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Balto-Slavic Agricultural Terminology

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This paper provides an overview of the agricultural lexicon of Balto-Slavic and aims to include all words that can be reconstructed for the Baltic and Slavic proto-languages. In our analysis, we distinguish between the words that can be dated to Proto-Balto-Slavic and those that entered Baltic and/or Slavic independently at a later stage. The paper shows that Baltic and Slavic do not share a large agricultural lexicon, which suggests that the speakers of Balto-Slavic did not practice agriculture in a much more extensive way than the Proto-Indo-European pastoral nomads did. The transition from a pastoral to a more agriculture-based society took place after the parting of Baltic and Slavic.

Introduction

This article provides an overview of the agricultural lexicon of Balto-Slavic. It discusses the etymology of the agricultural terms in the Baltic and Slavic languages, which will enable us to distinguish between the agricultural words that can be dated to Proto-Balto-Slavic times and those that entered Baltic and/or Slavic independently at a later stage. The reconstructed Proto-Balto-Slavic agricultural lexicon provides insight into the subsistence strategies of the Proto-Balto-Slavs. We will show that Proto-Balto-Slavic did not have a large agricultural vocabulary and that most of this terminology, with the exception of a few terms associated with flax-dressing, was inherited from Proto-Indo-European. This indicates that the transition from a pastoral to a more agriculture-based society took place after the dissolution of Proto-Balto-Slavic. The Proto-Balto-Slavic lexicon contains many words in the semantic fields of stockbreeding, forest animals, fruit trees, (forest) beekeeping, and river fishing, which connects well to the stockbreeding and cattle herding economies of the early Bronze Age Middle Dnieper and Fatyanovo cultures (Anthony 2007: 377-378).

It has long been known that Baltic and Slavic share a significant number of lexemes not found in other branches of Indo-European, most of which can be found in Trautmann's 1923 Balto-Slavic dictionary. Because Baltic and Slavic also share a number of early phonological innovations, e.g. the disintegration of vocalic resonants (Kortlandt 2007), Winter's law (Kortlandt 1988, 2011, Dybo 2002) and Hirt's law (Illič-Svityč 1963), it is reasonable to assume that Baltic and Slavic formed one language for a considerable period after the disintegration of Proto-Indo-European, at least until the beginning of the second millennium BC. This is confirmed by the fact that these common phonological innovations occurred in the same relative chronological order (Matasović 2005, Kortlandt 2008). The part of the lexicon that is shared by Baltic and Slavic but not by the other Indo-European languages consists of two types of lexemes: those that evolved during the period of shared Balto-Slavic history and those that were much later borrowed into Slavic or Baltic.

Our overview has the following structure. First, some relatively recent agricultural borrowings into and from Baltic and Slavic will be discussed. These are borrowings that uncontroversially took place a few centuries before or during the early Middle Ages and do not go back to Proto-Balto-Slavic times. More recent borrowings, e.g. words for New World vegetables and fruits, will be ignored. The second and main part of the paper consists of an overview of those agricultural terms that are not evidently early medieval borrowings. These are ordered alphabetically by their meaning, e.g. 'furrow', 'sow' etc. Although we have tried to err on the side of inclusion, none of the sections can be claimed to be exhaustive. The paper is concluded by a discussion of the development of agriculture from a linguistic perspective, focussing on Proto-Balto-Slavic society.

Agricultural terminology and early mediaeval language contact

Agricultural terminology entered Slavic from Germanic languages and Latin during the first millennium AD. Early borrowings from Germanic are, e.g., PSl. **plugъ* 'plough', **lukъ* 'chive, onion', **ovotjbъ*/**ovotje* 'fruit', **redbky*/**rdbky* 'radish'

and **bruky* ‘rutabaga’ (Pronk-Tiethoff 2013). Slavic borrowings from Latin include PSl. **loktika* ‘lettuce’ and **brosky* ‘cabbage’ (Boček 2010: 119-122, 140-141). Latin and Germanic words for fruit and vegetables were often borrowed into Slavic as feminine *ŭ*-stems (Pronk-Tiethoff 2014). This also applies to PSl. **mørky* ‘carrot’ and **tyky* ‘pumpkin’ which are borrowings from an unknown non-Indo-European source (see below).

The Slavs probably adopted viticulture from speakers of Gothic, as evidenced by the borrowing of PSl. **vino* ‘wine’ and **vinogordŭ* ‘vineyard’ from Goth. *wein* and *weinagards* (Pronk-Tiethoff 2013: 125-127). The word for ‘vine’, PSl. **loza* (OCS *loza*, Ru. *lozá*, Pol. *loza*, S, Cr. *lòza*), originally meant ‘(flexible) rod’, a meaning that is preserved in several Slavic languages, cf. also the cognate Lith. *lazdà* ‘stick, staff, hazel’. The word for ‘bunch of grapes’, OCS *grozdŭ*, *groznŭ*, is of unclear origin (cf. HER s.v. *grozd*).

Only very few of the many Slavic loanwords into East Baltic belong to the area of agricultural terminology (cf. Brückner 1877: 66ff.). Most are names of fruit and vegetables, e.g. Lith. *aguřkas* ‘cucumber’, *alyvà* ‘olive’, *burŭkas* ‘beetroot’, *citrinà* ‘lemon’, *česnākas* ‘garlic’, *grikiai* ‘buckwheat’, *kopūstas* ‘cabbage’, *melionas* ‘melon’, *moliūgas* ‘gourd, pumpkin’, *morkà* ‘carrot’, *ridikas* ‘radish’. Other agricultural borrowings include Lith. *kanāpės*, Latv. *kaņepe* ‘flax’, Lith. *plūgas* ‘plough’, Latv. *lemesis* ‘ploughshare’ and *grāda* ‘garden bed’.

Loanwords from Baltic and Slavic into other neighbouring languages also include the terminology of agriculture. Loanwords from Baltic into Finnic are, e.g., Fi. *herne*, Est. *hernes*, Car. *herneh* ‘pea’, cf. Lith. *žirnis*, Fi., Car. *siemen*, Est. *seeme* ‘seed’ (OPr. *semen*, Lith. *sėmenys*), Fi. *vako*, Est. *vagu*, Car. *vago* ‘furrow’ (Lith. *vagà*), Fi. *äes*, Est. *äke* ‘harrow’ (Lith. *akėčios*), Fi. *ruis*, Est. *rukis*, Car. *rujs* ‘rye’ (Lith. *rugys*), Est. *lina* ‘flax’ (Latv. *lini*), Est. *kõblas* ‘hoe’ (Latv. *kaplis*), Est. *magun* ‘poppy’ (Latv. *maguõne*) and Est. *uba* (Latv. *pupa*) (Zinkevičius 1984: 173ff., Vaba 2011: 753). These borrowings are sometimes difficult to date and some may have been borrowed in the first millennium BC already. Agricultural terminology borrowed from early medieval Slavic is found in Finnic, Mari, Hungarian, Romanian and Albanian: Fin. *kuomina*, Est. *koomina*, Ingr. *kõmina*, Vot. *koomina*, Veps. *gomin* ‘threshing floor’ (ORu.

gumbno), Fin. *naatti* ‘beet foliage’ (ORu. *natb*), Fin. *sirppi*, Est. *sirp*, Car. *sirpi* ‘sickle’ (ORu. *sŕpŕ*), Fi. *papu*, Car. *pabu* (ORu. *bobŕ*) (Plöger 1973: 307), Fin. *vilja* ‘grain, yield’, Est. *vili* ‘grain, fruit’ (ORu. *obilije*) (Koivulehto 2006: 187); Mari *šurno* ‘grain’ (ORu. *zerno* ‘grain’); Hung *bab* ‘bean’, *borona* ‘harrow’, *cékla* ‘beetroot’, *dinnye* ‘melon’, *lencse* ‘lentils’, *rozs* ‘rye’; Rom. *bob* ‘bean’, *lopată* ‘shovel’, *morcov* ‘carrot’, *ovăz* ‘oats’, *plug* ‘plough’, *sfeclă* ‘beetroot’, *snopi* ‘sheaf’; Alb. *matukë* ‘mattock’, *grendëll* ‘plough beam’ (Ylli 1997: 318, 320).

Older agricultural terminology in Baltic and Slavic

The discussion of the data in this section is kept to a minimum, unless the etymology requires a more detailed discussion. In order to keep the text readable, we have left out references to the standard etymological reference works. Here follows a list of the most important etymological dictionaries that were consulted but are not consistently referred to in the text. For Baltic: (general) EDBIL, (Lithuanian) LEW, LKEŽ, ALEW, (Latvian) LEV, (Old Prussian) PKEŽ; for Slavic: (general) ĖSSJ, SP, EDSIL, (Russian) REW, (Sorbian) HEWONS, (Slovene) ESSJ, (Croatian) HER.

BARLEY

Lith. *miėžiai*, Latv. *mieži*, OPr. (EV) *moasis*, (G) *maise*, *mayse* ‘barley’, cf. also Latv. *màize* ‘bread’, has no good etymology.

Proto-Slavic **ęčьmy* ‘barley’ (ORu. *jačьmy*, Pol. *jęczmień*, S, Cr. *jěčam*) is a masculine *men*-stem, usually derived from the root **h₂enk-* ‘to bend’ (Skt. *añc-* ‘to bend’) on account of the ‘hanging’ ears that are characteristic of barley. This root etymology remains uncertain (cf. Blažek 2016: 58, with less plausible alternatives). The exact age of the word is difficult to establish. It is limited to Slavic, but there are only a few masculine *men*-stems in Slavic (Vaillant 1958: 206ff.), so the formation can hardly be of recent date. It is quite possible that the *-bm-* reflects an earlier syllabic **m̥* (cf. Pronk 2010, 2014), which would imply that the formation is of Proto-Balto-Slavic age. Perhaps the word was derived from an abstract *men*-stem meaning ‘bend, bending’.

BEAN

Proto-Slavic **bobъ* ‘bean’ (Ru., Cz. *bob*, Cr. *bōb*) is cognate to OPr. *babo* ‘beans’, if this is not a borrowing from Slavic, and Lat. *faba* < **b^hab^h-*. Similar but not identical forms are attested in other European languages, ON *baun*, OHG *bōna* < **baunō-* (< **b^hau-*, Kroonen 2013: 55), Gr. φακός ‘lentil’, Alb. *bathë* ‘broad bean’ (< **b^hak-*). No proto-form can be reconstructed, which points to independent borrowings from a non-Indo-European source in Europe. The same non-Indo-European word could also be continued by the structurally similar but otherwise incompatible East Baltic words: Lith. *pupà*, Latv. *pupa*. Fraenkel (LEW: 670f.), however, derives them from the root of Latv. *paupt* ‘to swell’, which seems less likely.

