wanderwort (Puhvel 1997: 56; pace Adams l.c.).

¹⁴In my view it is not very likely that B434a2 *yaksai* is the obl.sg. of this word, since the interchange of *kṣ* and *ks* is not regular, and *yākṣiye* is attested many times in the same fragment as *yikṣye*.

¹⁵According to Ching (2010: 386–387) *mot* cannot denote a distilled beverage (pace Schmidt e.g. 2002: 6). She also stresses that *mot* can be made both of grain and of grapes, so that it is not just ‘wine’. For her, *mot* is a general term for an alcoholic beverage equivalent to Chin. *jiǔ* 酒.

instance, *dānā-* may be used of sesame seeds that are counted one by one, and of seeds that are to be extracted from grapes (Bailey 1979: 156b). YAv. *dānō.karš(a)-*, a kind of ant that is “grain-carrying”, likewise requires the specific meaning of a single seed or small grain for this etymon.

In view of the semantic similarity of Tocharian B *tāno* with Indo-Iranian **d^hānā-*, and in particular with its Iranian offshoots, borrowing of the Tocharian word from Iranian must be considered seriously (see Schmidt apud EWAia II: 787).¹⁶ The largest drawback to the assumption of borrowing is the inflexional class of *tāno*, which is small (see Krause and Thomas 1960: 135–136) and comprises no other recognized loanwords. Nevertheless, obvious loanwords have sometimes acquired inflexional patterns that are at first sight truly and genuinely Tocharian, for instance TB *twāñkaro*, obl.sg. *-ai*, nom.pl. *-añ* ‘ginger’ from Khotanese *ttum̐gare* (Adams 2013: 343). The difference between the pattern of *tāno* and that of *twāñkaro* is only the ending *-i* in the obl.sg. of the latter.

If *tāno* is borrowed from Iranian, the remaining parts of the etymology would also need to be reconsidered. An old idea is that *dhānā-* is derived from *dhā-* ‘put, lay’, a seed being something that is laid down in the earth (e.g. Grassmann 1873: 677; on the suffixes *-nā-* and *-nā-* see Debrunner 1954: 733). In any case, the Baltic words are not necessarily related. Although Lith. *dúona* has the general meaning ‘bread’, the Latvian equivalent has the specific meaning ‘heel, crust of a loaf of bread; slice of bread’. This meaning is all the more interesting in view of a second word *duona* (ME I: 534, not accented) that means 1) “Kimmen, Zargen”, ‘frame (of e.g. a door), door jamb’; 2) “der Boden eines Gefässes, Fasses”; 3) “Rand von Tellern, Töpfen”; 4) “eine in die Kammlade gelegte Rinne”, ‘a channel in the beater (of a loom)’. What all these meanings seem to have in common is an edge or a side of something. This common element is also present in *duōna*, which means “ein Schnitt Brot, besond. das Brotende” (ME l.c.), and as far as the semantics are concerned, I see no reason to exclude *duōna* ‘slice of bread’

¹⁶Schmidt (l.c.) gives a Tocharian A cognate *tām* from unpublished texts. No such form is known to me, but it may theoretically have been overlooked because it would be homophonous with the obl.sg.f. *tām* of *saṃ* ‘he’.

from the wide range of meanings of the second *duona*. If the two words are identical, the semantic development would seem to be ‘edge’ > ‘edge, heel of a loaf’ > ‘slice of bread’ and further > ‘bread’ in general in Lithuanian. Although a development ‘bread’ > ‘slice of bread’ appears quite natural, it is unclear to me how the latter could develop into e.g. ‘edge of a plate’. An alternative suggestion for an etymology may be, starting from ‘edge’ as a part of something, to derive *duona* from the root **deh*₂- ‘divide’ (Ved. *dāyate*, Gk. *δαίνομαι*; LIV2: 103–104). As pointed out to me by Guus Kroonen (p.c.), a connection with Ved. *dāti* ‘mow, cut’ (LIV2: 102) would also be possible, and the two roots could ultimately be identical.¹⁷

In conclusion, the inflexion of *tāno* suggests inheritance, but the close semantic match with Iranian suggests borrowing from Iranian into Tocharian. It cannot be fully excluded that the Indo-Iranian words are related with Baltic, but the comparison is not compelling.

TB *proksa* ‘?’

