

# *Agriculture versus pastoralism in Indo-Aryan prehistory*

GYULA WOJTILLA



The aim of my paper is to throw fresh light on the question of the changing correlation between agriculture and pastoralism at different stages of Indo-Aryan prehistory.

To avoid certain misunderstandings, I want to make plain some concepts on which my whole argumentation is based. First, throughout this paper I use the terms Indo-Europeans, Indo-Iranians and Indo-Aryans for the speakers of these languages and not as names of ethnic groups.

Second, in expounding my views on the subject, I draw mainly on linguistic data and to a lesser extent on archeological evidence. This is because I am a student of historical linguistics and because I hold Denis Sinor's well formulated opinion still valid: "It is impossible to attribute with any degree of certainty any given language to any given prehistoric civilization".<sup>1</sup> More specifically, I keep in mind also the opinion formed by the archeologist Lamberg-Karlovsky, that "the archaeological quest for the identity of the Indo-Iranians remains elusive" and "contemporary methodologies, be they linguistic or archaeological, are virtually non-existent for determining which language a remote archaeological culture spoke".<sup>2</sup>

Thirdly, a body of recent scholarship assumes that the original home of the Indo-Aryans was surely not India, in spite of growing pressure from serious Indian archeologists with a nationalistic bias and their western sympathizers.<sup>3</sup> There is a kind of confusion even in the book of the outstanding Poona archeologist Dhavalikar. On one and the same page he argues for indigenous Aryans in India and acknowledges an original Aryan homeland in Central Asia.<sup>4</sup> In this context I willingly subscribe to R. S. Sharma's opinion. He rightly says that "the scale of linguistic diffusion in India presupposes the presence of large numbers of

---

<sup>1</sup> D. Sinor, "Some thoughts on the Nostratic theory and its historical implications", in *Nostratic: Examining a linguistic macrofamily*, ed. C. Renfrew and D. Nettle, Cambridge 1999, 396.

<sup>2</sup> C. C. Lamberg-Karlovsky, "Archaeology and language. The Indo-Iranians," *Current Anthropology* 43 (2005), 169.

<sup>3</sup> E. F. Bryant, *The quest for the origins of the Vedic culture*. New Delhi 2002, 206.

<sup>4</sup> M. K. Dhavalikar, *The Aryans. Myth and archaeology*. New Delhi 2007, 166.

Indo-Aryan speakers. If invasion and warlike migrations in two or three waves are ruled out, we have to think of intermittent immigrations for centuries" and "it would be a miracle if the Indo-Aryan language spread in India without the arrival of a good many speakers. But what can we do if some archaeologists believe in miracles?"<sup>5</sup> Even the lack of biological criteria for Aryanness maintained by some archeologists and anthropologists is not a definite proof against the arrival of Indo-Aryan speakers. As Sharma acutely remarks it is quite natural that the skeleton remains of a given archeological culture generally reveal a pluralism of types and conclusive evidence for ethnic pluralism. Moreover the comparison of the crania in question was made only with similar findings from Egypt, Anatolia, Mesopotamia and the Iranian plateau, but not with data from Central Asia and Eastern Europe including Russia.<sup>6</sup> Romila Thapar, the leading scholar of ancient Indian history in our time, takes the side of the migration theory.<sup>7</sup> Even the highly critical Hock, who regards all current theories as provisional, concludes that the theory of immigration remains more plausible than that of an Indian homeland, at least until our knowledge of the Indo-European culture and its spread or of the Indus civilization changes considerably.<sup>8</sup>

Fourthly, I follow Witzel's suggestion that the exact place from where the Indo-Aryans entered India and the route they followed is still very much uncertain but that a framework in which this can be conceived can be constructed on the basis of their supposed former settlement, which can be determined with some degree of certainty.<sup>9</sup> Accordingly, I briefly dwell upon given archeological cultures which are thought to be connected by serious archeologists with the Indo-Iranians or Indo-Aryans.