CARROT

Proto-Slavic **mъrky* ‘carrot’ (Ru. *morkón*’ (f.), Cz. *mrkev* (f.), S, Cr. *mŕkva*), resembles the Germanic word for ‘carrot’, PGm. **murhōn-* (OHG *morha*, OE *moru*). They reflect **mrk-*. There is another word for ‘carrot’ attested in Baltic and Slavic: Latvian *buŕkāns*, Lith. obs. *buŕkonas*, Russian obs. *burkán*, *borkán*, *barkán*. Outside Balto-Slavic we find the similar Est. *porgand*, Fin. *porkanna* and Germ. dial. (eastern) *Burkane* (we were unable to trace the alleged Old Frisian cognates of the German word cited in LEW: 155). The geographic distribution of these words would be in line with either Baltic or substrate origin. The most plausible scenario connecting Slavic **mъrky* and Baltic **burkanas* is one in which the word was borrowed into Baltic and Slavic from an unknown third language. It could well be an “indigenous European term (**mrk-* ~ **brk-*) referring to a root-vegetable” (Kroonen 2013: 378).

CHAFF, AWE

Lith. *pēlūs*, *pelaĩ* (pl.), Latv. *pēlus* (pl.), OPr. (EV) *pelwo*, Proto-Slavic **pelva* (OCS *plěvy* (pl.), Ru. *polóva*, Pol. *plewy* (pl.), S, Cr. *pljěva*) ‘chaff’ are cognate to Lat. *palea* ‘chaff, husks’. In Slavic we also find the verb **polti* ‘to remove chaff’ (Ru. dial. *polót*, Cz. *pláti*, Sln. *pláti* ‘to undulate, surge, swing (grain to remove chaff)’). These words may go back to a PIE root **pelh₁-*. Further potential cognates like Skt. *palāva-* ‘chaff’ (cf. Mayrhofer 1996: 103), Gr. πάλλω ‘to sway’ (cf. Beekes 2010: 1148), πάλη ‘fine flour, fine dust’, Lat. *pollen* ‘flour, powder’ and

pulvis ‘dust’ (cf. De Vaan 2009: 477, 498) are all uncertain.

OPr. (EV) *ackons* ‘awn’ is cognate to Goth. *ahana* ‘chaff’, Lat. *agna* ‘ear of grain’. The root is probably PIE **h₂ek-* ‘sharp’, in which case the Prussian velar must be due to depalatalization before **-n-* in an ablaut variant **h₂ek-n-*. Lith. *akúotas*, Latv. *akuōts*, Ru. *ost’*, Cz. *osina*, S, Cr. *ôsje*, Bulg. *osíl* ‘awn’ are independent derivatives from the same root. In East Baltic, the *-k-* must be analogical, cf. also Lith. *ākstinas* ‘thorn, awn, goad’, *akstis* ‘pointed implement’.

CLEAR, CLEARING

The speakers of Proto-Slavic and Proto-East-Baltic used slash-and-burn techniques to clear land for agricultural purposes.

Lith. *lýdyti*, 3pres. *lýdžia*, 3pret. *lýdo*, Latv. *líst* ‘to clear’, 1sg.pres. *ližu*, 1sg.pret. *lidu* is usually connected to Lith. *lėisti*, Latv. *laíst* ‘let, set in motion, throw’. The original meaning would be ‘to fell (“throw”) trees’.

Lith. *trākas* ‘overgrown meadow, forest area cleared by burning’, which appears to be a slash-and-burn term, is a derivative of the verbal root of *trėkti* ‘to damage, soil, waste’.

Proto-Slavic **kǫrčiti* (Mac. *krči*, S, Cr., Sln. *křčiti*, Cz. *krčiti*) and **kǫrčevati* (Ru. *korčevát*, Pol. *karczować*, Slk. *krčovat*) ‘to clear’ are recent derivatives from **kǫrčb* ‘stump’.

Proto-Slavic **lazb* ‘clearing’ (SerbCS *lazb*, Ru. (17th c.) *lazb*, OCz. *laz*, *láz*, OPol. *łaz*, S *láz*, Cr., Sln. *lâz*) is usually connected to **lězti*, **laziti* ‘to crawl, creep, climb out of’, although the semantics are debated, cf. the discussion in ÈSSJ (XIV: 75f.). The meaning of the verb is old, cf. Latv. *lēzēt* ‘to go slowly, slide’, OPr. *līse* ‘crawls’. Semantically easier is a connection to Latv. *lēžns*, *lēžens* ‘flat, level’. Both etymologies could be combined by reconstructing an original meaning ‘to be flat, go flat’ > ‘to crawl, creep’. The Slavic word would then be of Balto-Slavic origin and originally meant ‘levelling’. An outer-Balto-Slavic cognate could be ON *lágr* ‘low’ < **lēg-*, but the Germanic forms have alternatively been derived from PIE **leg^h-* ‘to lie down’ (Kroonen 2013: 330). For the Balto-Slavic forms this derivation is impossible in view of the root-final sibilant and the acute intonation of the root.

Proto-Slavic **terbiti* ‘to clear, root up’ (ORu. *terebiti*, S, Cr.

trijèbiti, Pol. *trzebić*, cf. also Ru. *téreb* ‘clearing’) appears to be cognate to Umbrian *trebeit* ‘lives, dwells’, OIr. *treb* ‘settlement’, Goth. *þaurp* ‘field’, OHG *dorf* ‘settlement’, Lith. *trobà* ‘farmhouse’, perhaps also Lat. *trabs* ‘beam’ < PIE **treb-*. The Slavic verb would have to be based on the zero-grade **tr̥b-* > BSL. **tirb-*. Its original meaning then was ‘to create a living space, settle’ (for the semantic shift ‘settlement’ > ‘field’ cf. Goth. *þaurp* ‘field’ and OCS *selo* ‘field, settlement’) and the verb did not originally relate to preparing a field for cultivation. The alternative etymologies for the Slavic word are unconvincing. See further under *FIELD*.

EAR, PANICLE

Baltic and Slavic share an etymon for ‘(oat) panicle’: Lith. *váltis* (f.) ‘oat panicle’, OPr. *wolti* ‘ear’, PSl. **voltb* (f.) ‘(oat) panicle’ (Ru. *vólot*, Cz. *lata*, S, Cr. *vlât*). Possible cognates are OIr. *fol* ‘hair’ and OHG *wald* ‘wood’ < **uolH-t-*. A connection to Gr. *λάσιος* ‘shaggy’ is difficult, because the Greek word cannot contain the laryngeal that is required to explain the Lithuanian acute accent.

The East Baltic word for ‘ear’, Lith. *várpa*, Latv. *vārpa*, is a derivative from the verbal root of Lith. *vērpti* ‘to spin; poke, stick’, *virpėti* ‘to quiver’, Latv. *vērpt* ‘to spin’, *virpēt* ‘to quiver’.

Proto-Slavic **kols̥* ‘ear’ (OCS *klas̥*, Ru. *kólos*, Pol. *kłos*, S, Cr. *klâs*) is a derivative from **kolti* ‘to stab’ (for the semantics cf. English *spike* ‘ear’). The suffix **-so-*, which originally formed adjectives, is not very common in Slavic but appears to have been somewhat productive in Balto-Slavic times as a deverbal suffix (cf. Matasović 2014: 109–111). Examples are PSl. **směx̥s̥* ‘laugh’ < **smoiH-so-*, **gols̥* ‘voice’ (cf. Lith. *balsas* ‘voice’), **bēs̥s̥* ‘demon’ < **b^hoiHd^h-so-* (cf. Latv. *bâiss* ‘terrible’), **pleso* ‘deep and broad place in a river’ < **pleth₂-so-* and **lix̥s̥* ‘superfluous’ < **leik^w-so-*, most or all of which are of Proto-Balto-Slavic date. The same age is therefore conceivable for PSl. **kols̥* ‘ear’, though not necessarily already with the meaning ‘ear’.

FLAX, HEMP

Baltic and Slavic share a word for ‘flax’: Lith. *linai* (pl.), Latv. *lini* (pl.), OPr. (G) *lino*, PSl. **lbn̥s̥* (Ru. *lěn*, gen.sg. *l’na*, Cz. *len*, gen.sg. *lnu*, S, Cr. *lăn* (with a secondary short vowel)). The

Slavic forms are masculine *o*-stems, the East Baltic forms are pluralia tantum. The corresponding singular forms denote a single flax plant. Cognates are only found in the European languages: Lat. *līnum*, Gr. λίνον, Goth. *lein* ‘flax, linen’, OIr. *lenn* ‘cloak’ (Matasović 2009: 240) < **lein-*, **lin-*. The Germanic form may be due to a borrowing from Latin, as is the case with OIr. *lín*, W *linn* and Alb. *li* ‘flax, linen’. The Slavic forms could directly match the neuter *o*-stem of Lat. *līnum*, Gr. λίνον, because barytone neuter *o*-stems become masculine in Balto-Slavic. Note, however, the mobile accentuation continued by Čakavian (Orbanići) *lân*, gen.sg. *lâna*, Kajkavian (Varaždin) *lên*, Slovene *lân*, gen.sg. *lanû*, which is unexpected in an old neuter. We are probably dealing with an indigenous European word (cf. Mallory & Adams 1997: 206).

We can also reconstruct some terminology connected to the techniques of processing flax. Lith. *minti* and Latv. *mīt* have the meanings ‘to trample’ and ‘to scutch’. The cognate verb in Slavic, PSl. **męti*, has the meaning ‘to scutch’ in Russian, Belarusian, Polish and Bulgarian. This appears to be a Balto-Slavic archaism. There are no evident cognates outside Balto-Slavic. Another Balto-Slavic etymon that is attested with the meaning ‘to scutch’ in both branches is the root **bruk-*/**brus-* of the verbs Lith. *brùkti* ‘to poke, thrust, press, scutch’, *braũkti* ‘to erase, scutch’ and Ru. *brosát* ‘to throw, (dial.) scutch’. In Slavic, the meaning ‘to scutch’ is restricted to dialectal Russian and it is conceivable that this meaning arose independently in Lithuanian and Russian.