According to Schmidt (2002: 3–4), the Tocharian B word *proksa*, a *hapax legomenon* in THT3998.3, means ‘grain’, “(Getreide)korn”. Schmidt connects *proksa* with Sl. *proso* ‘millet’ (SCr. *prōso*, Russ. *próso*).

In my view, *proksa* must indeed be related to grain, but the specific meaning ‘grain’ or “Korn” suggested by Schmidt cannot be confirmed. The connection with Sl. *proso*, which might at first sight appear to be attractive, is to be rejected because of the isolation of the Slavic etymon within Indo-European, and because, as Schmidt remarks himself, “einige Fragen zu lautlichen und morphologischen Details noch nicht abschließend geklärt werden können” (o.c. 4). Instead of going back to Proto-Indo-European directly, the Slavic word may rather belong to the so-called “Temematic” substrate (Kortlandt 2003: 253; Holzer 1989: 54–55), a layer of loanwords from an otherwise unknown Indo-European language into Slavic. In this way, it could be related to Lat. *far* ‘husked wheat’, ON *barr* ‘barley’ and OCS *brašbno* ‘flour’. Most importantly, however,

¹⁷On the synchronic level, however, Ved. *dāyate* ‘divide’ and *dāti* ‘mow, cut’ are certainly two different verbs (Narten 1968: 130).

the meaning of the Tocharian word is absolutely uncertain. It is found in a list:¹⁸ *yama[š]l[e] ypiyana ysār[ñ]ana proksa moṭ₁ kuñciṭ₁ [ša]lyp[e]* ‘... is to be made. *proksa* of barley and wheat, alcohol, sesame, oil ...’. Schmidt’s rendering “Hirse- [und] Weizenkörner” is a possibility, provided that we substitute ‘barley’ for “Hirse” and translate ‘barley and wheat grains’, but it could just as well be any kind of paste, flour or liquid.¹⁹

TB *kāta* - ‘strew, sow’

The Tocharian B verb *kāta*- ‘strew’ is regularly used for ‘sow’ in secular documents (cf. Schmidt 2002: 8). Its etymology is well established: **(s)kedh₂-* (YAv. *sciṇdaiieiti* ‘breaks, destroys’, OKhot. *hatcañāte* ‘id.’, Gk. *σκίδνῃμι* ‘scatter’ and possibly Lith. *kedènti, kedinti* ‘pick’ (LIV2: 550). TB *kāta*- has a cognate in Tocharian A: *kātā*-. In Proto-Indo-European this verb did not have a technical agricultural meaning. In the Tocharian daughter languages the technical meaning is not exclusive either: the basic meaning is ‘strew, scatter’.

TB *sarya*- ‘plant’, TA *sāryā*- ‘id.’

The verb TB *sarya*-, TA *sāryā*- probably means ‘plant, cultivate’, not ‘sow’ (Adams 2013: 746; Malzahn 2010: 936; pace Schmidt 1999: 284). The root may be related to Lat. *serō* ‘link, join’, Gk. *εἶρω* ‘string, attach’ < **ser-* (Malzahn l.c.; LIV2: 534–535), but the semantics are not compelling. A connection with PIE **seh₁-* ‘sow’ is hardly possible formally.²⁰

Derived from this verb is TB *sārm*, TA *sārm*. It is traditionally rendered as ‘seed’, but this obviously does not fit the meaning ‘plant’ of the verb very well. In fact, the word is

¹⁸On the evidence of the preceding *yama[š]l[e]* that most probably ends a clause, the phrase *ypiyana ysār[ñ]ana proksa* must be the beginning of a syntactic unit, and thus probably the first item of the list.

¹⁹Ivanov’s (2003: 196–197) alternative etymological connection of *proksa* with the PIE root **prek-* attested in a.o. PGm. **furh-* ‘furrow’ (Kroonen 2013: 162) is rather farfetched semantically. We should rather be cautious with proposing etymologies as long as the meaning of the word is not established.

²⁰Note, however, the collocation of TA *sāryā*- with *śāktālyi* ‘seed’, e.g. A372b3 *nervāṃṣināṃ śāktālo sāsāyurāṣ* ‘having planted the seed of the nirvāṇa’ (and cf. A355b2). Perhaps *sāryā*- could be used to plant plants as well as seeds, but it seems unlikely that it was used for sowing with larger quantities of seed.

not frequent, but it occurs in lists of the type AS6Da3 *pyapyaim stāna sārma okonta* ‘flowers, trees, sārms, fruits’. It seems that here not a seed that is still to be sown is meant, but a seed that has at least germinated, or perhaps even a plant.

