

Ecology and nomadic migrations

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Grassland plains of the enormous Eurasian steppe belt stretch from the Danube Delta to North-western China. This region has been the habitation area of equestrian nomadic peoples from the eighth century BC onwards. The emergence of nomadism is known to have been one of the most successful forms of economic adaptation to the natural environment. With the development of a migratory grazing system pastoral peoples guaranteed graze for large stocks and managed to adapt to steppe environments in dry (arid) as well as continental climates. In fact, nomadic economy means the ultimate appropriation of the steppe.¹

The condition of steppe pastures fundamentally depends on the quantity and distribution of precipitation. In the zone under discussion here, the average annual precipitation ranges between 100 and 500 mm that falls in a rather uneven geographical distribution.² Precipitation reaches the Eurasian steppe belt from two directions. Atlantic air currents bring humidity to areas west of the Altai Mountains. Precipitation reaches the steppes in China and Mongolia during the summer monsoon and an anticyclone (Fig. 1-2.).³ The most arid sections of the steppe belt are located in Inner Asia, that is Mongolia and China, where animal stocks subsist on pastures that receive only 100–200 mm annual precipitation. The best biogeographical conditions in the steppe belt, on the other hand, are to be found north of the Black Sea, where annual precipitation reaches 300–500 mm.⁴

¹ The origins of nomadism is a complex question, far beyond the focus of this paper. Herewith I only refer to the ideas outlined by G. E. Markov (Г. Е. Марков, *Кочевники Азии*. Москва 1976.) that fall in line with my views.

² The 10–20 mm quoted in the book by István Vásáry (I. Vásáry, *A régi Belső-Ázsia története*. [A history of ancient Inner Asia] Magyar Őstörténeti Könyvtár 7. Szeged 1993, 14.) is evidently a typographical error.

³ E. Brentjes, "Climatic Changes and Nomadization in Central Asia. Ecology of the Steppes and Economy." in *The Archaeology of the Steppes. Method and Strategies*, ed. B. Genito, Naples 1994, 490, 494–496.

⁴ Brentjes, "Climatic Changes," 491; Gy. Györffy, B. Zólyomi, "A Kárpát-medence és Etelköz képe egy évezred előtt," [The outlook of the Carpathian Basin and Etelköz one

Known historical data should be seen within this environmental context. It cannot be a sheer coincidence that great nomadic migrations have almost always started in Inner Asia while it was mostly transit routes towards Europe that ran west of the Altai Mountains and in Southern Siberia. Nomadic peoples understandably moved from less favourable habitats into more attractive ecological settings which largely corresponds to an east to west direction.⁵

Ecological factors that have been triggering these migrations should not be simply seen as decisions by Inner Asian nomads to abandon their respective homelands in search of a better livelihood. Ecological conditions in the steppe are unstable and the quantity of precipitation may vary quite capriciously. Such unpredictable changes have a drastic impact on pastoral economies. Modern observations have unambiguously shown that the decrease in precipitation may lead to a deterioration of pastures thereby decimating the livestock upon which pastoral communities subsist. For example a 30% decrease in average precipitation may result in 80% loss of sheep.⁶

Even historical data of the 1862-1863 drought in the Great Hungarian Plain may be of interest from this point of view. A 40-43 % decrease in precipitation depleted the stocks of cattle and sheep by 80% and caused a loss of 44% among horses. Within this area the Túrkeve region was especially badly hit. The 50% loss of precipitation annihilated 88% of the cattle and 94% of the sheep stocks! It is noteworthy that the mean annual precipitation is 590 mm in this area, that is, far more than anywhere in the Eurasian Steppes.⁷

These data easily tempt researchers to seek natural catastrophes behind the great migrations.⁸ Undoubtedly, this may have been the case in several occasions. Known historical data, however, also suggest that natural catastrophes triggered the migration of peoples or major groups of peoples relatively rarely. The explanation is that (in spite of popular belief) even nomadic communities stick to their traditional ranges and leave but reluctantly their known habitation areas and pastures. The bond is further strengthened by ancient burial grounds, usually located near the winter habitation.

The most reliable witness in this case, again, is Herodotus, "the father of history writing". In relation to the Persian military campaign against "Scythian lands" he quotes the exchange between Dareios and the "Scythian King". The Persian ruler accused the Scythians of cowardice, since they avoided open confrontation and usually ambushed unexpectedly at night. The response of the Scythian ruler is noteworthy: "As far as I am concerned, King of Persians, I have never fled cowardly from anyone, including yourself. I only do what I would be

thousand years ago] in *Honfoglalás és régészet*, ed. Gy. Györffy, L. Kovács, Budapest 1994, 19.