The word for ‘heckling comb’ in East Baltic, Lith. *šukos* (pl.), Latv. *sukas* (pl.), is cognate to PSl. **sъčebъ* (f.) (Ukr. *ščet*’, Polabian *săcit*, Cz. *štět*, Sln. dial. *ščèt*), which in most Slavic languages means ‘brush’, but in Ukrainian it means ‘heckling comb’, like in East Baltic. This old etymology was rejected by some scholars (e.g., REW: 505f., SEJDP: 681, HEWONS: 1417). They regard the apparent reflex of a jer in Polabian *săcit* to be secondary and reconstruct **sčeb-*. This seems unnecessarily complicated. The neoacute accent of the word (cf. S, Cr. *čětka*, Sln. dial. *ščèt*, USorb. *ščět*) confirms the presence of a jer in the initial syllable. The neoacute can only have arisen when the accent regularly shifted from the root syllable onto the suffixal **e* in late Proto-Slavic (Dybo’s law). The suffix is evidently that

of Lith. *akėčios*, OPr. *aketes* ‘harrow’ and of PSł. **es-etb* ‘rack for drying grain’ (Ru. *osět’*, Pol. dial. *jesieć*). The Balto-Slavic root has no etymology.

The East Baltic verb for ‘to card’, Lith. *kāršti*, Latv. *k rst*, is cognate to Latin *carmen* ‘card’ and to Germanic words for flax, Old Norse *horr*, Old High German *haro* < **harzwa-* (Kroonen 2013: 213). Kurkina (2006: 156) further connected the words for ‘to card’ to Skt. *karṣ-* ‘to plough’, Sln. *črěslati* ‘to strip the bark from a tree’ and OPol. *czyrchlić*, *czyrślić* ‘to strip the bark from a stump to cause it to dry out’. This seems unlikely: Skt. *karṣ-* derives from PIE **k^wels-* (Mayrhofer 1992: 319) and Sln. *črěslati*, OPol. *czyrchlić*, *czyrślić* derive from **k(e)r-slo-*, cf. Ukr. dial. 1sg.pres. *čěrsti*, *čru* ‘to strip the bark from a tree’ and CS *kora* ‘bark’, or form PIE **kert-* ‘to cut’ with a suffix **-slo-* or **-tlo-* (SP II: 161f.).

Proto-Slavic **konopь* ‘hemp’ (Ru. dial. *konóp’*, OPol. *konop*, S, Cr. *kònop*) is a borrowing from the same or a similar European source as OHG *hanaf* and Gr. *κάνναβις* ‘hemp’. Lith. *kanāpė*, Latv. *kaņepe*, OPr. (EV) *knapios* are generally thought to be borrowings from Slavic.

Proto-Slavic **poskonь* ‘male hemp’ (Ru. *póskon’*, Pol. *płoskoń* (with secondary *-ł-*), Cz. *poskonek*) is sometimes connected to OHG *faso* ‘fiber, fringe, thread’, but this seems unlikely (cf. Kroonen 2013: 130). The word might contain the prefix *po-*, but there is no evident candidate root for the second part. It is unclear whether Latv. *paskaņi* ‘male hemp’ is cognate to the Slavic words or a borrowing from Slavic.

Proto-Slavic **kødělb* ‘tow’ (Ru. *kuděl’*, Pol. *kądziel* ‘distaff’ (confused with PSł. **kōželb* ‘distaff’), Cr. *kùdjelja*) is related to Ru. *kudér’*, Sln. *kòpdar* ‘curly lock of hair’, but its further etymology is unclear. Lith. *kuodėlis* ‘tow’ is a borrowing from Slavic.

Proto-Slavic **kostrь*, **kostra* ‘hemp hurds’ (Ru. *kostér’*, *kostrá*, Pol. *kostra*) is considered to be a derivative from **kostь* ‘bone’, because the hemp hurds are the coarse inner part of hemp or flax from which the fiber is separated during the process of dressing hemp or flax.

FLOUR

The Slavic word for 'flour', PSl. **boršbno* (OCS *brašbno* 'food', Ukr. *bórošno*, S, Cr. *brášno*) is cognate with Latv. *barība* 'food', Lat. *far* 'spelt, coarse meal', Umb. *far* 'flour', ON *barr* 'barley', W *bara* 'bread'. In Slavic, the meaning 'food' is attested in a number of languages (OCS, Ru., S, Cr.) and it matches the meaning of the Latvian cognate. The suffixal **-s-* of Slavic is also found in the Germanic and Italic cognates. The etymon is strongly suspect of being a post-PIE borrowing into the European branches of Indo-European: it is restricted to Europe, there is no Indo-European verbal root from which it could have been derived and the root vowel **-a-* is distinctly un-Indo-European (unless one wishes to reconstruct **b^hh₂er-*).

There is another word for 'flour' in Slavic, viz. PSl. **mōka* (OCS *mōka*, Ru. *muká*, Pol. *mąka*, S, Cr. *múka*), which remains without an etymology, since the traditional connection to Lith. *minkyti* 'to knead' is phonetically impossible (EDSIL: 329). For the East Baltic words for 'flour' see under *GRIND*.

FIELD, ARABLE LAND

Some words for 'clearing' and 'fallow land' are discussed here as well, because words for 'field, arable land' are often cognate to or derived from words meaning 'clearing' or 'fallow land'. Words for 'fallow land' often derive from adjectival meanings like 'pure', 'whole' or 'untouched', e.g. Latv. *tīrums* 'field, arable land', from *tīrs* 'clear, pure', and Proto-Slavic **cělina* 'fallow land' (ORu. *cělina*, Pol. (dial.) *celina*, Cr. *cjèlina*), from **cělō* 'whole'.

Lithuanian *laukas*, OPr. *laucks* 'field, arable land' are cognate with Latv. *lauks* 'clearing, glade', Skt. *loká-* 'open space', OE *lēah* 'field, meadow' (from PIE **leuk-* 'light').

Proto-Slavic **njiva* '(ploughed) field' (OCS *níva*, Ru. *níva*, Pol. *niwa*, S, Cr. *njīva*) must go back to earlier **nĭūua* with regular fronting of the vowel **ū* after yod. The word is usually connected to Gr. *veióς* 'fallow land' under the assumption that both reflect **nei-*. Although a reconstruction **nei-* cannot account for Slavic **ń-* or its acute **-i-*, the (indirect) connection with Gr. *veióς* can be maintained if both words are derived from PIE **neu-* 'new', cf. Gr. *veáoω* 'plough up fallow land', Lat. *novālis* (*ager, terra*), Ru. *nov* 'fallow land'. Greek *veióς* can be

derived from **neu-io-*, for the phonetics cf. αἰετός ‘eagle’ < **h₂eu̯io-*. The Slavic form is best explained from a (collective?) paradigm **neu-H-/*nu-H-* > PBSL. **nĭauH-*, **nuH-*. PS�. **ńiva* would be a contamination of these two ablaut variants, reminiscent of similar cases in Baltic, e.g. Lith. *griūti* ‘to collapse’ < **grĭauH-*, **gruH-*, cf. *griāuti* ‘to destroy’. The *-v-* of **ńiva* may be an additional suffix or reflect either the **u* from the stem, generalized from case-forms in which it was intervocalic, or the laryngeal, generalized from case-forms in which it was preceded by the **u* and followed by a vowel, cf. OCS *dъva* ‘two’ < **duHoH*. In conclusion, both Proto-Slavic **ńiva* and Gr. νεῖός can be derived from PIE **neu-* ‘new’, but there is no reason to assume that this derivation took place in Proto-Indo-European; we are probably dealing with independent innovations.

Lith. *dirvā*, Latv. *dirva* ‘field, arable land’ and the derivative Lith. *dirvonas*, Latv. *dirvāns* ‘fallow land’ is cognate with Ru. *derĕvnja* ‘village (without a church), (dial.) field’ and a derivative from the root of Lith. *dirti*, Latv. *dirāt*, OCS *dbrati* ‘to flay’ < PIE **der-* ‘to tear apart’. The noun originally meant ‘clearing, land where the trees have been uprooted’, cf. Ru. *drat* ‘to tear’, *rózdert* and *dor* ‘clearing, fallow land’. There is no reason to connect these words to Skt. *dūrvā-* ‘a kind of grass (*Cynedon dactylon*)’, MDu. *terwe* ‘wheat’, E *tare*, other than that it has been suggested that these words ultimately derive from PIE **der-* ‘to tear apart’, too (cf. Mayrhofer 1992: 739f.).

Proto-Slavic **polje* ‘field’ (OCS *polĕ*, Ru. *póle*, Pol. *pole*, S, Cr. *pòlje*) derives from the root **pol(H)-* also found in Ru. *pol* ‘floor’, Sln. *plân* ‘bare, open, level’, S, Cr. *planina* ‘treeless mountain’, OHG *feld* ‘field’, ON *fold* ‘earth, ground’, Arm. *hoł* ‘earth, ground’. The same root, with *Schwebeablaut*, is reflected in Latv. *plāns* ‘thin, flat; threshing floor’ (see under *THRESHING FLOOR*), Lith. *plótas* ‘space, area, field’, Lat. *plānus* ‘level, flat’, Hitt. *palḫi-* ‘wide’ < **pleh₂-*. PS�. **polsa* ‘strip of land’ (ORu. *polosa*, Pol. *płosa* ‘measure of arable land’, Cr. dial. *plāsā* ‘treeless land’) is probably also a derivative from this root (**pol(H)-s-*), although it is often connected directly to OHG *falǵ* ‘plowed field’, OE *fealg* ‘fallow’ under the assumption of a root **polk-*.

Old Prussian (EV) *samyen* ‘field, arable land’ derives from

the Indo-European word for ‘earth, land’ (Lith. *žėmė*, OCS *zemĭa*).

Proto-Slavic **lęda*, **lędina* ‘fallow land’ (Ru. *ljadá*, Cz. *lada*, S, Cr. *lędina*) is cognate with OPr. *lindan* (acc.sg.) ‘valley’, Go. *land* ‘land’, ON *lundr* ‘grove’, OIr. *lann* ‘land’. The etymon is restricted to the European branches of Indo-European, unless one accepts the connection to PIE **lendʰ* - ‘loin’ (Oettinger 2007 with lit.).

The final word to be mentioned here is Proto-Slavic **medja* ‘boundary-strip between two fields’ (Ru. *mežá*, Pol. *miedza* ‘border’, S, Cr. *męđa*), which derives from the Indo-European word for ‘middle’. The meaning ‘boundary-strip’ probably goes back to Balto-Slavic times; the meaning of the Baltic cognates, Latv. *mežs*, OPr. *median*, Lith. (dial.) *mędzias* ‘forest’, is usually explained from an earlier meaning ‘boundary between two fields’ (cf. E *wood* ~ Lith. *vidurys* ‘middle’).