Fifthly, the old notion of the sequence of hunting-herding-agriculture in human history is untenable. Mallory and Adams suppose that "the Proto-Indo-Europeans possessed a mixed economy based on livestock and arable agriculture, i.e. had achieved at least a Neolithic mode of subsistence".<sup>10</sup> Together with many scholars I think that true pastoral nomadism is a late development and, in an early historical context, "the herding of livestock in the steppes during the Bronze

---

<sup>5</sup> R. S. Sharma, *Advent of the Aryans in India*. New Delhi 1999, 60.

<sup>6</sup> Sharma, *Advent*, 69.

<sup>7</sup> R. Thapar, *The Penguin history of early India from the origins to AD 1300*. London 2002, 113-115.

<sup>8</sup> H. H. Hock, „Wem gehört die Vergangenheit? Früh- und Vorgeschichte und indische Selbstwahrnehmung“, in „Arier“ und „Dravidien“. *Konstruktionen der Vergangenheit als Grundlage für Selbst- und Fremdwahrnehmungen Südaseins*, ed. M. Bergunder and R. P. Das, Halle, 2002, 246.

<sup>9</sup> M. Witzel, *Das alte Indien*. Wiesbaden 2003, 25.

<sup>10</sup> J. P. Mallory and D. Q. Adams, *The Oxford introduction to Proto-Indo-European and the Proto-Indo-European world*. Oxford 2006, 153.

Age qualitatively differs from the mounted pastoral nomadism documented historically and ethnographically for later periods".<sup>11</sup>

Sixthly, the "secondary products revolution" – a concept put forward by Sherratt – produced plough cultivation, a technology which presupposed the use of cattle. At this stage both agriculture and pastoralism were present but pastoralism was rather transhumance than nomadic.<sup>12</sup> My seventh point is that the employment of the horse considerably strengthened the dynamism of the movements of the Indo-Aryans and might well have contributed to their dominance over the pure agriculturists they met on their long journey.

Before tackling the linguistic data a brief survey of archeological cultures which may count as candidates for the early settlements of the Indo-Iranians or the Indo-Aryans would be in order.

Parpola thinks that the language of the Yamnaya culture, which had grown out of the Late and Post-Tripolye culture in the Pontic-Caspian steppes, might have been an early Post-Proto-Indo-European dialect, "the common ancestor of Greek, Armenian and Indo-Iranians."<sup>13</sup>

The great majority of Russian archeologists, first of all Elena Kuzmina, support a northern homeland of the Indo-Iranians, a view shared by Anthony, Mallory, Renfrew and Sherratt.<sup>14</sup> Kuzmina connects Andronovo culture – a blanket term for a variety of steppe Bronze Age cultures that emerged in Central Asia and south Siberia – with Indo-Iranians who had a kind of farming, the character and scale of which is not clear. In recent years there has been great interest in the Sintashta-Arkaim culture in the Chelyabinsk region of the Urals, with some 30 sites, which forms a part of the Andronovo culture. According to Kuzmina, their means of subsistence gave room for "a number of innovations which provided an opportunity for the transition to steppe nomadism," a circumstance that gave an impetus to the migration of Indo-Iranians to the south, ultimately to the territory of the Bactria-Margiana complex.<sup>15</sup> This concept is vigorously challenged by Lamberg-Karlovsky<sup>16</sup> and not accepted by the Russian archeologist Klejn.<sup>17</sup>

---

<sup>11</sup> Ф. Л. Кол, "Трансформация культуры от мобильных скотоводов к оседлым земледельцам (Бактрийско маргианский археологический комплекс," *Российская Археология* 2005, 71.

<sup>12</sup> A. Sherratt, "Plough and pastoralism", in *Aspects of the past. Studies in honour of David Clarke*, ed I. Hodder, G. Isaac and N. Hammond, Cambridge 1981, 295.

<sup>13</sup> A. Parpola, "Proto-Indo-European speakers of the late Tripolye Culture as the inventors of wheeled vehicles: linguistic and archaeological considerations of the PIE homeland problem", in *Proceedings of the 19th Annual UCLA Indo-European Conference, Los Angeles, November 2-3, 2007, Journal of Indo-European Studies Monograph Studies* 54, Washington 2008, 44.

<sup>14</sup> E. E. Kuzmina, *Origin of the Indo-Iranians*. Leiden and Boston MA 2007, 304.