⁵ T. Hoffmann, "Über die Nomaden," *Acta Ethnographica* ASH 43 (1998), 428-429.

⁶ Brentjes, "Climatic Changes," 489.

⁷ Györffy-Zólyomi, "A Kárpát-medence és Etelköz," 26.

⁸ I. Erdélyi, "Steppe-Klima-Völkerwanderung," *A Móra Ferenc Múzeum Évkönyve* (1969/2), 139-145; I. Erdélyi, "Klíma-sztyep-népvándorlás," *Földrajzi Értesítő* 19 (1970), 87-93.

doing in peace, and will explain why I am avoiding confrontation with you. We Scythians own neither cities nor cultivated land. Therefore you have nothing to conquer or occupy, and we are not worried. We have no reason to fight. However, should you force a rapid resolution, you should find the burial grounds of our Scythian ancestors. Seek them up and try to damage them: then you will see whether for the sake of these ancestral graves we will confront you or not!"⁹

A telling evidence for the impetus of nomadic migrations is the well known fact significant historical events (such as Hunnic migrations or the establishment of the Turkic Empire) triggered series of population movements almost in the entire steppe belt. Using archaeological evidence, these latter may be best detected in the forested zone, where displaced peoples arriving from the southern steppe belt sought refuge. (See, for instance, the archaeological evidence for waves of settlers on the western side of the Ural Mountains.)¹⁰ Indubitably, these groups of peoples did not move into northern zones as a result of changes in biogeographical conditions that would not have suited their previous ways of life.

A noteworthy theoretical paper on migrations was published by László Vajda (1974), that later became also available in Hungarian.¹¹ The author chiefly criticised petrified *topoi* rampant in the relevant literature and emphasises the importance of caution in the historical interpretation of migrations. He points out correctly, that many of the *topoi* in the subject had already formed in the classical literature that have been taken over without critical judgement by subsequent authors, sometimes even including coeval scholars. László Vajda undoubtedly makes an important point by spelling this out. On the other hand, the reader should be aware of the fact that this opinion cannot be generalised and that in reality fewer migrations would have taken place than mentioned in written sources. Namely, these large population movements to date have been docu-

⁹ Herodotus IV, 127.

¹⁰ A. V. Schmidt, "Качка. Beiträge zur Erforschung der Kulturen Ostrusslands in der Zeit der Völkerwanderung (III–V. Jh.)," *Eurasia Septentrionalis Antiqua* 1 (1927), 18–50; В. Ф. Генинг, „Могильник Качка,” in *Отчеты Камской (Воткинской) археологической экспедиции*, вып. 1. ed. В. С. Киселев, Москва 1959 132–151; В. Ф. Генинг, „Южное Приуралье III–VII вв. н.э. (проблема этноса и его происхождения),” in *Проблемы археологии и древней истории ургов*. ed. А. П. Смирнов, et al. Москва 1972, 294–295; В. Ф. Генинг, „Тураевский могильник V в. н.э. (захоронения военачальников),” in *Из истории Волго-Камья*, ed. А. Х. Халиков, et al. Казань 1976, 55–108; В. Ф. Генинг, „Памятники у с. Кушнаренково на р. Белой (VI–VII вв. н.э.),” in *Исследования по археологии Южного Урала*. ed. Р. Г. Кузеев et al. Уфа 1977, 136; Р. Д. Голдина, *Древняя и средневековая история удмуртского народа*. Ижевск 1999, 259–277.; К. С. Королев, А. М. Мурыгин, Э. А. Савельева, „Ванвиздинская культура (VI–X вв. н.э.),” in *Археология Республики Коми*, ed. Э. А. Савельева, Сыктывкар 1997, 406–410; А. М. Белавин, Н. Б. Крыласова, „Поздний железный век. Период средневековья в Приуралье IV–XV вв.” in *Очерки археологии Пермского Предуралья*, ed. А. М. Белавин, Пермь 2002, 129–141.

¹¹ L. Vajda, „A népvándorlások kérdéséhez,” [To the question of the migration] *Századok* 129 (1995), 107–144.

mented not only by written sources but in the archaeological record as well. In fact, these latter suggest that historical reality may have been the reverse at the time: there may have been many more undocumented migrations than one would suspect from coeval written accounts. Enumerating a major body of relevant data is beyond the focus of this paper: it should be sufficient to refer to the aforementioned migrations in the Ural region which had not been mentioned whatsoever in the written sources.