TB *śāktālye* ‘seed’, TA *śāktālyi* ‘id.’

A further word for ‘seed’ is TB *śāktālye*, *śiktālye* ‘seed’, TA *śāktālyi*. Mostly it is used in a metaphorical sense, for instance “the seed of a deed”; cf. also A361.4 *śāktālyi* as the translation of Skt. *bijaṃ* (for *bijam*). TB *śāktālye*, TA *śāktālyi* is a reduplicated formation from TB *kāta-*, TA *kātā-* ‘strew’, i.e. **śa-kāta-l’e*. This reduplication is unique in Tocharian, so that the formation must be relatively old. The suffix is identical with the gerund suffix TB *-lle*, TA *-l-*; the final *-i* in Tocharian A may be due to the fact that the final was palatalized, unlike regular gerunds in Tocharian A, but like the obl.sg.m. of the gerund in Tocharian B. The assumption of a borrowing from Tocharian B into Tocharian A would not account for the difference in the final vowel. Typical is the use of TB *śāktālye* together with the verb *kāta-*, e.g. IT272a4 *śāktālyenta kātnālyi krentaunaṣṣi* ‘the seeds of virtues are to be strewn’, AS7Bb3 *śāktālye ālām ktowä* ‘a seed strewn elsewhere’, B365b7 *ktau ra śāktālye* ‘like a seed [that is] strewn’.

PLOWING

For the semantic field of plowing one text is of particular importance: the Sanskrit – Tocharian A bilingual manuscript A359–A365, which contains a sūtra on plowing with a number of technical terms that are not attested elsewhere.

The sūtras contained in A359–A365 are from the Sanskrit *Samyuktāgama*, a text that is preserved only fragmentarily. Of the sections that are relevant for A359–A365 the complete Sanskrit text is not so far known (for a few lines, see Ol’denburg 1907: 816, as noted by Chung *apud* Hartmann and Wille 2014: 248). There are close, but not necessarily exact parallels in Pāli and in Chinese: especially the Pāli parallel is from a different Buddhist tradition. Also the Sanskrit – Tocharian A bilingual text itself is problematic: a large portion of the relatively short lines is preserved, but the text of both the Sanskrit original and the Tocharian A translation is full of

errors and the translation itself is not in all cases reliable, so that a simple equation of the Sanskrit words with their Tocharian A renderings is not always possible.

The relevant sūtra, in which the Buddha explains to a plowman the doctrine by means of a comparison with plowing, is preserved in A360.13–A361.13. The name of this sūtra in Pāli is *kasi* ‘plowing’ and in Sanskrit *kṛṣi* ‘id.’; the corresponding sūtra in the Chinese Saṃyuktāgama is sūtra 98, Taishō 2.27a19–b5. For the Pāli parallel, see Feer (1884: 172–173), Rhys Davids (1917: 216–219) and Geiger (1930: 269–271); for the Chinese text, see Enomoto (1997: 97–98), Meisig (2001: 595–599) and Chung (2008: 224).

TA *āre** ‘plow’

TA *āre** is attested as a plural *āreñ* in A361.5 (*knānmune*)*ṣi* *ñi muk kālkaṃ āreñ*.²¹ The original Sanskrit text is lost. The Pāli parallel reads *paññā me yuganaṅgalaṃ* ‘insight is for me yoke and plow’ and the Chinese has *zhìhuì wéi lí è* 智慧爲犁輓 ‘insight is plow and yoke’.²² Since in Chinese ‘plow’ and ‘yoke’ may have been reversed for stylistic (i.e. euphonic) reasons (Meisig 2001: 597), *muk* can be identified as ‘yoke’ and *āreñ* as ‘plow’. The word *kālkaṃ* is problematic. Carling interprets it as ‘following’ in the sense of ‘fitting’, taking it as an agent noun of *y-* + *kālka-* ‘go’ (2009: 44b–45a). Accepting her interpretation as far as the morphology is concerned, a more literal rendering seems also possible: ‘for me (wisdom) is plows going with a yoke’. In any case, it seems very likely that *kālkaṃ* is an addition to clarify the unspecified relationship between ‘yoke’ and ‘plow’.