<sup>15</sup> Kuzmina, *Origin*, 2007, 156.

<sup>16</sup> Lamberg-Karlovsky, *Archaeology*, 2005, 168.

<sup>17</sup> L. S. Klejn, Indo-Aryans in the steppes, in [http://www.vergl.sprachwissenschaft.phill.uni-wuerzburg.de/tagung2009/Abstracts/Klejn\\_Indo-Aryans%2, 2](http://www.vergl.sprachwissenschaft.phill.uni-wuerzburg.de/tagung2009/Abstracts/Klejn_Indo-Aryans%2, 2). It is a pity that this paper

The Bactria-Margiana complex, first discovered by Sarianidi<sup>18</sup> as a transitory settlement, is maintained by many Russian archaeologists and further by the noted archeologist Kohl,<sup>19</sup> the historian R. S. Sharma<sup>20</sup> and by some philologists like Parpola<sup>21</sup> and Witzel.<sup>22</sup> The staunch opponents of this thesis are Lamberg-Karlovsky<sup>23</sup> and Dhavalikar.<sup>24</sup>

In Greater India, the Gandhara grave culture has been a candidate for a long time. Nevertheless, this thesis rests on slender evidence. It was first established by Dani,<sup>25</sup> then supported by Brentjes,<sup>26</sup> Mallory,<sup>27</sup> Harmatta,<sup>28</sup> R. S. Sharma<sup>29</sup> and Dhavalikar.<sup>30</sup> The chief opponents of this thesis are the American anthropologists Shaffer, Diane A. Lichtenstein<sup>31</sup> and Kennedy.<sup>32</sup>

It has been held for a long time that the vocabulary reconstructed on the basis of the oldest Indo-European linguistic records reflects a dichotomy of an agricultural west and a pastoral, nomadic east.<sup>33</sup> Hirt observed that Indo-Iranian cognates of the western Indo-European terms for the plough, harrow, sowing and

abounds with unsound statements concerning the textual evidence of early Indian culture.

<sup>18</sup> В. И. Сарияниди, „Исследования памятников Дашликского Оазиса.“ *Древнии Бактрия 1* (1976), 71. and *Древние земледельцы Афганистана*, Москва 1977.

<sup>19</sup> Кол, *Трансформация*, 71.

<sup>20</sup> Sharma, *Advent*, 59.

<sup>21</sup> A. Parpola, “Aryan languages, archaeological cultures and Sinkiang: Where did Proto-Iranian come into being and how did it spread?” in *The bronze age and early iron age peoples of Eastern Central Asia*, ed. V. Mair. *Journal of Indo-European Studies Monograph Series* 26, Washington 1998, 124.

<sup>22</sup> M. Witzel, “The home of the Aryans”, <http://www.people.fas.harvard.edu/~witzel/AryanH>, 8.

<sup>23</sup> Lamberg-Karlovsky, *Archaeology*, 168.

<sup>24</sup> Dhavalikar, *The Aryans*, 7.

<sup>25</sup> A. H. Dani, “Gandhara grave culture and the Aryan problem.” *Journal of Central Asia* 1 (1978), 42–55.

<sup>26</sup> B. Brentjes, “Archäologische zu den Wanderungen der Indoiranier.” *Altorientalische Forschungen* 13 (1986), 237.

<sup>27</sup> J. P. Mallory, *In search of the Indo-Europeans. Language, archaeology and myth*. London 1989, 47.

<sup>28</sup> J. Harmatta, “The emergence of the Indo-Iranians: the Indo-Iranian languages”, in *History of civilizations of Central Asia I. The dawn of civilization: earliest times to 700 B.C.* ed A. H. Dani and A. H. Masson, Paris 1992, 374.

<sup>29</sup> Sharma, *Advent*, 63.

<sup>30</sup> Dhavalikar, *The Aryans*, 22.

<sup>31</sup> J. G. Shaffer and D. A. Lichtenstein, “South Asian archaeology and the myth of Indo-Aryan invasions.” in *The Indo-Aryan controversy: evidence and inference in Indian history*, ed. E. F. Bryant and L. L. Patton, London and New York 2005, 93.