The frequency and significance of migrations were questioned by László Vajda from yet another point of view. As he writes: "should anyone read objectively the way respected scholarly treatises mention, for example, the continent-wide migrations of ancient steppe peoples, his/her evident impression will be that these questions had been clarified a long time ago and that these are facts beyond any doubt. This is simply not true, however. It is possible, for example, that in many cases it was not the peoples who migrated, only certain dynasties, whose clan traditions then may have become 'popular' tradition".¹² I think, however, that aside from a few individual exceptions, this view cannot be defended. One should consider the examples of battles along the Kalka or near Muhi in Hungary during the mid-thirteenth century Mongol Tartar invasion. Should it have only been Genghis Khan's clan rather than the - ethnically indeed heterogeneous - Mongol army, the threat posed to Europe would not have existed.

Vajda is especially harsh on the theory of the "steppe chain reaction" which "could not have been fostered by sober experience or the tedious synthesis of minute detail... analogies of the idea that migration had spread from people to people do not stem in historical theory... they originate in physics, more exactly metaphysics".¹³ To some extent, the author is undeniably right in this statement. His point, however, is correct only in general terms and on a theoretical level. Studying historical evidence, it is not difficult to conclude that the exceptions may even outnumber the cases that would support this rule. One of the exceptions to this rule may be especially relevant here. In 893 the Torks (also known as Uz) had been defeated by the army of the Samanid ruler and were thus forced to abandon their former habitation area. In search of a new homeland, they attacked the Pechenegs who lived along the Ural (Yaik) river, forcing them out of their territory. Consequently, the Pechenegs fled west, crossed the Volga, Don and Dniepr rivers, arriving to the Eastern border of Hungarian areas in the Etelköz region. Subsequently, they forged an alliance with the Bulgars. In 895 they launched an attack on the Hungarians, took their territory, thereby forcing them to leave for the Carpathian Basin.¹⁴ I think that a better example of the "chain reaction" would be difficult to find. This type of serial events is also inherent to the nomadic way of life. Lost livestock and grazing land must be somehow replaced. This may involve violent means, since otherwise the population would

¹² Vajda, "A népvándorlások kérdéséhez," 111.

¹³ Vajda, "A népvándorlások kérdéséhez," 118.

¹⁴ Gy. Györffy, "Landnahme, Ansiedlung und Streifzüge der Ungarn," *Acta Historica Academiae Scientiarum Hungaricae* 21 (1985), 234-235.

be threatened by starvation. Naturally, there were situations (possibly quite frequently), when a people conquered submitted to the winner as was the case with the majority of Cumanians who were overcome by conquering Mongols. This, however, was usually the last resort. During the thirteenth century, the western group of Cumanians, along with the Iasians (Alans) rather moved into the territory of the Hungarian Kingdom, submitting themselves to royal rule, thereby retaining some of their independence.

It is therefore important to avoid new extremes during the criticism of dated, deeply rooted theories, even if they have proven erroneous. Concrete, reliable data must always be kept in mind. In addition, the characteristics of nomadic economy, lifeways and mentality must be taken into consideration as well. Otherwise the resulting abstract theories drafted only on paper may be just as misleading as those that one tries to refute.

On the other hand, László Vajda is absolutely right in emphasising that "migrations may seem as single events shortened in historical perspective were, in fact, slow processes of infiltration that may sometimes have lasted for centuries. It is also likely that many such migrations were not perceived by their very participants as uniform, large scale movements with clearly targeted directions".¹⁵ Indeed, the great migrations were not single, major shift of populations between regions, but slow processes that often took centuries. This is well exemplified by Sarmatian movements beginning in the fourth century BC from the Southern Ural region to the lower reaches of the Volga River, then into the Don River Valley. During the third century BC, they reached the Dnieper River and finally arrived to the Danube Delta by the beginning of the AD first century. Meanwhile, some groups of Yazigs even reached the Great Hungarian Plain.¹⁶ A special trait of this popular migration route is that Hungarians largely followed the same direction from *Magna Hungaria*, located between the Volga River and the Ural Mountains, toward *Levedia*, located in the Don River region, the to *Etelköz*, that spread between the Dnieper River and the Carpathian Mountains.¹⁷ (Fig. 4.) It is only the last section of these two routes that is different, leading from the Danube Delta toward the Carpathian Basin. The Sarmatians intruded into the Great Hungarian Plain moving towards the North along the Lower Danube. Centuries later, the Hungarians, led by Grand Duke Árpád, descended to the Great Hungarian Plain through the North-Eastern Carpathians, crossing the Verecke Strait, fearing

¹⁵ Vajda, "A népvándorlások kérdéséhez," 112.