FURROW

Baltic and Slavic have similar but not identical words for ‘furrow’: Lith. *biřžė*, *biržis*, Latv. *birze*, *birzs*, Proto-Slavic **borzda* (OCS *brazda*, Ru. *borozdá*, Pol. *bruzda*, S, Cr. *brázda*). These words point to a quasi-PIE form **b^(h)(o)rg^h-*, in Slavic with an extra suffix **-d-*. There exists no outer-Balto-Slavic etymology that accounts for both the Baltic and the Slavic forms. If the original meaning of the word was ‘ridge of soil between furrows’, the words could be cognate to OE *beorg* ‘mountain’, OIr. *bri* ‘hill’, OCz. *brah* ‘rick’, Skt. *bṛhánt-* ‘high’, Hitt. *park-* ‘to raise’, ToB *pärk-* ‘to arise’ < PIE **b^h(e/o)rg^h-*. For the semantics cf. Lat. *porca* ‘ridge of soil between two furrows’ ~ OE *furh* ‘furrow’ and Sln. *lęha* ‘ridge of soil between two furrows’ ~ Ru. *lexá* ‘furrow’ (see below).

OPr. (EV) *redo* ‘furrow’ has no obvious cognates. The word has been connected to the otherwise isolated Latv. *ręda* ‘edge’ and alternatively to OE *wrótan*, Old Norse *róta* ‘to grub’, which has no other known cognates outside Germanic.

Lith. *vagá*, Latv. *vaga* ‘furrow’, which is borrowed as Fin. *vako*, Est. *vagu*, is cognate with OPr. *wagnis* ‘ploughshare’, see under *PLOUGH, PLOUGHSHARE*.

The Slavic word **lęxa* (OCS *lęxa*, Ru. *lexá*, OPol. *lecha*, S, Cr. *lijęha*) means ‘garden bed, strip of land’, but additionally

‘furrow’ in East Slavic and ‘ridge of soil between two furrows’ in western South Slavic. The Baltic cognates Lith. *lýsvė*, *lýsė*, *lýstė* and OPr. (EV) *lyso* also mean ‘garden bed, ridge of soil between two furrows’, while Lat. *lira* ‘furrow’ and OHG *leisa* ‘track’ point to an earlier meaning ‘furrow’. Germanic verbs like OHG *lernōn* ‘to learn’, *lēren* ‘to teach’, Goth. *lais* ‘knows’ may point to an verbal root meaning ‘to track, follow’, but it is not quite certain that they are cognate to the nouns for ‘furrow’ etc.

GRANARY, DRYING SHED

Especially in the more northern regions, covered constructions were used to dry and store cereals.

Lith. *jáuja* ‘granary, drying barn, threshing barn’, Latv. *jaūja* ‘threshing barn’ is a derivative from the predecessor of Lith. *javai* ‘corn, grain’. The Baltic word was borrowed into Slavic (BRu. *jaŭja*, Pol. *jawia*) and, presumably from Old Prussian, into the Prussian dialects of German (*Jauge*). Slavic forms with *-ňa* (Ru. dial. *ėvnja*, *evnjá*, BRu. *ėŭnja*, Ukr. *jėvnja*, Pol. *jewnia*) were borrowed from a lost Baltic variant **javinja* or **javinė*. A submerged Baltic variant **javīnas* ‘granary, drying barn’ probably underlies Ru. *ovín*, BRu. *avín*, Ukr. *ovín*.

Lith. *žárdas*, Latv. *zārds* ‘rack for drying hay, cereals, flax, peas etc.’ is usually taken to be cognate to Ru. dial. *zoród*, *ozoród* with the same meaning, although the precise semantic match and the limited distribution of the Slavic word are perhaps better explained by assuming that they are early borrowings from Baltic. The Baltic word is cognate with PSl. **žrbdb* (f.) ‘pole’ (OCS *žrbdb*, Ru. *žerd*), which preserves the older meaning.

Lith. *arúodas*, Latv. *aruōds* ‘granary’ looks like compound with the same second member as in Lith. *in̄das* ‘vessel’, *púodas* ‘pot’, *iždas* ‘treasury’ < **-d^hh₁-o-*, cf. also *avidė* ‘sheepfold’, *aludė* ‘beer keg, beer cellar, alehouse’ < **-d^hēh₁*. The idea that the first part contains **ar-* ‘grain’ remains hypothetical, see the discussion in ALEW I: 51.

Ru. *riga*, BRu. *ryga* and Latv. *rija* ‘threshing barn’ are borrowings from Finnic, cf. Fin. *riihi*, Est. *rehi*.

GRAIN, CORN

Lith. *javai* (pl.) ‘corn, grain’ is cognate with Skt. *yáva-*, Av. *yauua-* ‘grain, barley’, Oss. *jæw* ‘millet’, Hitt. *eḡan* ‘a kind of grain’, Gr. ζῆαι ‘spelt’ < PIE **ieu(h₁)-* ‘some type of cereal’, cf. also ToAB *yu-* ‘to ripen’.

Latv. *labība* ‘grain’, older ‘goods’, is derived from *labs* ‘good’. A parallel semantic development can be observed in Polish *zboża* ‘grain’, older ‘possessions’ (LEW I: 327).

Proto-Slavic **žito* (n.) ‘corn’ (OCS *žito*, Ru. *žito*, OCz. *žito*, S, Cr. *žit*) is cognate to OPr. *geytye*, *geits* ‘bread’ and is derived from the passive participle of the verb **žęti* ‘to reap, harvest’, which goes back to a nasal present to the Indo-European root **g^wh₃ei-* ‘to live’ (Vaillant 1966: 306, Pronk 2013: 120f.). Whether the noun already existed in Proto-Balto-Slavic or was derived from the passive participle within Proto-Slavic is difficult to say. The Old Prussian noun does not form a perfect match. Although it is debated what type of stem the attested forms reflect (cf. PKEŽ 224f.), it is not neuter. If it is an *i*-stem, which seems to be the most likely option, it could reflect a *ti*-derivative **g^weiH-ti-* ‘sustenance’, parallel to Av. *jīti-* ‘life’ and not directly cognate to Proto-Slavic **žito*.

Proto-Slavic **obilьje* ‘abundance, plenty’ secondarily obtained the meaning ‘grain’, probably already in Proto-Slavic, cf. Ru. *obilie*, Cz. *obilí* ‘grain’ and the borrowing Fin. *vilja* ‘grain’.

GRIND

The Indo-European verbal root for ‘to grind cereal’, PIE **melh₁-*, is attested in PSl. **melti* (OCS *mlęti*, Ru. *molót*, Pol. *mleć*, S, Cr. *mljęti*), Lith. *malti* and Latv. *malt*. In Old Prussian (E), the derivative *meltan* ‘flour’, from the passive participle **melto-* or **milt-*, is attested, cf. Lith. *mltai*, Latv. *milti* (pl.) ‘flour’. The original meaning of the PIE verbal root was probably ‘to crush, break’ (cf. ToB 3sg.pres. *mällästrä* ‘crushes’), but the association with grinding cereal is already found in Hittite (Melchert 1988: 216). A derivative shared by East Baltic and Slavic is Latv. dial. *milęns*, PSl. **mьlenъ* (Ru. *mélen*, Pol. *mlon*, Cr. dial. (Vrgada) *mälen*) ‘handle of a hand-mill’.

HARROW

Lith. *akėčios*, *ekėčios*, lett. *ecēšas*, OPr. (EV) *aketes* ‘harrow’ reflect a European word for ‘harrow’, cf. Lat. *occa*, OHG *egida*, MW *ocet*. Due to the velar of the Baltic forms, a direct connection to PIE **h₂ek-* ‘sharp’ is impossible, unless the Baltic word was borrowed from a very early form of Germanic or an otherwise unattested Indo-European language.

Proto-Slavic **borna* ‘harrow’ (Ru. *boroná*, Pol. *brona*, Sln. *brána*) is a derivative from the root of Lat. *forāre* ‘to pierce’, ON *berja* ‘to beat, strike’. The verb itself is preserved in Slavic as the reflexive **borti sę* ‘to fight’.

Ru. *skorodá* ‘harrow’ is cognate to OCS *o-skrōdъ*, Pol. *o-skard* ‘stone-cutter’s tool’, Lith. *skiřsti* ‘to burst, split, crack’ and is an inner-Slavic or inner-Balto-Slavic derivative.

HARVEST

Lith. *pjovà* ‘harvest, field to be reaped, meadow’ and Latv. *plàva* ‘harvest, corn to be reaped’, *plāūja* ‘harvest’ are deverbal nouns from the root of Lith. *pjáuti*, Latv. *plāūt* ‘to reap, cut, mow’. The verb originally meant ‘to cut, strike’ and derives from PIE **pieh₂u-* (Hackstein 1992, cf. Lat. *paviō* ‘to thump, pound, strike’, Gr. *παίω* ‘to strike, hew’).

Proto-Slavic **žeti* ‘to reap, harvest’ (OCS *žeti*, Ru. *žat’*, S. Cr. *žēti*) and its derivative **žetva* ‘harvest’ (OCS *žetva*, Ru. *žátva*, S. Cr. *žětva*) derive from a nasal present to PIE **g^wh₃ei-* ‘to live’ (Vaillant 1966: 306), see further under *GRAIN*, *CORN*.

HAULM, CULM, STUBBLE

Proto-Slavic **stǫrnъ* (f.) ‘stubble’ (Ru. *stern’*, Pol. *ściern’*, S. Cr. *stŕn*) derives from the PIE root **sterh₁-* ‘stiff’ (Lith. *stėrti* ‘to be stiff’, Gr. *στερεός* ‘stiff’, ToB *ścīre* ‘hard, harsh’). The derivative **strni-* does not look like a recent creation, but it is impossible to tell when it obtained the meaning ‘stubble’.

Proto-Slavic **bǫty* (Ru. *botvá*, *bótov’* ‘haulm’, Pol. *botwina* ‘beetroot leaves’, Sln. *bětva*, *bětev*, *betvã*, Cr. *bâtva* ‘stalk’ (for attestations see Lörger 2014)). Since Miklošič, the word has been derived from PIE **b^hh₂u-*, cf. Gr. *φύομαι* ‘to grow’, but this is impossible because of its vocalism. The fact that the word is an *ũ*-stem speaks in favour of a borrowing, cf. the originally non-Slavic **brosky* ‘cabbage’, **mǫrky* ‘carrot’, **tyky* ‘pumpkin’,

bruky* ‘rutabaga’, **redbky*/rdbky* ‘radish’, **bersky* ‘peach’, **smoky* ‘fig’, **ruky* ‘hedge mustard’, **ruty* ‘common rue’ and **mety* ‘mint’ (Pronk-Tiethoff 2013: 243f., fn. 159; 2014).