TA *āre* seems to be formed like *kācke* ‘joy’ to *kātk-* ‘be glad’ and *pāse* ‘request’ to *pās-* ‘beg’: an abstract in *-e* with *ā*-vocalism in the root derived from a verbal root that also has *ā*-vocalism. In an only slightly different but more frequent derivation pattern, the abstracts in *-e* have *a*-vocalism in the root, even though the verbs also have *ā*-vocalism: *pate* ‘plowing’ to *pātā-* ‘plow’ (see below), *wampe* ‘ornament’ to *wāmpā-* ‘decorate’ and *wanke* ‘pleasant talk’ to *wānkā-* ‘talk’

²¹See also Schmidt (2002: 8).

²²For *lí* 犁 ‘plow’ instead of a.o. Taishō *shí* 時 ‘time’, see Meisig (2001: 597).

(TG §3a; Peyrot 2012: 212). Apparently the *ā* in the root of the latter group of verbs is of a later date than that of the former group. For these abstracts in *-e* it was apparently not relevant whether the verb had root-final *-ā*. Thus, on the basis of *āre* ‘plow’ we may set up a verb *ār-* or *ārā-* ‘plow’. Because of the obvious connection with PIE **h₂erh₃-* ‘plow’ (‘grind, crush’ in Hittite), the latter option seems preferable. The expected meaning of such a derivation is that of an abstract noun, something like ‘plowing’, or a result noun, i.e. ‘plowed land’. However, a shift from ‘plowing’, if that was the original meaning, to ‘plow’ presents no difficulties.

GHOST: TB *āre* ‘plow’

As shown by Winter (2003), there is no Tocharian B *āre* ‘plow’ corresponding to Tocharian A *āre* ‘plow’ (discussed above), as was previously thought (e.g. Schmidt 2002: 8). There is a word *āre*, but this means rather ‘dust’ according to Winter.²³ Winter’s proposal has been corroborated by a new interpretation of an Old Uyghur gloss to one of the crucial passages: B331a1 *kenantse āre* ‘dust of the earth; soil of the earth’ is glossed with *kayakın*, possibly approximately ‘soft upper layer of the earth’ (Maue 2009: 23–24). Adams (2013: 51–52) accepts Winter’s suggestion, but distinguishes a second *āre* meaning ‘end, limit’, which is a good possibility in view of the verb *ara-* ‘stop’. All in all, there seems to be general agreement that none of the attestations of *āre* means ‘plow’.

TA *kam(·)ā·e* – ‘plowshare’

The meaning of A361.1 *kam(·)ā·e* – *pat* is assured by the preceding Sanskrit *phālaṃ vā* ‘or plowshare’. The last element of the Tocharian A phrase, *pat* ‘or’, corresponds to Sanskrit *vā*. The first element is most probably *kam* ‘tooth’ (< PIE **gombh_o-*);

²³ As an alternative, Ogihara has proposed that the combination B331a1 *kenantse āre* ‘*āre* of the earth’ corresponds to Skt. *bhūmyupaghātana* ‘damaging of the earth’ (2009: 390); if so, *āre* would mean ‘harm’. Ogihara does not give any further proof for his suggestion and does not explain how a word *āre* meaning ‘harm’ could be the object of the following verb *māntatār-ne* ‘if he hurts it’, i.e. ‘if he hurts the harm of the earth’ (Ogihara’s own translation is ‘if the smash of a ground is done’). Ogihara’s proposal is therefore to be dismissed.

the second element would seem to be a form or a derivative of *āre* ‘plow’. One possible restoration is *kam ā(r)e(ṣi)* ‘tooth of the plow’ with a *ṣi*-adjective (Carling 2009: 45a), another would be *kam ā(r)e(s)* ‘id.’ with a genitive (Wilhelm Siegling in his personal copy of Sieg and Siegling 1921).

TA *ñomes* ‘halter’ (?)

The meaning of A361.1 *ñomes* is unclear; the corresponding Sanskrit text is lost. According to Schmidt (2002: 8) it does not mean ‘plow’, but rather corresponds to Skt. *iṣā* ‘shafts’.²⁴ Schmidt does not give any argument for this interpretation. Perhaps it is a guess inspired by the fact that *āre* already means ‘plow’. In the Chinese parallel adduced by Enomoto (1997: 97), *ñomes* seems to be the equivalent of *yǎng* 鞅 ‘leather collar for a horse’, i.e. approximately ‘halter’ (Meisig 2001: 595 translates “Halfter”, and see under *laṣis* below). As far as I can see, there is no support for the meaning ‘shafts’ suggested by Schmidt. The order of the Pāli parallels is rather different and not of much use for the exact determination of the separate terms. The general context is clear there, however: “But we see neither Master Gotama’s team, nor his plough, nor his ploughshare, nor his goad, nor his oxen” (Rhys Davids 1917: 217).