¹⁶ Cf. M. Г. Мошкова, *Происхождение раннесарматской (прохоровской) культуры*. Москва 1974, 47; M. Г. Мошкова, "Предисловие," in К. Ф. Смирнов, *Сарматы и утверждение их политического господства в Скифии*, Москва 1984, 7; M. G. Moshkova, "Middle Sarmatian Culture. Late Sarmatian Culture," in *Nomads of the Eurasian Steppes in the Early Iron Age*, ed. J. Davis-Kimball, Berkeley 1995, 135.

¹⁷ I. Fodor, *Verecke híres útján... A magyar nép őstörténete és a honfoglalás*. [On Verecke' immortal pass... The pre-history of the Hungarian people and the Conquest] Budapest 1975, 162-163; I. Fodor, *In Search of a New Homeland. The Prehistory of the Hungarian People and the Conquest*. Budapest 1982, 216-217; И. А. Иванов, *Древние угры-мадьяры в Восточной Европе*. Уфа 1999, 96.

an attack by hostile Bulgarians. Both migrations lasted for centuries, which fact, however, does not preclude rapid, intensive movements in shorter sections. This type of movement was evident in the final phase of the Hungarian Conquest.

Owing to the slow pace of migrations, it is unlikely that (as some suggest) nomadic groups were unable to cover long distances in the absence of sufficiently large food supplies.¹⁸ This hypothesis is unambiguously refuted by the fact that nomadic communities herd their livestock when travelling, thereby securing at least animal products during their journeys.

Nomadic movements often resulted in splitting the populations concerned. This may be explained by the fact that only a smaller group moved to the newly occupied areas, since the success of conquests could not be guaranteed. Those left behind had to secure the original habitation area, since the group that had left was sometimes forced to return. However, circumstances often resulted in a separation between the two groups of the same people. This must have been the case when the majority of Hungarians left for the Don region from *Magna Hungaria* around 750. Those who had stayed behind remained stuck in their old homeland. Their memory, however, survived in the tradition of conquering Hungarians who found their new homeland in the Carpathian Basin around 895. Oral tradition found its way into the first Hungarian Chronicle written in the end of the eleventh century. It was this written source on the basis of which Julianus travelled to the land of Volga Bulgars in 1236, and found Eastern Hungarians there.¹⁹ A similar situation may have arisen in the case of Khazars. A part of this people moved toward the west. Others, however, remained in Inner Asia and their name is mentioned in eighth century Uighurian runic scripts in Mongolia.²⁰

It is well known in history that the migrations of many eastern nomadic peoples ended in the Carpathian Basin. Actually, a group of prehistoric pastoralists of the Copper Age Pit Grave Kurgan culture also ended up here.²¹ This is not surprising at all, since the Carpathian Basin, covering some 100,000 km² that includes the Great Hungarian Plain and the ten times smaller Small Hungarian Plain, represents the westernmost refuge of the parkland-steppe belt that suits geographical requirements of a nomadic way of life. This geographical analogy, however, is somewhat sketchy since precipitation in this area is higher (annual average 500–600 mm) and more evenly distributed than in the eastern steppe

¹⁸ I. Erdélyi, L. N. Gumiljov, "A nomád világ egysége és sokrétősége," *Archaeológiai Értesítő* 96 (1969), 56.

¹⁹ Fodor, *Verecke híres útján*, 195–201.

²⁰ Although in the opinion of András Róna-Tas András part of the European Khazars moved back to Inner Asia under the pressure of Arabic attacks during the 730's (A. Róna-Tas, *A honfoglaló magyar nép. Bevezetés a a korai magyar történelem ismeretébe*. [The Magyars of the Conquest. An introduction into the ancient history of the Magyars] Budapest 1996, 190), no data seem to support this hypothesis. A. Róna-Tas, "A kazár népről," [On the Ethnonym Khazar] *Nyelvtudományi Közlemények* 84 (1982), 365–370; A. Róna-Tas, *Hungarians and Europe in the Early Middle Ages*. Budapest 1999, 228–229.

²¹ I. Ecsedy, *The People of the Pit-Grave Kurgans in Eastern Hungary*. Budapest 1979, 50.

belt. It is an even more significant fact that preceding large scale river regulation works in the nineteenth century, the majority of lowland areas in the Carpathian Basin (some 1/8 of the area of Medieval/Early Modern Age Hungary) have been permanently or temporarily covered by marshland and floodwaters.²² (Fig. 5.)

