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Introduction

Hello, and welcome to the June 2010 issue of DNA Tribes® Digest. This month's feature article focuses on two Magyar (Hungarian) populations: the general population of Hungary and the Székely (Szekler), thought to be descended from Hunnish warriors that joined with the Magyar military confederation in Europe.

This analysis will highlight the "Elite Dominance" pattern of conquest, in which relatively small groups of newcomers can influence the local culture by introducing a new language, skills, or form of social organization¹. Genetic traces of this type of invasion can be substantially greater in descendants of cultural subgroups (such as Székely) than in the country's general population.

Have a Safe and Happy Fourth of July Holiday, Lucas Martin DNA Tribes

¹ The role of traveling warrior-chiefs in conveying technical skills, resources, and culture among early societies is examined in <u>The Rise of Bronze Age Society: Travels, Transmissions and Transformations</u> by Kristian Kristiansen and Thomas B. Larsen.



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Two Magyars: Genetic Contributions to Hungary and Székely

Historical Background: Steppe Dynamics and the Magyar Confederation

The Kingdom of Hungary (*Magyarország*) emerged in the wake of the tumultuous Migration Period, a time of many conflicts and invasions that followed the decline and fragmentation of the Roman Empire in Europe (see map in **Figure 1**). During that period, Hunnish and Turkic empires² expanded into the Eurasian steppes, displacing earlier Indo-European steppe societies³ (such as Goths, Scythians, Sarmatians, and Alans).

However, these invasions were the product of a more ancient pattern of steppe dynamics. All of these cultures shared a nomadic way of life that emphasized stockbreeding and the mobility of the horse. This "Kurgan" culture had first emerged in the Volga-Ural steppe region, but had rapidly spread throughout the Eurasian steppes and become central to a long series of nomadic empires. Traces of the earliest nomads can be found both in the archaeological record (particularly in the form of tumulus tomb monuments) and in the historical record, where the Kurgan peoples appeared as conquering armies who later served as military classes in the agricultural civilizations of Asia⁴ and Europe⁵.

An early historical example of a Kurgan elite was the Mitanni (also known as Maryannu), mentioned in the Amarna letters between Egypt and neighboring states during the period of the Pharaoh Akhenaten. The Mitanni originated as an Indo-European speaking military aristocracy (apparently related to early Vedic cultures of India) known for their skills in horsemanship and chariotry. These Mitanni warriors established a kingdom in Mesopotamia and eventually intermarried with the Egyptian royal family before their empire collapsed and they faded from the historical record⁶.

² See "Generals of the Steppes" at <u>http://dnatribes.com/dnatribes-digest-2009-12-29.pdf</u>.

³ See "Old Europes" (Part One) at <u>http://dnatribes.com/dnatribes-digest-2009-07-29.pdf</u>.

⁴ See "Footprints of the Indo-Europeans" at <u>http://dnatribes.com/dnatribes-digest-2010-01-29.pdf</u> and "Refuge of Sages and Outlaws" at <u>http://dnatribes.com/dnatribes-digest-2009-10-31.pdf</u>.

⁵ See "Old Europes" (Part Two) at <u>http://dnatribes.com/dnatribes-digest-2009-08-29.pdf</u> and "Kurgan Riddles" at <u>http://dnatribes.com/dnatribes-digest-2010-05-31.pdf</u>.

⁶ Several Pharaohs of the Eighteenth Dynasty married Mitanni princesses. For instance, it is thought that Kiya, a wife of Akhenaten, might have been the Mitanni princess Tadukhipa. Artifacts discovered in Amarna (the site of Akhenaten's short lived city) suggest that Kiya bore a daughter to Akhenaten and then disappeared for unknown reasons during the Pharaoh's later reign.

Oddly, somewhat similar events (professional soldiers, links to Scythia and Mesopotamia, teaching of skills in Egypt, and marriage ties with the Pharaoh's family) are described in Celtic legends about the Milesian royal dynasty that conquered Spain and later Ireland. According to this tradition, the Scoti (Gaels) were named for a Pharaoh's daughter Scota, whose reputed gravesite is in Country Kerry, Ireland. These tales (usually thought to be fictional) were described in texts such as the *Lebor Gabála Érenn, Chronicon Scotorum, Chronica Gentis Scotorum*, and as late as the Scottish Declaration of Arbroath in the time of Robert the Bruce.