Proto-Slavic **natъ* (f.) ‘foliage of root vegetables’ (Ukr. *nat’*, Pol. *nać*, Sln. *nât*) is cognate to Baltic words for ‘nettle’, Lith. dial. *notrė*, *nōterė*, Latv. *nātre*, OPr. *noatis*. The latter probably preserve the original meaning. A connection to Germanic words for ‘nettle’, e.g. OHG *nezzila*, is only possible in terms of borrowing.

The etymology of Lith. *rāžas* ‘stubble’ is unclear.

HOE

PSl. **motyka* ‘hoe’ (OCS *motyky* (acc.pl.), Ru. *motýga*, Pol. *motyka*, Sln. *motíka*) is probably, like OE *mattoc* ‘hoe’, a borrowing from vulgar Latin **matteuca* ‘mace’ (Meyer-Lübke 1911: 396, Pokorny 1959: 700).

LENTILS

Lith. *lęšis* ‘lentil’ and Proto-Slavic **lętja* ‘lentils’ (ORu. *ljača*, Cr. *léća*) are, like Lat. *lēns* ‘lentil’, OHG *linsa* ‘lentil’ and Gr. *λάθυρος* ‘*Lathyrus sativus*’, borrowings from a non-Indo-European language.

Proto-Slavic **sokъ* ‘lentil’, **sočivo* ‘lentils’ (USorb., LSorb. *sok*, ORu. *sočevica*, *sočivo*, S *sōčivo*) is related to **sokъ* ‘sap’, which preserves the original meaning. The meaning ‘lentils’ developed through an intermediate ‘lentil broth’.

MILLET

Lith. *sóros* (pl.) ‘millet’, Latv. *sāre*, *sūra*² ‘proso millet’ is of obscure origin. These words have long been connected to Mordvin (Moksha) *sura*, (Erzya) *suro* ‘millet’. The variation in vocalism within Baltic points to a borrowing (Būga 1922: 242f.), unless the vocalism of Latv. *sūra*² is due to analogy with *sūrs* ‘bitter’, because of the bitter taste that millet can have depending on how it is processed. In any case the root vocalism makes it unlikely that the Mordvin words are borrowings from Baltic or vice versa, as has been proposed in the literature (cf. Thomsen 1890: 219, LEW: 857, Veršinín 2009: 416). The alleged connection of the Mordvin words to Komi *zōr* ‘oats’, Udm. *zōr* ‘rye brome’ (Rédei 1988: 765) seems to be formally difficult as

well. It seems more likely that all these words were borrowed from an unknown third source. In view of the distribution of the Uralic words, the borrowing into Baltic may have taken place when Baltic was still spoken further towards the east, i.e. in the vicinity of the upper Oka river.

Lith. *málnos* (pl.) ‘sweet-grass (*Glyceria*)’, in Ruhig’s 1800 dictionary ‘millet’. The word is usually connected to Lat. *miliūm* ‘millet’ and Greek *μελίνη* ‘foxtail millet’, which are borrowings from a non-Indo-European language.

Proto-Slavic **proso* ‘millet’ (Ru. *próso*, Pol. *proso*, Sln. *prosô*). Old Prussian *prassan* ‘millet’ is usually thought to be a borrowing from Slavic. There are no known cognates outside Slavic.

Proto-Slavic **bъrъ* ‘a type of millet’ (Ru. *bor*, S, Cr. *bâr* ‘milletgrass (*Millium effusum*), proso millet (*Panicum miliaceum*)’, Cz. *ber* ‘proso millet (*Panicum miliaceum*)’, Sln. *bâr*, USorb. *bor* ‘foxtail millet (*Setaria italica*)’) has no convincing etymology.

Proto-Slavic **pъšeno* ‘millet groats’ (Ru. *pšenó*, Cz. dial. *pšeno*, Sln. *pšénô*) is derived from the root of Proto-Slavic **pъxati* ‘to shove, poke’, but in its older meaning ‘to hull’, cf. Lith. *pašýti* ‘to thresh, hull, break (flax)’, which is discussed under *THRESH*. We are thus dealing with a derivative from the passive participle **pъšen-* ‘hulled’. Cf. also **pъšenica* ‘wheat’ under *WHEAT*.

Proto-Slavic **jagla* ‘grain of millet, pl. millet groats, millet porridge’ (Cz. *jáhla*, Sln. *jâgla*, Cr. dial. (Burgenland) *jagl’i* (pl.) ‘proso millet’, (Ozalj) *jâgli* (m.pl.) ‘barley porridge’, Ru. (arch.) *jaglâ*, Pol. *jagła* ‘millet porridge’) is usually believed to be cognate to Slavic **jagoda* ‘berry’, Lith. *uoga* ‘berry’, but this is doubted on semantic grounds by, e.g., REW (IV: 543f.) and ÈSSJ (VIII: 169). No better etymology is available.

OATS

The East Baltic word for ‘oats’, Lith. *avižà*, Latv. *āuzas* (with regular *avi-* > *au-*, cf. *āuns* ‘ram’ < **avinas*), is cognate with PSL. **ovъsъ* (Ru. *ovēs*, Pol. *owies*, S, Cr. *ōvas*), but the stem-final sibilants do not match. OPr. (G) *wisge, wysge* ‘oats’ appears to be cognate to Lith. (Žem.) *vizgė, vizgà* ‘sedge’, while OPr. (EV) *wyse* ‘oats’ is probably cognate with Lith. *avižà* etc.,

perhaps through contamination with *wysge*. It is also possible that the Prussian form preserves a variant without an initial vowel, a pattern that is known from other substrate words, see below under *TURNIP*. The similar but not identical suffixes East Baltic *-iž- and Slavic *-is- are reminiscent of Lith. *viržiai* 'heather', *várža* 'fishing-basket' ~ PSł. **versz* 'heather' (Ru. *véres*, Pol. *wrzos*, S, Cr. *vrjjes*), **vbrša* 'fishing-basket' (Ru. *vérša*, Pol. *wiersza*, S, Cr. *vřša*). The suffixes *-iž- and *-is- are very rare in Balto-Slavic, cf. the apparent European substrate word for 'elder' reflected as **alis-* in Lith. *aliksi*, Ru. *ol'xá*, Pol. *olsza*, S, Cr. *jěłša* < PSł. **olbx/ša*. In view of the formal problems and the clearly somehow related Latin *avēna* 'oats', we are probably dealing with a European *Wanderwort*.

PEA

Lith. *žirnis* and Latv. *zirnīs* 'pea' are cognate with OPr. (EV) *syrne*, OCS *zrěno* 'grain', cf. also Mari *šurno* 'grain', which is probably an early borrowing from Slavic (Koivulehto 2006: 193, fn. 7). The Balto-Slavic word reflects PIE **gr̥h₂no-* 'grain' (Lat. *grānum*, Goth. *kaurn*).

Proto-Slavic **gorxъ* 'pea, peas' (Ru. *goróx*, Pol. *groch*, S, Cr. *grāh*) is usually thought to be cognate to Lith. *garšvā*, *garšas*, Latv. *gārsa*, *gārsē*, *gārša* 'ground elder (*Aegopodium podagraria*)'. The Baltic words for 'ground elder' are usually connected to MHG *gires*, *girst*, *gers* 'ground elder'. Because of the lack of common features between the *Pisum sativum* and the *Aegopodium podagraria* (except that different parts of them are edible), the comparison between the Slavic words on the one hand and the Baltic and Germanic on the other is problematic (Stang 1972: 21). The Slavic word is perhaps rather related to European words for 'barley', Lat. *hordeum*, OHG *gersta*, perhaps Gr. κριθαί. For the semantics cf. Lith. *žirnis*, Latv. *zirnīs* 'pea' discussed above.

PLANT

The Slavic and Lithuanian verbs for 'to plant' are causatives derived from the root **sed-* 'to sit down': PSł. **saditi* (OCS *saditi*, Ru. *sadít'*, Pol. *sadzić*, S, Cr. *sāditi*), Lith. *sodinti*, also cf. OPr. *saddinna* 'sets'. The meaning of the Old Prussian verb, also found in Lithuanian, is the older one, cf. Skt. *sādāyati* 'sets'.

An *o*-stem derivative from the same root is found in PSL. **sad̥* ‘planting, garden’ (OCS *sad̥* ‘plant’, Ru. *sad* ‘garden’, Cz. *sad* ‘orchard’, S, Cr. *sād* ‘garden, new planting’).

PLOUGH, PLOUGHSHARE

Baltic and Slavic share a verb meaning ‘to plough’ that is also found in other European languages: Lith. *ár̃ti*, 1sg.pres. *ariù*, Latv. *ar̃t*, 1sg.pres. *aru*, Proto-Slavic **orati*, 1sg.pres. **orjō* (OCS *or̥ōstb* (pres.act.ptc. m.acc.sg.), Ru. *orát*, *orjú*, Pol. *orać*, *orze*, S, Cr. *òrati*, *òrēm*), cf. Gr. *ἀρόω*, Lat. *arō*, OIr. *airid*, Goth. *arjan*. An old derivative is the word for plough, Lith. *ár̃klas*, Latv. *ar̃kls*, PSL. **ordlo* (OCS *ralo*, Ru. *rálo*, Pol. *radło*, S, Cr. *rǎlo*) with the instrument suffix *-*tlo*- in East Baltic, *-*d^hlo*- in Slavic, cf. Gr. *ἄροτρον*, Arm. *arawr*, OIr. *arathar*, Lat. *arātrum* ‘plough’ < **h₂erh₃-tro*-. Because the instrument suffix *-*tro*- regularly corresponds to *-*tlo*-/*-*d^hlo*- in Balto-Slavic, the word can be considered a direct continuation of (European) PIE **h₂erh₃-tro*- (Olsen 1988: 12).

Baltic and Slavic further share the word for ‘ploughman’, Lith. *artójas*, OPr. (EV) *artoys* ‘farmer’, PSL. **ortajb* (Ru. *rátaj*, Pol. *rataj*, Sln. *rátaj*). It is derived from (quasi-)PIE **h₂erh₃-teh₂*-, with no direct cognates (Gr. (Pind., Hdt.) *ἀρότης* replaced earlier *ἀροτήρ* (Il.), Leukart 1994: 167f., fn. 100; Beekes 2010: 136). The formation of Gr. *ἀροτήρ*, Lat. *arātor* ‘ploughman’ < **h₂erh₃-ter*- must be more archaic if the view that it forms the derivational basis for PIE **h₂erh₃-tr-o*- ‘plough’ is correct (Olsen 2010: 50ff.).

A third old derivative from the verb ‘to plough’ is PSL. **orlb*, **orlī*/**orlbja* ‘field, arable land’ (ORu. *rolija*, *rolja*, OCz. *rolí*, Pol. *rola*, Sln. *râl*), with the unproductive suffix *-*ī*/*-*bja*.