<sup>32</sup> K. A. R. Kennedy, “Have Aryans been identified in the prehistoric skeletal record from South Asia?” in *Indo-Aryans of ancient South Asia. Language, material culture and ethnicity*, ed. G. Erdosy, Berlin and New York 1995, 32–66.

<sup>33</sup> Mallory, *In search of Indo-Europeans*, 120.

reaping were missing.<sup>34</sup> Nehring goes one step further and thinks that the Indo-Iranians forgot agriculture.<sup>35</sup> Brandenstein in his *Die erste indogermanische Wanderung* states that the Indo-Iranians left the early Indo-European community prior to its acquisition of agriculture and prior to its general dissolution. This surmise has since been discredited on purely linguistic grounds.<sup>36</sup> All the same, the existence of very rich terminology concerning stockbreeding in the Rig-Veda, the oldest Indo-Aryan text, and the fact that pastoralists are more capable of following a long migratory route than agriculturists, calls for a special explanation. On the other hand, the connection of the movements of the Indo-Aryans to the east with a dispersal of agriculture, as Renfrew himself admits, meets several obstacles.<sup>37</sup> At any rate, we should keep in mind Kohl's statement that an agriculturist or a stock-breeder as an individual can adapt himself to different conditions and dramatically change his life in a short time.<sup>38</sup>

Reassessing Brandenstein, Masica raised the idea of the atrophy of the agricultural vocabulary shared by the Indo-Iranians and the other Indo-Europeans when the former reached "regions inhospitable or unfit for agriculture", although "this is more difficult to reconcile with the apparent fact of semantic changes in such terms as Greek *agrós*, Latin *ager*- and Sanskrit *ájra*". Refuting Brandenstein and interpreting this lexical difference in the western and eastern Indo-European languages, Kuiper accepts Makkay's concept of a polycentric origin of the Indo-European agricultural knowledge from two or three earlier food producing centers and explains this phenomenon by cultural - and partly also by lexical - differences.<sup>39</sup>

Mallory and Adams are satisfied with the simple statement that Proto-Indo-European *\*h<sub>2</sub>eg-ro-* is represented in Latin *ager*, Greek *agrós*, Ger. *Acker* which denotes a cultivated field, while Sanskrit *ájra*- generally means 'plain' with no indi-

---

<sup>34</sup> H. Hirt, *Die Indogermanen, ihre Verbreitung, ihre Urheimat und ihre Kultur*. Strassburg 1905-1907, I, 255.

<sup>35</sup> A. Nehring, "Studien zur indogermanischen Kultur und Urheimat." in *Wiener Beiträge IV. Die Indogermanen und Germanenfrage. Neue Wege zu ihrer Lösung*. ed. W. Koppers, Salzburg and Leipzig 1936, 148.

<sup>36</sup> C. P. Masica, "Aryan and non-Aryan elements in North Indian agriculture." in *Aryan and non-Aryan in India* ed. M. M. Deshpande and P. E. Hook, Ann Arbor MI 1979, 54-57. Mallory-Adams, *The Oxford introduction*, 163.

<sup>37</sup> C. Renfrew, *Archaeology and Language. The puzzle of Indo-European origins*, London 1989, 192. Cf. M. Zvelebil and K.V. Zvelebil, "Agricultural tradition and Indo-European dispersals." *Antiquity* 62 (1988), 579.

<sup>38</sup> Ф. Л. Кол, "Модели трансформации культуры: от оседлых земледельцев к скотоводам (Триполье и курганные культуры)", *Российская Археология* 2004, 100.

<sup>39</sup> J. Makkay, "Cultural groups of SE Europe in the neolithic: the PIE homeland problem and the origins of the Proto-Greeks." *Annali Istituto Universitario Orientale di Napoli* 10 (1988), 125, and F. B. J. Kuiper, *Aryans in the Rigveda*, Amsterdam and Atlanta GA 1991, 15.

cation of agriculture.<sup>40</sup> It is remarkable that the place of accent differs in Greek *agrós* and Sanskrit *ájra-*<sup>41</sup> but this circumstance does not seem to bear on their semantic field. Since the noun derives from the verbal root \*h<sub>2</sub>eǵ- 'to drive'. Nehring postulated many years ago that the original meaning was 'meadow', 'pasturage' and 'road for the cattle', which was lost in the west and which was dug out by the Aryans.<sup>42</sup> This assumption is outdated because it presupposes the precedence of pastoralism to agriculture.