TA *pate* ‘plowing’; TA *pātā-* ‘plow’; TB *[p]-to* ?

The meaning of the Tocharian A root *pātā-* ‘plow’ can be best established on the basis of the derived noun *pate* ‘plowing’. This noun is attested twice in A361.3: the second occurrence renders Skt. *kr̥ṣim* ‘plowing’, and the first instance corresponds to *kaṣim* ‘id.’ in the Pāli parallel. A third occurrence in A361.2 renders Skt. *kārṣakaṃ* ‘plowman’, and since the whole sentence is wrongly translated (Peyrot 2013: 268), it can safely be assumed that this is simply not correct: *pate* was probably just ‘plowing’, not ‘plowman’. The corresponding verb *pātā-* is also attested, but only as a *hapax legomenon* in a fragmentary text:

²⁴With relation to Skt. *iṣā*, it should be noted that A361.6 *kip* ‘shame’ certainly corresponds to Skt. *hrī* in *iṣā ca hrī* ‘and shame [is my] shaft’. Since *kip* is the first element of the translation, the Tocharian text accords better with Pāli *hirī isā* and Chin. *cánkuixīn wéi yuán* 慚愧心爲轅 “Das beschämt-reuige Herz ist die Deichsel” (Meisig 2001: 597).

3pl.prt. *pātar* A300a8. The word seems to correspond to MayS21.4b12 *sabanların sıyurlar ... ārdi* ‘broke with plows’ (Gabain 1961: Beiheft, 58–59; Geng, Klimkeit and Laut 1998: 89; Malzahn 2010: 695; Peyrot 2013: 768). TA *pātā-* is related to Lat. *fodiō* ‘pierce, dig’, Hitt. *padda*ⁱ, *padd-* ‘dig (the ground, a pit)’, OCS *bodq* ‘stab’, Lith. *bedù* ‘stick, dig’ < PIE **b^hed^hh₂-* (LIV2: 66). The *ā* of TA *pātar* requires a root *pātā-* (the 3pl. would have been ***patar* if the root had been ***pātā-*), but the action noun *pate* suggests that at a certain, probably not too distant prestige, the root was in fact **pāta-*, not **pata-* (compare *āre* ‘plow’ above, which does require an old root *ārā-* < **ara-*).

According to Schmidt (1986: 47, 78; 2002: 8), the Tocharian B equivalent of TA *pate* ‘plowing’ is THT1107a5 [*p*].*to* in the Karmavācanā. Indeed, this suggestion seems fairly plausible to me. The word occurs in a list of apparently lesser ways of earning a living, *weta watal(yñe) p-to ya(ma)lyñe karyor pito yamalyñe* ‘fighting fight[s], doing *p-to*, doing buying and selling’. Here ‘agriculture’ would fit well between ‘warfare’ and ‘trade’. In any case, words with a similar shape such as *pito* ‘price’, *pauto* ‘flattery’ or *šito* ‘messenger’ (CETOM s.v. *šito*; Ogihara 2013: 207–208; Pinault 2017: 138–148; Wilkens and Peyrot 2017: 707) certainly are not possible. The vowel to restore may have been /a/, i.e. *pāto* (cf. *kāko* ‘invitation’ to *kwa-* + *kaka-* ‘call’).²⁵ Still, it should be noted that the passage is severely damaged and the reading is far from certain.

GHOST: TB *mīše rapālñe* ‘digging the field’

According to Pinault (1988: 100, 106, 115, 143), an expression *mīše rapālñe* ‘digging the field’ in the sense ‘working the field’ is attested in NS53a5; as the reading he gives *mīše [rapā](l)[ñe]*. In my view, this interpretation is not correct. Instead of *rapālñe* with medial accent, one would have expected initial accent, as regular in this category; compare in particular the inf. IT246a2 *rāpatsi*. There is further no reason to expect an

²⁵If the verb was not *pata-*, but *pāta-*, we expect *ǝ*-grade. An *ǝ*-grade form should in principle have had a palatalized initial as in *pilko* < **pālko* ‘gaze, view’ to *pālka-* ‘look’ (*palsko* ‘thought’ is certainly from **plasko*). However, it would then have been nearly identical with *pito* ‘price’: *pito* ‘plowing’, pl. *pitonta** vs. *pito* ‘price’, pl. *pitañ**.