Ru. *paxát* ‘to plough, (dial.) sweep, sweep the chimney’ is cognate to Pol. *pachać* ‘to dig’, OPol. *pachać* ‘to do’, Cz. *páchatí* ‘to do (harm), commit’, older ‘to accomplish’, SCr. *pāhati* ‘to sweep off dust, blow off’ and outside Slavic with Lith. *puōšti* ‘to decorate’, Latv. *pūost* ‘to decorate, clean’, Old Norse *fāga* ‘to decorate, clean’, Old Saxon *fēgon* ‘to sweep’ (Vaillant 1964).

Lith. *riēkti*, Latv. *riekt* ‘plough for the first time’, also ‘break bread’ originally meant ‘to break, crush (the ground)’, cf. the cognates Gr. *ἐρείκω* ‘to break, crush’ and Skt. *rikhāti*, *likhāti* ‘to scratch’.

Old Prussian (E) *pedan* ‘ploughshare’ is a neuter *o*-stem derived from PIE **ped-* ‘foot’. Because of the semantics it is unclear whether the Old Prussian should be compared directly to PIE **ped-o-* ‘footprint, ground’ (Gr. *πέδον* ‘earth’, Hitt. *peda-* ‘place’, Skt. *padá-* ‘footprint’, Umbrian *peřum* ‘ground’, ON *fet* ‘step’).

Old Prussian (E) *wagnis* ‘coultter’ is cognate with Lith. *vagà*, Latv. *vaga* ‘furrow’. Cognates are found in a number of European languages: Lat. *vōmer*, Old Norse *vangsni*, OHG *waganso* ‘ploughshare’, Gr. (Hesychius) *ὄφνις* ‘ploughshare, plough’ < **uog^{wh}*-. From the same root are probably Lith. *vāgis*, Latv. *vadzis* ‘peg’, Old Norse *veggr*, and OE *wecg* ‘wedge’ < **uog^{wh}-i-*.

The Slavic words for ‘ploughshare’ and their East Baltic cognates are notoriously problematic. They are clearly related but show a number of consonant alternations, particularly in Slavic, that cannot be attributed to established sound laws. The relevant forms are the following:

Lith. *lėmežis*, dial. *lāmežis* ‘wooden part of the plough’, Latv. *lemesis* ‘sharp plough’, PSl. **lemešb* (CS *lemešb*, Ru. *lėmeš*, *lemėš*, BRu. *ljamėš*, Ukr. *lemiš*, Cz., Slk. *lemeš*, OPol. *lemiesz*, *lemiesz*, *limiesz*, Pol. *lemiesz*, arch. *lemiesz*, Sln. *lemješ*, S. Cr. *lėmeš*, dial. *lėmješ*, *lėmlješ*, *lėmiš*, Sln. *lėmeš*, Mac. *lemėš*), **lemežb* (Pol. arch. *lemiež*, Sln. *lemiož*, S. Cr. *lėmež*, Sln. *lėmež*, Bulg. *lemėž*), **lemexb* (ORu. *lemexb*, Ru., BRu. *lėmex*, Ru. (dial.) *lemėx*, Cz. *lemech*), **emešb* (Ru. *omėš*, Pol. dial. *jemiesz*, Bulg. *ėmeš*), **emežb* (Ru. *omėž*, *omež*, Bulg. *ėmež*, *emėž*), **emexb* (Ru. dial. *ómex*).

The fact that the alternation between *-s-* and *-ž-* is found in both Slavic and Baltic suggests that at least one of the Baltic forms is a borrowing from Slavic. It is highly unlikely that a unique Balto-Slavic alternation between **ś* or **s* and **ž* would have survived into Slavic and East Baltic. The further alternation in Slavic between initial **o/e-* and **le-* and the variants with **-x-* render a scenario in which the words are inherited impossible. The link with the verbal root **lem-* ‘to cut, break’ (never ‘to plough’), Lith. *lėmti* ‘to decide’, OPr. *limtwei*, OCS *lomiti* ‘to break’, should be given up. It is far more likely that we are dealing with borrowings from a form **(l)emeš-* (*š*

representing a sibilant or fricative not matching any Slavic fricative) into late-Proto-Slavic. There is a geographical distribution of the forms with initial **em-* and **lem-*. While **em-* occurs only in East Slavic and the eastern part of South Slavic (Montenegrin *jemlješ* is probably due to metathesis, cf. 16. c. Croatian (Dubrovnik) *lemješ*), **lem-* is attested in all branches. Similarly, final **-xъ* is limited to East Slavic. The following scenario suggests itself: the word **lemeš/žъ* was borrowed into late Proto-Slavic from an unknown eastern source and subsequently from Slavic into East Baltic. Prolongued contact with the source language caused the word to be borrowed again into East Slavic with initial **e-* and/or stem-final *-x-*. Similar words are found in Komi *ameśś*, *amidź*, *ameś*, Udmurt *amedź* and Persian *āmāž*. Kalima (1927: 34) considered Iranian to be the ultimate source of the Balto-Slavic and Uralic forms, but this remains uncertain. The Lechitic forms with a nasal vowel (Pol. *lemieź*, *lemieysz* and Sln. *lemiož*) have probably been influenced by PSl. **lemęzъ* ‘beam’.

Proto-Slavic **čerslo* ‘coultter’ (Ru. *čeresló*, Pol. *trzosło*, Bulg. *čreslo*) is cognate to Lith. *keřslas* ‘cutting tool’, OPr. (EV) *kersle* ‘type of axe’. These words reflect **kert-slo-* ‘cutting tool’ from the root of Lith. *kiřsti* ‘to hew’, RuCS *čřesti* ‘to cut’, cf. from the same root Cz. *čerstadlo*, Sln. *čřtalo* ‘coultter’.

POPPY

Lith. *aguonà*, Latv. *maguône*, OPr. *moke*, Proto-Slavic **makъ* (Ru., Pol. *mak*, S, Cr. *māk*) ‘poppy’ are related to Gr. *μήκων*, OHG *maho*, perhaps also Alb. *makth* ‘pheasant’s eye (*Adonis annua*)’. These words are probably borrowings from a non-Indo-European source, but they could also go back to a PIE formation **meh₂k-n-*, if the Baltic words are borrowings from Germanic (cf. Kroonen 2013: 371, Derksen 2015: 44). The absence of initial *m-* in Lith. *aguonà* is usually explained as due to dissimilation against the *-n-*.

QUERN-STONES

Lith. *girnòs*, Latv. *dziřnas*, *dziřnus* (pl.) ‘quern-stone, millstone’, OPr. *girnoywis* (EV) ‘quern-stones’, Proto-Slavic **žbrny* ‘quern-stone(s)’ (OCS *žrōny*, Ru. *žěrnov*, Sln. *žřnāv*) continue the inherited Indo-European word for ‘quern-stones’,

cf. ON *kvern*, MW *breuan*, Arm. *erkan* ‘quern-stone(s)’, Skt. *grāvan-* ‘pressing-stone’.

RYE

The word for ‘rye’ in Baltic and Slavic is shared by Germanic: Lith. *rugiai* (pl.), Latv. *rudzi* (pl.), OPr. (EV) *rugis*, PSl. **rōžb* (f.) (Ru. *rož*, Slk. *raž*, S, Cr. *râž*), Old Norse *rugr* < **rug^h-i*. A further possible, but by no means certain cognate is Thracian βπίζα ‘emmer-wheat, rye’. On Pol. *żyto*, Ukr. *žýto* ‘rye’ see GRAIN, CORN.

SICKLE

Baltic and Slavic share a word for ‘sickle’, viz. PSl. **sɪrpō* (CS *srpō*, Ru. *serp*, Pol. *sierp*, S, Cr. *sŕp*) and Latv. *sirpis*, dial. *sirpa*, *sirpe* (cf. also Est. *sirp*). Cognates are found in Gr. ἄρπη ‘sickle’ and Lat. *sarp(i)ō* ‘to prune a vine’. Lith. *pjāutuvas*, Latv. *plautuve* and OPr. (EV) *piuclan* ‘sickle’ (~ Lith. *pjūklas* ‘saw, (obs.) sickle’) derive from the root of Lith. *pjāuti* ‘to cut’.

SOW, SEED

Baltic and Slavic inherited the Indo-European verbal root **seh₁-* ‘to sow’ (OCS *sěti*, Lith. *sėti*, Latv. *sēt*) and its derivative **seh₁-men-* ‘seed’ (OCS *sěmę*, Lith. *sėmenys*, *sėmuō* ‘linseed, flaxseed’, OPr. *semen*, cf. also Fin. *siemen*, Est. *seeme*).

STRAW

Latv. *salms*, OPr. (EV) *salme*, Proto-Slavic **solma* ‘straw’ (Ru. *solóma*, Pol. *słoma*, S, Cr. *slāma*) are cognate with Gr. καλάμη ‘stalk, stem (of grain), straw’; Lat. *culmus* ‘stalk, stem (of grain), straw’, OHG *halm* ‘stalk (of grasses, incl. cereals)’ < PIE **kolH-m-*.

THRESH

Lith. *kūlti*, Latv. *kūlt* ‘to thresh’ is cognate with Lith. *kálti*, Latv. *kalīt* ‘to beat, forge’ and an innovation of East Baltic, cf. Lat *per-cellō* ‘to beat down, strike’, OCS *klati* ‘to kill’.

Lith. *paisýti* ‘to thresh, hull, break (flax)’, Latv. *pàisīt* ‘scutch, break (flax)’ is cognate with Proto-Slavic **pəxati* ‘to shove, poke’ (ORu. *pəxati*, Cz. *pchāti*), Lat. *pīnsō* ‘to pound, crush (also of grain to flour)’, Skt. *pināṣti* ‘to crush, grind’,

Middle Persian *pist* 'flour', Gr. πρίσσω 'to winnow'. The specialization as an agricultural term appears to have occurred independently in various branches of Indo-European.

Proto-Slavic **moltiti* 'to thresh' (OCS *mlatiti*, Ru. *molotít'*, Pol. *mlócić*, S. Cr. *mlátiti*) is a derivative from PIE **melh₁-* 'to crush, grind' (see under *GRIND*), more specifically from the deverbial noun PS. **moltō* 'hammer' (OCS *mlatō*, Ru. *mólot*, Pol. *mlot*, S. Cr. *mlât*).