It is noteworthy that the Greek *ágrios*, an adjective which belongs to the same word-group, means 'wild' and 'uncultivated'.<sup>43</sup> As to Sanskrit, we learn from Tatyana Elizarenkova's meticulous study that *ájra-* occurs mostly in plural and only once in the singular in the Rig-Veda and means 'meadow', 'pasturage', 'plain' and once 'valley'.<sup>44</sup> It is the name of a 'real field', in contrast to *kṣétra-* 'field or sphere of activity'.<sup>45</sup> In its broadest sense it means 'field'.<sup>46</sup> The compound *uruájra-* (Rig-Veda X, 27, 9) means an 'extensive field'<sup>47</sup> on which cows eat grass and corn.<sup>48</sup> However, we cannot ignore that *ájra-* can be attested only in the Rig-Veda and does not occur in later Sanskrit texts. A later development seems to be *ajrá-* but it means 'place to run or fight in', 'court'.<sup>49</sup>

In order to elucidate the complex semantic field of the derivatives of the verbal root \*h<sub>2</sub>eǵ-, in the first place, I can mention the term *áśtrā* 'goad', the budge of agriculture, which can equally be used for driving both oxen at ploughing and animals on pasture land.<sup>50</sup> In Hindu mythology it is the budge of the god Pūṣan who rules both agriculture and stockbreeding.<sup>51</sup> It is true, that *uruájra* occurs in the later part of the Rig-Veda when Indo-Aryans entered an environment where agriculture was practiced by non-Aryans too. Nevertheless, this circumstance does not exclude the possibility that they possessed the inherited meaning of the term which was itself ambiguous or included two meanings.

Although the concept of the spread of agriculture combined with the dispersal of Indo-Europeans to the east meets several problems, I do not abandon this idea as a whole. Instead, I propose a combined model which combines the tracing

<sup>40</sup> M. Mayrhofer, *Etymologisches Wörterbuch des Altindoarischen*, Heidelberg 1986-, 50-52. Cf. Mallory-Adams, *The Oxford introduction*, 163.

<sup>41</sup> T. Kirsch, *Rivelex. Rigveda-Lexikon*. Graz 2006, 80.

<sup>42</sup> A. Nehring, *Studien zur indogermanischen Kultur*, 152.

<sup>43</sup> H. G. Liddel and R. Scott, *A Greek-English lexicon*. Oxford 1973, 15.

<sup>44</sup> Т. Я. Елизаренкова, *Слова и вещи в Ригведе*. Москва 1999, 126-130.

<sup>45</sup> Елизаренкова, *Слова*, 236.

<sup>46</sup> H. Grassmann, *Wörterbuch zum Rig-Veda*. 6. Aufl. Wiesbaden 1996, 23.

<sup>47</sup> M. Monier-Williams, *A Sanskrit-English Dictionary*, Oxford 1960, 218.

<sup>48</sup> *Der Rig-Veda aus dem Sanskrit ins Deutsche übersetzt von K. F. Geldner*. Cambridge MA 1951, Dritter Teil, 166. Cf. R. T. H. Griffith, *The Hymns of the Rig-Veda*, Delhi 1999, 548.

<sup>49</sup> Monier-Williams, *A Sanskrit-English Dictionary*, 10.

<sup>50</sup> Gy. Wojtilla, "Óind áštrā f. 'ósztüke' vagy/és ostor? [Sanskrit áštrā f. 'goad' or/and 'whip']", in *Cirill és Metód példáját követve... Tanulmányok H. Tóth Imre 70. születésnapjára*, ed. K. Bibok, I. Ferincz and M. Kocsis, Szeged 2002, 589.