expression for ‘digging the field’ or ‘working the field’ here. In this text, the twelve elements of the chain of effects, the *pratītyasamutpāda*, are compared to the growth and fall of a crop in the field. The relevant equation here is with the first term, Skt. *avidyā* ‘ignorance’. The second term, Skt. *saṃskāra* ‘mental construction’, is compared to work in the field: NS53a6 *mīṣene lāṃs ramt yāmornta* ‘like work in the field [are] deeds’ (here TB *yāmornta* ‘deeds’ corresponds to Skt. *saṃskāra*). The third term, Skt. *viññāna* ‘consciousness’ is compared to a seed: *śāktālye ra aiśalle* ‘like a seed [is] recognition’. It is not necessary to list all twelve terms. The main point is that it is unlikely that the first and the second would have been compared to the same element. Since “mental construction” corresponds to “working the field”, it is more likely that “ignorance” corresponds to an unworked field.²⁶ Finally, I have doubts on the reading of the akṣara traces. Instead of *mīṣe [rapā](l)[ñe]* I would rather read *mīṣe [ra] c[ī] ·e*. The beginning *mīṣe ra* could simply be ‘like a field [is] ...’, but unfortunately I cannot so far suggest a restoration for the following.

TA *muk* ‘yoke’

In the plowing bilingual, *muk* corresponds to Skt. and Pāli *yugaṃ* ‘yoke’ twice: in A360.13 we find *mu(k)* as the equivalent of Skt. *yugaṃ*, and in A361.5 we have *knānmune(ṣi) muk kālkaṃ āreñ* corresponding to Pāli *paññā me yuganaṅgalaṃ* ‘insight is for me yoke and plow’ (see above under *āre**). Although its meaning is thus established with relative certainty, the etymology of *muk* remains unclear.

In Tocharian B, we find in B407a7, in the famous simile of the turtle and the yoke²⁷ the word *pyorye* corresponding to ‘yoke’ in most parallel versions. However, there are also parallels in Chinese that mention instead of a yoke a ‘floating piece of wood with one hole’ or a ‘hole in a floating log’ (Allon

²⁶Also, it does not appear to be very probable that the same concept “working the field” should be expressed once by *mīṣe rapālñe* ‘digging the field’ and one line further by *mīṣene lāṃs* ‘work in the field’.

²⁷The simile is that human birth is difficult to attain because it is as rare as the chance that a blind turtle swimming in the ocean would coincidentally lift up its head precisely through the hole of a yoke floating around.

2007: 246 and passim; Peyrot 2013: 329). Since there is no other evidence for the meaning ‘yoke’ in Tocharian B, *pyorye* could therefore also simply be a log of wood. The etymology is unclear (cf. Adams 2013: 441; Hilmarsson 1991: 173–174).

TA *laṣis* ‘strap of the yoke’ (?)

A Tocharian A word *laṣis* occurs in the plowing bilingual in A361.1.²⁸ Apparently it is the equivalent of Skt. *varatram* ‘strap’ (so to be read for *varamtra* in the manuscript; SWTF IV: 78b, “Riemen”) and Chinese *mí* 縶 ‘halter’ (Enomoto 1997: 97; Meisig 2001: 595, “Halfter, Strick”). Not with Meisig does it seem likely that *ruò yǎng ruò mí* 若鞅若縶 “noch Riemen noch Halfter” is to be taken together as the translation of Skt. *varatram*: a further term is lost before, which would seem to correspond to *yǎng* 鞅, and which is rendered by *ñomes* in Tocharian A, see above). As *ñomes*, *laṣis* would seem to be a genitive singular; the nominative could be *laṣ** or perhaps *laṣi**. Another possibility is that *laṣis* is an oblique plural of the type *ris* of *ri* ‘town’. This rare type of oblique plural would suggest a nominative singular *laṣe** or *laṣi**, corresponding to a theoretical Tocharian B *leṣiye** (not attested). If *laṣis* is a genitive singular, an inherited word of this structure is in principle also possible if it belongs to the same inflexional type as TB *kwrāṣe* ‘skeleton’, obl.sg. *kwrāṣ*: otherwise the palatalized -ṣ- cannot be explained. The etymology is unfortunately unknown.²⁹ Obviously, *laṣis* may also be a loanword.