Proto-Slavic **vortexō* 'I thresh' (S. Cr. *vrijěci*, *vršiti*, Bulg. *vrāxá* 'to thresh', Sln. *vršiti* 'to thresh with cattle, make a heap', cf. also Ru. *verš* 'heap of grain', *vórox* 'heap', Bulg. *vrax* 'threshing floor full of grain ready for threshing') is cognate to Latv. *vārsms* 'grain on the threshing floor ready for threshing, heap of threshed grain before or after winnowing'. The Balto-Slavic words are related to Hitt. *warš-ⁱ* 'to reap, harvest, wipe' and Lat. *verrō* 'to sweep, brush'.

THRESHING FLOOR

Latv. *plāns*, OPr. *plonis* and OLith. (Bretkūnas) gen.sg. *plano* (for [plb:np:]?) 'threshing floor' derive from the adjectival root PIE **pleh₂-n-* 'flat', cf. Lat. *plānus* 'level, flat', Latv. *plāns* 'flat, even, thin', see also under *FIELD*.

Lith. *grañdymas* 'threshing floor' derives from the root of *grindà* 'plank', Latv. *grida* 'floor board, floor', outside Baltic attested in Sln. *gréda* 'beam; vegetable patch', Lat. *grunda* 'roof', Gm. *Grund* 'earth, ground, base', OIr. *grindell* 'the bed of a sea or lake'.

Lith. *klúonas*, Latv. *kluōns* 'threshing floor, (drying) barn' is a derivative from the root of Lith. *klóti* 'put on, lay, load'. BRu. *klúnja* 'threshing floor', Ru. *klúnja*, Pol. *klunia* 'barn' are probably borrowings from Baltic.

Lith. *pādas* 'sole, threshing floor, hearth', Latv. *pads* 'sole, threshing floor' is related to PS. **podō* 'floor; under', cf. Sln. *pôd* 'floor, threshing floor'. This is a Balto-Slavic compound of **po* 'on' and PIE **d^heh₁-* 'to put', but the meaning 'threshing floor' may well be of post-Proto-Balto-Slavic date because the semantic shift 'floor' > 'threshing floor' is trivial, cf. LSorb. *tla*, Fri. *telle*, Bret. *leur* 'threshing floor' < **floor*'.

Latv. *piēdarbs* 'threshing floor' is derived from the verbal root *dirb-* 'to work, labour', cf. *darbs* 'work, labour', Lith. *dirbti*

‘to work’, with the prefix *pie-* ‘towards, up, by’. Latv. *kuls* ‘threshing floor’ derives from the verb *kult* ‘to thresh’.

Proto-Slavic **gumbno* ‘threshing floor’ (OCS *gumbno*, Ru. *gumnó*, Pol. *gumno*, S, Cr. *gumno*) is usually analyzed as a compound consisting of the Indo-European word for ‘cow’ and the verbal root **mnH-* ‘to trample’ (Lith. *minti* ‘trample, scutch’, Pol. *miąć* ‘to rumple, crumple, scutch’, see under *FLAX*, *HEMP*). From a formal point of view, however, **gumbno* resembles **sukbno* ‘cloth’, a derivative in *-bn-* from the root **suk-* ‘to twist’, and similar formations (HEWONS V: 360f.). Moreover, the root **mnH-*, which is not attested outside Balto-Slavic, has the meaning ‘to trample’ in Baltic only. The meaning ‘to scutch’, on the other hand, is attested in Baltic and Slavic and is therefore probably older. The traditional etymology therefore remains uncertain.

Proto-Slavic **tokǫ* ‘threshing floor’ (OCS *tokǫ*, Ru., Pol. dial. *tok*) derives from the root **tek-* ‘to run, flow’. The meaning ‘threshing floor’ developed from ‘trampling’. Mordv. (Moksha) *tok*, Mold. *tok*, Tatar *tuk*, Kalmyk *tog* are borrowings from Russian.

TURNIP

Lith. *rôpė* ‘turnip (*Brassica rapa*)’, *rapūkas*, *repūkas* ‘turnip (*Brassica rapa*)’, rutabaga (*Brassica napus*)’ and Proto-Slavic **rěpa* ‘turnip (*Brassica rapa*)’ (Ru. *rěpa*, Pol. *rzepa*, S, Cr. *rěpa*) represent independent borrowings from a non-Indo-European language. Similar borrowings are Lat. *rāpum*, OHG *ruoba*, Gr. *ράπυς*, *ράφυς* and W pl. *erfin*, cf. also Basque *arbi*. These words show the alternation between the root structures **aRC-* and **RVC-* that is also found in other non-Indo-European words in the languages of Europe (Schrijver 1997, Iversen & Kroonen 2017: 518).

YOKE

Proto-Slavic **jъgo* (OCS *igo*, Ru. *igo*, Cz. *jho*, Sln. *igô*), Lith. *jūngas*, Latv. *jūgs* continue the PIE word for ‘yoke’ (Skt. *yugá-*, Gr. *ζυγόν*, Lat. *iugum*, Hitt. *iūk*, *iuka-*). In East Baltic, the nasal of the cognate verb Lith. *jūngti*, Latv. *jūgt* ‘to yoke’ was introduced into the noun.

Slavic has a separate word for a yoke for two oxen: PSl.

**arǫmъ*, **arǫmo* (OCS *jarǫmъ*, Ru. *jarmó*, Pol. *jarzmo*, S, Cr. *járam*). It is derived from PIE **h₂er(H)-m-* ‘arm, shoulder’ (Pol. *ramię* ‘shoulder’, Lat. *armus* ‘shoulder (of an animal)’, Skt. *īrmā-* ‘foreleg’, Goth. *arms* ‘arm’), with secondary root-vocalism (Pronk 2010). The yoke was called “shoulders” because of its shape.

WEED

Lith. *ráuti*, *ravėti*, Latv. *ravēt* ‘to pull out a plant, weed’ are cognate to Ru. *ryt’* ‘to dig’, Lat. *ruō* ‘to churn or plough up, dig out’.

Proto-Slavic **pelti* ‘to weed’ (Ru. *polót’*, Cz. *plíti*, S, Cr. *pljěti*) has no evident cognates outside Slavic. Perhaps it is related to Proto-Slavic **polti* ‘to remove chaff’, see under CHAFF, AWN.

Lith. *gīrsa*, *dīrsė* and Latv. *dzirši* ‘rye brome (*Bromus secalinus*)’ (borrowed into Ru. *gīrsa*, Pol. dial. *gīrsa*, *dyrsa*) have been connected to MHG *turd* ‘rye brome’. The fact that Lithuanian has -s- instead of *-š- after -r- and the variation of the initial consonants show that the East Baltic word must be a relatively recent borrowing. Its source is unknown.

Proto-Slavic **kostrjava* ‘some weed in crop fields’ (Cz. *kostráva* ‘fescue (*Festuca*)’, USorb. *kostrjava* ‘rye brome (*Bromus secalinus*)’, S, Cr. *kòstrava* ‘Johnsongrass (*Sorghum halepense*)’, darnel (*Lolium temulentum*), Bulg. *kostrjáva* ‘meadow foxtail (*Alopecurus pratensis*), rye brome (*Bromus secalinus*)’ is a derivative from **kostrv*, **kostra* ‘hemp hurds’, see under FLAX, HEMP.

WHEAT

OPr. (EV) *dagagaydis*, (G) *gayde* ‘spring wheat’ is probably cognate with Lith. *giēdras*, *gaidrūs* ‘clear (of the sky)’, Latv. *dzīdris* ‘clear’, OPr. *gaylis* ‘white’, with the same motivation as in English *wheat* ~ *white*.

Lith. *kviečiai*, Latv. *kvieši* ‘wheat’ are by some scholars considered to be borrowings from Germanic, cf. Old Norse *hveiti*, Goth. *hvaiteis* ‘wheat’ (Būga 1922: 69, LEW I: 326). In the absence of other early agricultural borrowings from Germanic and in view of the fact that the words and their derivatives are well-attested in East Baltic, we prefer the alternative analysis,

according to which the words reflect an inner-East-Baltic derivative from the root **kueit-* ‘bright’, attested in Latv. *kvītēt* ‘to glimmer, flicker’ and Cz. *květ* ‘flower’, see ALEW 546f. The semantic motivation would be the same as in OPr. *-gaydis* ‘wheat’ discussed above.

The word for ‘spelt’ in RuCS *pyro*, S, Cr. *pīr*, Sln. *pīr* has cognates in other Slavic languages that denote the not too dissimilar couch grass (*Elymus repens*), e.g. Cz. *pýr*, OPol. *pyrz* and Ru. *pyréj*. Their East Baltic cognates Lith. *pūrai* (pl.) and Latv. *pūri* (pl.) mean ‘winter corn’, cf. also Fin. *puuro* ‘porridge’. Outside Balto-Slavic there is a cognate in Gr. *πῦρός* ‘wheat’. These words are either derived from the Indo-European root of Skt. *pavⁱ-* ‘to become clean, to clean’, OHG *fouwen* ‘to sieve’, cf. esp. Lat. *pūrus* ‘clean, clear’, Mlr. *úr* ‘fresh, fair, green’, or borrowings from a non-Indo-European source with cognates in Arabic *burr* ‘barley’ and Georgian *puri* ‘bread’ (Lubotsky 1989: 136, Janda 2000: 39-46).

Proto-Slavic **pъšenica* ‘wheat’ (OCS *pъšenica*, Ru. *pšenica*, Cz. *pšenice*, Polab. *pasinaicǎ*, S, Cr. *pšènica*) is derived from the passive participle **pъšen-* ‘hulled’, see the discussion of **pъšeno* ‘millet groats’ under *MILLET*.

The Slavic word for ‘spring wheat’, PSl. **jarъ* < **ěrb* (ORu. *jar*, Cz. *jař*, Sln. *jâr*), also preserves the older meaning ‘spring’ in a number of languages, viz. Slk. *jar*, Ru. dial. *jar*, Pol. arch. *jarz*, cf. also Cz. *jaro* ‘spring’ (neuter after *léto* ‘summer’?), ORu. hapax *jara* ‘spring’ (-a after *zima* ‘winter’?). Cr. *jar* ‘spring barley’ is probably a 19th c. intrusion from West Slavic, but the adjective *jârī* ‘which is being sown in spring’ is inherited. The word derives from PIE **Hieh₁r-* (Lith. *ėras* ‘lamb’, Gr. *ῥα* ‘season, time’, OHG. *jār*, Av. *yārə* ‘year’); the meaning ‘spring wheat’ is not attested outside Slavic and is probably recent.

WINNOW

Lith. *vėtyti*, Latv. *vētīt* and PSl. **vějati* (Ru. *vějat*, USorb. *wěć*, S, Cr. *vījati*) ‘to winnow’ both derive from the PIE verbal root **h₂ueh₁-* ‘to blow’, but the formations are different. It is difficult to say whether Proto-Balto-Slavic **ueH-* ‘to blow’ also meant ‘to winnow’.