<sup>51</sup> H. Oldenberg, *Die Religion des Veda*. 3. und 4. Auflage, Stuttgart and Berlin 1923, 234.

back of some basic elements of Indo-Aryan agricultural terminology to western Asia and the openness of the Indo-Aryans to receive technical innovations. When they came into contact with agriculturists they borrowed the word for plough, while coining the word for ploughing out of their own traditional set of verbal roots.<sup>52</sup> Such things occur in what is called by Sherratt an "oasis situation", or when the source was a center of agriculture as it is termed by Makkay.

In order to illustrate how this model works, let us make a survey of some basic terms. Sanskrit *kṛṣ-*, Avestan *karš-*, means 'to plough', 'to draw a line' and 'to scratch', and it can be put beside Czech *čarati* 'to draw lines' or Hittite *guls-* 'to scratch', 'to mark', 'to note' which all may go back to PIE *\*k<sup>w</sup>els* 'to make furrows'. This is a fine example of the old, inherited Indo-European agricultural vocabulary of the Indo-Aryans.

The existence of such migratory terms as Sanskrit *godhāma-* 'wheat' or *yava-* 'barley' serve as examples of both stability and change in the agricultural knowledge of the Indo-Aryans.

The cognate forms of *godhūma-* appear in the Greek, Hittite, Iranian and Pamirian languages, then in Sanskrit and Indo-Aryan languages, and even in the Gypsy and found their way into certain Semitic languages such as Ugaritic and Akkadian.<sup>53</sup>

*Yava-* is an Old Indo-Aryan or rather Indo-Iranian word that entered into Finno-Ugrian<sup>54</sup> and probably even the language that existed before the splitting of Finno-Ugrian and Samoyedic.<sup>55</sup> The word means 'grain' and 'barley' in Sanskrit but it also has the meaning 'cereal' in general in certain Indo-European languages.<sup>56</sup> The physical nature of barley adjusts well to the changing environment of the Indo-Aryans or Indo-Iranians in their move from the Near East to India.

Sanskrit *sira-* '(drill) plough', with its long history and semantic development, is a striking example of the way in which Indo-Aryans were able to borrow new technical inventions and give them a name which signifies the basic process for which these tools are used. Following Thieme,<sup>57</sup> I opt for an Indo-European ety-

<sup>52</sup> Gy. Wojtilla, „Notes on Indo-Aryan terms for 'ploughing' and the 'plough'." *The Journal of Indo-European Studies* 14 (1986), 33.

<sup>53</sup> Gy. Wojtilla, „The Sanskrit *godhūma* apropos of a short excursion in Indo-European and Indo-Aryan prehistory." *Acta Orientalia Academiae Scientiarum Hungaricae* 52 (1999), 225-227.

<sup>54</sup> A. J. Joki, *Uralier und Indogermanen*, Suomalais-Ugrilaisen Seuran Toimituksia 151, Helsinki 1973, 265.

<sup>55</sup> Gy. Wojtilla, "Terminological studies of selected plant names of the *Kṛṣiparāśara*." *Sri Venkateswara University Oriental Journal, Tirupati* 20 (1977), 118.

<sup>56</sup> M. Gimbutas, „Primary and secondary homeland of the Indo-Europeans. Comments on Gamkrelidze-Ivanov articles." *The Journal of Indo-European Studies* 13 (1985), 186.

<sup>57</sup> P. Thieme, „Die Heimat der indogermanischen Gemeinsprache." *Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse, Akademie der Wissenschaften zu Mainz Jahrgang* 1953, No. 11, Wiesbaden 1954, 559-560.

mology of the word.<sup>58</sup> It can be derived from the Proto-Indo-European root *seH(i)-*, originally meaning 'to throw' and later 'to sow'<sup>59</sup>, or 'to draw a direct line'<sup>60</sup> which has its derivatives in Hittite, as well as in Armenian, in Indo-Iranian and also in Czech.<sup>61</sup> This term might originally have denoted a very simple tool, perhaps a dibble. When later Proto-Indo-Aryans came into contact with the Hurrian speakers of Mitanni, they might have become familiar with the drill plough which was well known in Mesopotamia around 2600 BC.<sup>62</sup> Curiously enough, they might also have become familiar with this peculiar tool on their arrival in the Indian subcontinent: the archeological evidence from India makes clear the early use of the drill plough prior to their postulated arrival.<sup>63</sup> It is a fine example of the polycentric origin of agricultural knowledge in the ancient world.