AGRICULTURE IN GENERAL

GHOST: TB *ṣito* ‘field, crop’

Adams (2013: 719) sets up a Tocharian B word *ṣito* ‘field, crop’. The word *ṣito* does exist, but rather means ‘messenger’ (CETOM s.v. *ṣito*; Ogihara 2013: 207–208; Wilkens and Peyrot 2017: 707; Pinault 2017: 138–148).

²⁸Compare also the unclear A98a2 *pañcyā laṣyā* (where this word division is suggested by the metre).

²⁹Not convincing on the formal side is Poetto’s suggestion to connect Lat. *lōrum* ‘leather strap’ (1988).

TB *ñemek* ‘harvest’

In Tocharian B, the word for ‘harvest’ is *ñemek*. Adams (2013: 289) sees in it a derivative from a PIE **nem-* ‘take’ and reconstructs **nēmokom*. There are no parallels for such a formation in Tocharian or elsewhere, and the complete loss of final **-om* is unexplained (Adams finds the same sound development in *yap* < **ieuom*, see above, but this word has in my view to be explained otherwise). Finally, most evidence for the alleged root **nem-* is to be explained rather from **h₁em-* through metanalysis of preverbs, as happened in Germanic **neman-*. Better is Isebaert’s suggestion that *ñemek* is borrowed from an Iranian formation **ni-yama-ka-* from the root **yam-* ‘hold’, **ni-yam-* ‘take’ (2003: 117–118). Obviously, a caveat must be that the word is not so far attested in Iranian and needs to be reconstructed.

TB *miše* ‘field’, TA *miši* ‘field’

The Tocharian words for ‘field’, Tocharian B *miše* and Tocharian A *miši*, are obviously related to Niya Prakrit *miši* and Khotanese *mišša-*, *māšša-*. It is generally agreed that the Tocharian words are borrowed, and the Khotanese word is most commonly seen as the source (Schmidt 1980: 411; Tremblay 2005: 434), also of the Niya Prakrit term. Indeed, it seems unavoidable to assume borrowing, even if the Tocharian words are considered by themselves. In Tocharian B, words in *-šše* are highly frequent, but it is difficult to envisage a possible Proto-Indo-European source for a word ending in *-še* with a single *-š-* after a vowel. The only possible reconstruction would be **meisē(n)*,³⁰ but in that case the oblique singular would not have been *miše*, as it is attested, but ***miš* (cf. *kwrāše* ‘skeleton’, obl.sg. *kwrāš*).

Even though borrowing in itself is likely, the details are complicated. Bailey (1979: 333a) connects Khotanese *mišša-*, *māšša-* with Arm. *mšak* ‘labourer’ (borrowed from Iranian) and Georgian *muša*, *mušak’i* (borrowed from Armenian).³¹ The

³⁰ Or **mesē(n)*, **misē(n)* with palatalization of **m* to **m̥* and subsequent colouring of *ə* to *i*.

³¹ He also adduces other forms, most notably Av. *mīzan* Y 44, 20 (1956). This form is often translated as “hegen” or “pflegen”, but should be ‘sow’ according

isolation of this term in Iranian and the lack of any convincing Indo-European etymology are problematic. It is further to be noted that the Tocharian B word is not so easily derived from Khotanese *miṣṣa-* as one might think. While it is possible that Khot. *-ṣṣ-* denotes a voiceless non-geminated *-ṣ-* instead of a real geminate, so that borrowing with a single *-ṣ-* in Tocharian is understandable, the final *-e* of the Tocharian B word is difficult to explain. Final *-e* usually only occurs in the oldest layer of Iranian loanwords (Tremblay 2005: 422).³²

It should further be noted that TA *miṣi* and TB *miṣe* cannot be reconstructed to a single proto-form. It seems more likely that Tocharian A was borrowed independently. As sources both Niya Prakrit *miṣi* and Khot. *miṣṣa-* would in principle be suitable; the nominative of Khot. *miṣṣa-* was in the earliest Old Khotanese *miṣṣā*, but the vowels *ā* and *i* merged at an early stage (hence also *māṣṣa-*), so that *miṣṣā* might well have been borrowed as *miṣi*.