Lith. *niekóti*, Latv. *niēkât* ‘to winnow’ is usually connected to Gr. *λικμάω* ‘to winnow’, which is thought to have

dissimilated from **nikm-* on the basis of the Hesychius gloss ν(ε)ίκλον· τὸ λίκνον ‘winnowing fan’ and several other glosses with νικ-. The combination of the fact that the etymon is limited to Baltic and Greek, the late attestation of the Greek forms with initial νικ-, the fact that this is a rather specific agricultural term and the correspondence of Baltic *k* with Greek κ speaks against Proto-Indo-European origin of these words. If the words are somehow related, this is most likely to be due to independent borrowing from a common non-Indo-European source.

Discussion

The overview presented in this paper shows the agricultural lexicon of Baltic and Slavic. These words fall into four categories: 1) words that are inherited from PIE, 2) *Wanderwörter* or words limited to the European branches Indo-European, probably loanwords from one or more non-Indo-European languages spoken in Europe, 3) Balto-Slavic formations or shared Balto-Slavic lexical innovations and 4) formations that can be dated after the disintegration of Balto-Slavic in the (early) second millennium BC. The majority of the words presented in this paper belong to the last category, while fewer words can be shown to date from the Balto-Slavic period or earlier.

Reconstructing the lexicon of the ancestor languages of Baltic and Slavic languages yields insight into the society and subsistence strategies of their speakers. It is well known that the inherited lexicon of Indo-European indicates that the Proto-Indo-Europeans led lives as nomadic pastoralists, with extensive cattle and horse herding and wagon terminology, but with a very small agricultural lexicon. The society that emerges from the reconstruction of the (post-Anatolian) Proto-Indo-European lexicon has convincingly been connected to the Yamnaya culture of pastoral nomads on the Pontic-Caspian steppe between ca. 3300 and 2500 BC (cf., e.g., Mallory & Adams 1997: 653; Anthony 2007).

Words for most typical early domesticated crops, grains and vegetables are absent in Proto-Indo-European (cf. Mallory & Adams 1997: 8). A discussion of Indo-European agricultural terminology, with rich data, can be found in Mallory & Adams

(2006: 163-169) and elsewhere in the present volume. Proto-Indo-European agricultural terminology preserved in Baltic and Slavic consists of the following items: Lith. *javaĩ* ‘corn, grain’, Lith. *ár̃ti*, Ru. *orát* ‘to plough’, Lith. *gĩmos*, OCS *žr̃ony* ‘quern-stone(s)’, Lith. *sėti*, OCS *sėti* ‘to sow’, Lith. *mál̃ti*, OCS *ml̃eti* ‘to grind cereal’, Latv. *sal̃ms*, Ru. *solóma* ‘straw’, OPr. *ackons* ‘awn’, Bulg. *vr̃axá* ‘to thresh’, Lith. *žir̃nis* ‘pea’, OCS *zr̃no* ‘grain’, Lith. *jũngas*, OCS *igo* ‘yoke’, and perhaps Lith. *p̃elūs*, OCS *pl̃ěvy* ‘chaff’ and RuCS *pyro* ‘spelt’.

A part of the Baltic and Slavic agricultural lexicon is found in other Indo-European languages of Europe as well. These words are thought to stem from the language(s) of the Neolithic farming communities that migrated into Europe from Anatolia around 7000 BC and have been coined “Early European Neolithic” (Iversen & Kroonen 2017: 513). Early European Neolithic terminology that was introduced into Baltic and/or Slavic consists of the following items: OPr. *babo* ‘beans’, Ru. *bob* ‘bean’, Latvian *buřkāns*, Ru. *morkóv* ‘carrot’, Lith. *linaĩ*, Ru. *l̃en* ‘flax’, Lith. *kar̃šti* ‘to card’, Ru. *konóp* ‘hemp’, Ukr. *bórošno* ‘flour’, Latv. *barība* ‘food’, Ru. *lexá*, ‘garden bed, furrow’, Lith. *l̃ýsvė* ‘garden bed, ridge of soil between two furrows’, Lith. *ak̃ėcios* ‘harrow’, Lith. *avižá*, Ru. *oṽes* ‘oats’, Lith. *rugiaĩ* (pl.), Ru. *rož* ‘rye’, Lith. *l̃ėšis* ‘lentil’, ORu. *l̃jača* ‘lentils’, Latv. *sirpis*, Ru. *serp* ‘sickle’ and Lith. *rópė*, Ru. *répa* ‘turnip’. Of these, only the words for ‘rye’, ‘sickle’ and ‘flax’ and perhaps the word for ‘bean’ can be reconstructed for Proto-Balto-Slavic. In these cases, there are no formal reasons why the word *must* be reconstructed for Proto-Balto-Slavic. In view of the fact that the remaining early European Neolithic terminology, in any case the words for ‘oats’, ‘lentils’, ‘turnip’, ‘carrot’ and ‘garden bed, furrow’, apparently entered Baltic and Slavic independently, it is possible that the words for ‘rye’, ‘sickle’ and perhaps ‘flax’ did so too.

In general, there are conspicuously few innovations in agricultural terminology that can be shown to have taken place in Proto-Balto-Slavic. Apart from the possible introduction of the words for ‘rye’, ‘sickle’, ‘flax’ and ‘bean’, potentially shared innovations are the following: Lith. *šũkos*, Ukr. *ščet* ‘heckling comb’; Latv. *mil̃ens*, Ru. *melen* ‘handle of a hand-mill’; Lith. *artójas*, Ru. *rátaj* ‘ploughman’; Lith. *minti*, Ru. *mjat* ‘to scutch’

and Lith. *váltis*, Ru. *vólot* ' (oat) panicle'. The word for 'panicle', which in Lithuanian always and in Slavic often refers to the oat panicle, may well be an independent (semantic?) innovation in Baltic and Slavic, because the word for 'oats' itself cannot be reconstructed for Proto-Balto-Slavic (Lith. *avižà* and Ru. *ovës* are independent borrowings from a third language). The cultivation of flax as a fibre plant may have been introduced during the Balto-Slavic period in view of the probable Proto-Balto-Slavic origin of the words for 'flax', as a loanword from Early European Neolithic, 'heckling comb', as a loanword from an unknown language without cognates outside Balto-Slavic, and 'to scutch'.

The relatively large number of shared innovations in phonology, morphology and the (basic) lexicon indicates that Balto-Slavic functioned as a linguistic unity for a significant period of time. We have seen above that Baltic and Slavic did not, during this period, undergo many changes in the agricultural lexicon. This suggests that during the common Balto-Slavic period, the speakers of Balto-Slavic did not practice agriculture in a much more extensive way than the Proto-Indo-European pastoral nomads did. If they had a fully developed agricultural society, the shared agricultural lexicon in Balto-Slavic would be expected to have been much larger. On the basis of linguistic evidence, we can therefore state that the fundamental transition to a more agriculture-based subsistence system took place after the dissolution of Proto-Balto-Slavic.

Proto-Slavic was spoken east of the Carpathian Mountains until the beginning of the first millennium AD, when speakers of Slavic started spreading over Central Europe. On the basis of hydronyms, the homeland of the Balts has been located in the Upper Dnieper and Upper Volga basins (Gimbutas 1963: 29-34). The Balto-Slavs remained east of the Carpathian Mountains and probably lived at or near the Ukrainian forest-steppe, relatively close to the reconstructed location of the Indo-European homeland. This forest-steppe is a large area located between the dense forests of western Russia and the dry Pontic-Caspian steppe. It has alternating deciduous forests and steppe vegetation interspersed with large rivers. In this respect, the Balts, Slavs (and their ancestors) differ from the predecessors of the Italo-Celtic, Greek and Germanic speaking peoples, because

the latter groups all moved into Europe and came into direct contact with Neolithic farmers at an early stage of their expansion. The amount of Early European Neolithic loanwords in the Indo-European languages of Europe differs. Germanic, for example, borrowed many agricultural terms from these Neolithic farming populations. In Baltic and Slavic, however, there are fewer such words. Moreover, most if not all those Early European Neolithic words that were borrowed into Baltic and Slavic entered these branches independently. Few, if any, were borrowed into the Balto-Slavic proto-language. This confirms that the Balto-Slavs have not been in direct contact with the Neolithic farmers of Europe in the Proto-Balto-Slavic period.

The conclusions reached above find support in recent research into ancient DNA. Jones *et al.* (2017) and Mittnik *et al.* (2018) presented genome wide DNA-data from the prehistoric Baltic Sea region. Their research on individuals from the Baltic Corded Ware Complex shows traces of ancestry from the Pontic-Caspian steppe, but an absence of north-western Anatolian ancestry passed on by Neolithic European farmers. This indicates a migration from the steppes into the Baltic area along an eastern trajectory. Later East Baltic individuals do show Neolithic farmer ancestry, which suggests mobility and exogamous marriage practices within the Corded Ware Complex (Mittnik *et al.* 2018: 8). The speakers of Baltic passed on part of their agricultural terminology to the (Proto-)Finnic peoples. Some of this agricultural lexicon entered Baltic *after* the end of the Proto-Balto-Slavic period but *before* the disintegration of Proto-Finnic, which took place no later than approximately 500 AD. It appears that none of the Baltic agricultural terms were borrowed into Saami – assuming that Saami *rogas* ‘rye’ was borrowed from Germanic. The borrowing of agricultural terms from Baltic into Finnic can therefore be dated after the split between Proto-Saami and Proto-Finnic, which is usually thought to have taken place before 500 BC (Aikio 2004: 26, Kallio 2006).

Archaeologically, the ancestors of the Balto-Slavs have been connected to the Middle Dnieper culture, which dates from 2800-2600 to 1900-1800 BC (Anthony 2007: 377). Spread of the Middle Dnieper culture in north-eastern direction in the

mid-third millennium BC resulted in the Fatyanovo culture and has been connected to the initial stages of the separation of Baltic from Balto-Slavic. The area occupied by the Fatyanovo culture corresponds to that in which we find Baltic river names (Anthony 2007: 377). Both the people of the Middle Dnieper and Fatyanovo cultures had stockbreeding and cattle herding economies (Anthony 2007: 377-378). The picture of the Balto-Slavic economy that emerges from the reconstructed Proto-Balto-Slavic lexicon confirms this idea: while we find very few words relating to agriculture, the Proto-Balto-Slavic lexicon contains words in the semantic fields of stockbreeding, forest animals, fruit trees, (forest) beekeeping, and river fishing.

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