According to Lubotsky, the Indo-Iranian substratum words which might have been borrowed from the language of other peoples when they came into contact with the inhabitants of Central Asian towns bear the testimony of acquiring fresh agricultural knowledge in a changed environment. Sanskrit *phāla-* 'ploughshare', modern Persian *supār-*, Wakhi *spūndr-* etc., which go back to a former *\*(s)p<sup>h</sup>ūra-*, may be such a case, or it may belong to the category of migratory terms.<sup>64</sup> To this, however, it might be objected that, as we have seen, the connection of the Bactria-Margiana complex with the Indo-Aryans is not accepted by some serious archeologists.

The oldest Indo-Aryan text, the Rig-Veda, offers us a snapshot of the economy of the Indo-Aryans on their arrival and early settlement in the Indian subcontinent. Their economy as it is mirrored in the Āgveda looks like a mixed economy in which agriculture was of less importance than stockbreeding. This relatively restricted role of agriculture in the life of the Indo-Aryans might partly have been due to their movements from present day Afghanistan to the fertile plain of the

<sup>58</sup> Gy. Wojtilla, "What can the Rigveda teach us on agriculture?" *Acta Orientalia Academiae Scientiarum Hungariae* 56 (2003), 42.

<sup>59</sup> Т. В. Грамкрелидзе – В. В. Иванов, *Индоевропейский язык и индоевропейцы*, Тбилиси 1984, II, 688.

<sup>60</sup> M. Mayrhofer, *Wörterbuch*, 732.

<sup>61</sup> M. Čejka, "Indoeuropäisch-zemědělská terminologie (Indo-European agricultural terminology)." *Sborník prací filozofické fakulty Brněnské univerzity* 27 (1982), 221.

<sup>62</sup> B. Hruška, "Überlegungen zum Pflug und Ackerbau in der altsumerischen Zeit." *Archiv Orientalni* 56 (1988), 142.

<sup>63</sup> A. Steensberg, "Drill-sowing and threshing in Southern India compared with sowing practices in other parts of Asia." *Tools and Tillage* 1:4 (1971), 241–256; Gy. Wojtilla, "The ard-plough in ancient and early medieval India. remarks on its history based on linguistic and archaeological evidence." *Tools and Tillage* 6:2 (1989), 94–95; V. Shinde, "Two unique agricultural implements from Walki," *Tools and Tillage* 6:4 (1991), 210–216.

<sup>64</sup> A. Lubotsky, "Early contacts between Uralic and Indo-European: linguistic and archaeological considerations", in *Papers presented at an international symposium held at the Tvärminne Research Station of the University of Helsinki 8–10 January 1999*, ed. C. Carpelan, A. Parpola and P. Koskikallio, *Suomalais-Ugrilaisen Seuran Toimituksia* 242, Helsinki 2001, 307–308 and 312.



Punjab.<sup>65</sup> During this period cattle trading overshadowed agriculture but the winter cultivation of barley complied "with the sedentary way of life prerequisite to agriculture".<sup>66</sup> However, this way of life together with their famous horse-breeding lent a considerable dynamism to their movements in India which ultimately led to the emergence of a new society where, in Romila Thapar's words "the more established pastoral chiefs laid claim to territories or cultivated land".<sup>67</sup> Once again, they were able to borrow technology and terms denoting various implements from the peoples they met there.

To sum up, Indo-Aryans were never pure pastoralists and in this manner nomads in their long history. On the contrary, pastoralism and agriculture together were always present in their life, yet in changing proportions.

---

<sup>65</sup> Wojtilla, *What can the Rigveda*, 45.

<sup>66</sup> J. Deppert, "East or West - the precedent: the Aryan schism." in *India and the West. Proceedings of a Seminar Dedicated to the Memory of Hermann Goetz*, New Delhi 1983, 61.

<sup>67</sup> Thapar, *The Penguin history of early India*, 113.