TA *kappāñ* ‘cotton plants’

In the third act of the Tocharian A *Maitreyasamitināṭaka*, a number of technical terms for cotton agriculture occur, in particular in a strophe describing how Queen Gautamī sowed, tended, watered and harvested cotton to weave a cloth for the Buddha (YQ III.1b2–4; Ji 1998: 144–145). The Tocharian terms for this process are discussed by Pinault (2011: 131–133) on the basis of Raschmann’s analysis of the corresponding terminology in the Old Uyghur *Maitrisimit* (1995: 29–33). The relevant agricultural terms as revealed by Pinault (l.c.) are:

to Bailey. His interpretation is tailored especially to his etymology of Khotanese *miṣṣa-* and far-fetched. The further connections he proposes with Sanskrit *bīja* ‘seed’ are impossible. As Petr Kocharov points out to me (p.c.), the Armenian word has cognates not only in Georgian and other Kartvelian languages, but also in North Caucasian, e.g. Ingush *muša* and Circassian *mišak* (HAB: III, 335). This distribution makes it unlikely that the direction of borrowing was from Armenian into the other languages: the borrowing relationships must be more complex.

³² Burrow (1937: 111) derives Niya Prakrit *miṣi* from *miśrya* ‘mixed (land)’. This is difficult to exclude, but there is no independent evidence that *miṣi* land was mixed in any sense, and Tocharian B *miṣe* cannot be explained from Niya Prakrit *miṣi* because of the difference in the final vowel.

- *wlāys-* (*wles-*) ‘work (the land, the field)’ ~ Old Uyghur *käpāz tarı-* ‘cultivate cotton’. This is the general word for ‘work, carry out’, not necessarily limited to working a field.
- *kappās sāryā-* “planter les graines de coton”, ‘plant cotton plants’ ~ Old Uyghur *urug sač-* ‘sow seeds’. While the Old Uyghur text refers to sowing, it is more probable that Tocharian A *sāryā-* means ‘plant’ (see further above). The Tocharian A term *kappās* is the oblique plural of nom.pl. *kappāñ* ‘cotton plants’. As argued by Pinault, *kappās* was borrowed from a Middle Indian variant *kappāsa* of Sanskrit *karpāsa* ‘cotton’, from which also Old Uyghur *käpāz* and Khotanese *kapāysä* derive in the end. Carling (2009: 100a) plausibly suggests that the nom.pl. *kappāñ* was back-formed from the originally borrowed form *kappās*, which was reinterpreted as an oblique plural.
- *pyāšt-*^{caus.} ‘nourish, nurse’ ~ Old Uyghur *suva-* ‘water’. *pyāšt-*^{caus.} is not restricted to agriculture and seems to be used metaphorically here; in the passage, the cotton plants have even been “watered” with milk. As to the etymology, Malzahn (2010: 731) suggests derivation from PIE **peiH-* ‘swell’ (Ved. *pay-*ⁱ ‘swell’, cf. also e.g. Ved. *pāyas-* ‘milk’, which fits ‘nourishing with milk’ quite well).
- *sāmā-* ‘collect’ ~ Old Uyghur *ävdi-* ‘collect’, here ‘pick (cotton)’. The etymology of this verb is unknown; compare the discussion in Malzahn (2010: 934).³³

Another, even more central term in the third act of the *Maitreyasamitināṭaka* is the woven product *kanak* ‘cotton cloth’, which clearly corresponds to TB *kenek* ‘id.’. The Tocharian terms must be related with Iranian terms for ‘flax’ (Isebaert 2003: 117; Tremblay 2005: 425), in particular **kana-* as reflected by Ossetic Dig. *gænæ*, Ir. *gæn* ‘hemp, flax’, **kanaba-* as reflected by Buddh. Sogdian *kynp*’ and Middle Persian *k’nb*, and **kanafa-* as reflected by Khotanese *kaṃha-* ‘hemp’. However, the Tocharian words cannot be derived from any of these forms, but require a source form **kanaka-*. In view of the TB

³³I am, however, not that negative about a connection with TB *samp-* ‘take away’, TA *sāwmā-* ‘id.’ (see the reconstruction in Peyrot 2013: 829).

vowels *e_e* for Iranian *a_a*, the borrowing must be relatively old; a Proto-Tocharian reconstruction **kenek* would theoretically be possible. The word is clearly a Wanderwort originally from the Middle East so that a unified reconstruction for Iranian cannot be given (compare also the initial *g-* in Ossetic for expected *k-*).

For the historical context of cotton and hemp production, see Ching (2010: 69–70).

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