In this region, therefore, it would have made no sense to practice mobile pastoralism along the courses of rivers as was described in 1247 by Plano Carpini who observed Mongols living in Eastern Europe at the time.²³ (Fig. 6.) Such movements were not necessary, since ecological conditions, for example, near the spring of the Tisza River and its confluence with the Danube are largely identical. Moreover, when summer pastures turn dry on elevations and levies, floodplains become available for grazing and soon develop lush vegetation. In addition, wetlands offer good grazing throughout most of the winter.²⁴ In this situation, there is no need for winter and summer habitation and mobility between such areas becomes irrelevant. Pastoralists do not leave their settlements beyond a radius of 10–15 km and soon develop into proper sedentary villages. An excellent reconstruction of this process was provided for tenth–eleventh century Hungarians by István Szabó.²⁵

Conclusions by István Szabó have also been reconfirmed by archaeological investigations. In addition, such studies have shown that this process was not exclusively characteristic of ancient Hungarians, but could already be observed in the case of preceding eastern peoples such as the Sarmatians and Avars, whose sedentary villages are located largely in the same regions as those of conquering Hungarians. Although some biogeographic features of the Great Hungarian Plain are reminiscent to that of the eastern parkland-steppe region, with the exception a few, small localities, it is impossible (and altogether makes little sense) to pursue a nomadic way of life in this limited area. This explains why all nomadic peoples who reached this area have turned to sedentism.

In the Hungarian archaeological literature it was István Bóna, who devoted a remarkable study to “culture change” among the nomadic peoples who had

²² L. Glaser, “Az Alföld régi vízrajza és a települések,” [The ancient hidrography of the Great Plain and the settlements] *Földrajzi Közlemények* 47 (1939), 297–308; D. Ihrig, ed. *A magyar vízszabályozás története*. [A history of water-regulation in Hungary] Budapest 1973. Cf. I. Fodor, “A magyar gazdálkodás változásai a 10. században,” [The changes in Hungarian economy in the tenth century] in *A fénylő középkor. Tanulmányok Kovalovszki Júlia tiszteletére*. ed. I. Fodor, I. Szatmári, Budapest–Békéscsaba 2006, 19, 21.

²³ Gy. Györffy, “A honfoglaló magyarok települési rendjéről,” [On the settlement-system of the Magyars of the Conquest] *Archaeológiai Értesítő* 97 (1970), 193, 197.

²⁴ Glaser, “Az Alföld régi vízrajza,” 297–308.

²⁵ I. Szabó, *A falurendszer kialakulása Magyarországon (X–XV. század)*. [The making of the village-system in Hungary (10th–15th centuries)] Budapest 1966. Cf. Gy. Györffy, *Wirtschaft und Gesellschaft der Ungarn um die Jahrtausendwende*. Budapest 1983, 20–38; I. Fodor, “Changes in the Hungarian Economy during the Tenth Century,” in *The First Millennium of Hungary in Europe*, ed. K. Papp, J. Barta, Debrecen 2002, 18–37. This question has been discussed in detail, with the aid of maps and other illustrations, in Fodor, “A magyar gazdálkodás változásai”.

moved into the Carpathian Basin. He noted that the material culture of these peoples had changed in a relatively short time.²⁶ Csanád Bálint, who followed his line of reasoning, actually reached a point where he denied the cultural continuity of ninth–tenth century Hungarians.²⁷ However, as has been shown here, the culture of peoples of eastern origins did not change under the dominant influence of “civilisations” by neighbouring communities in Europe. A major factor in culture change must have been that nomadic new arrivals were forced to adopt a sedentary way of life in a relatively short time. In spite of the rapidity of this process, however, the time in question was not so short that the eastern roots of such cultures (both material and spiritual) could not have been clearly recognised.²⁸

Hopefully, the arguments summarised above help illustrating the importance of studying data and observations concerning the economies and mobility of nomadic peoples in understanding the history of ancient Hungarians.

²⁶ I. Bóna “Régészetünk és Kelet-Európa,” [Our Archeaeology and Central Europe] *MTA II. Osztály Közleményei* 28 (1979), 39–48.

²⁷ Cs. Bálint, “A 9. századi magyarság régészeti hagyatéka,” [The archaeological reamins of the ninth-century Hungarians] in *Honfoglalás és régészet*. ed. Gy. Györffy, L. Kovács Budapest 1979, 39–46.

²⁸ Cf. I. Fodor “Leletek Magna Hungariától Etelközig” [Findings from Magna Hungaria to Etelköz] in *Honfoglalás és régészet*, ed. Gy. Györffy, L. Kovács, Budapest 1994, 47–65.