Regardless of whether these legends recall actual historical events (perhaps of an "Elite Dominance" pattern of conquest), this tradition demonstrates the diffusion of Kurgan cultural ideas associated with mobile military elites to even distant parts of Europe. Genetic evidence of bidirectional contacts between the general populations of the British Isles and Iberian Peninsula is discussed in <u>http://dnatribes.com/dnatribes-digest-2008-11-28.pdf</u> (south to north contacts) and <u>http://dnatribes.com/dnatribes-digest-2009-03-28.pdf</u> (north to south contacts).



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According to the archaeologist Marija Gimbutas, Kurgan conquests transformed Europe: relatively peaceful and egalitarian agrarian settlements were replaced by militarized and hierarchical "kurganized" forms of society. Gimbutas proposed that this transformation took place primarily through cultural diffusion⁷ rather than general population replacement. One factor in this diffusion of Kurgan cultures was likely nomad groups (similar to the Mitanni) that conquered local societies and established themselves as new royal dynasties and military aristocracies. This suggests an "Elite Dominance" pattern of population contact, in which native populations remained in place and received a relatively small amount of gene flow from the invading populations.

Around 895-896 AD, the Magyars entered Europe as a military confederation rooted in this Kurgan tradition of horsemen adept at mobile warfare. However, the Magyars spoke a language that distinguished them from both Indo-European and Turkic societies, and linked them instead with Uralic-speaking cultures of the European and Siberian Taiga (northern forest zone)⁸. These Uralic Taiga cultures were descended from indigenous hunting-fishing cultures resident in the northern forest zones both west and east of the Ural Mountains since the Mesolithic era.

Archaeological and linguistic evidence supports extensive contacts between these northerly Uralic Taiga cultures and southerly Indo-European steppe nomads since early times⁹. The Taiga populations today who speak languages most similar to Hungarian are Siberian (Ob-Ugric) Khanty and Mansi peoples living east of the Ural Mountains¹⁰. However, the Hungarian ethnonym (Magyar) suggests a possible link to similarly named European Taiga populations (such as present day Mari, Udmurts, Komi-Zyrians, and Mordvins)¹¹.

In addition to leading Uralic clans, the Magyar military confederation that settled Hungary also included the Iranian (Indo-European) Jász and the Turkic Kabar¹². As discussed in a previous Digest article¹³, populations that entered Europe during this period included refugees fleeing Hunnish and Turkic

¹³ See "Kurgan Riddles" at <u>http://dnatribes.com/dnatribes-digest-2010-05-31.pdf</u>.

⁷ A later example of the diffusion of steppe culture is the spread of the "Animal Style" of decoration from the Eurasian steppes. This style of artwork came to influence many artistic traditions of Europe and Asia, and its imprint can be seen as far west as the Anglo-Saxon Sutton Hoo burials and the Irish Book of Kells.

⁸ See "Old Siberia" at <u>http://dnatribes.com/dnatribes-digest-2009-11-30.pdf</u>.

⁹ This part of the world has been described as an unknown blank spot in the history of Europe and Asia. <u>The Urals</u> and <u>Western Siberia in the Bronze and Iron Ages</u> by Ludmila Koryakova and Andrej Epimakhov outlines materials from Russian scholarship that previously have been unavailable in English. Much remains to be discovered about this part of the world, in particular regarding the influence of Taiga peoples on the cultures and population structure of the steppes.

¹⁰ If reference data for Trans-Ural Taiga populations become available in the future, it might become possible to evaluate these relationships in more detail.

¹¹ A speculative list of similar ethnonyms is listed in Table 1 (under "*Mart-*") in "Kurgan Riddles" at <u>http://dnatribes.com/dnatribes-digest-2010-05-31.pdf</u>. Two other names appear in Greek descriptions of steppe cultures, *Amazones* (Amazons) and *Sarmatai* (Sarmatians). Greek accounts attributed the origin of the Sarmatians to a union of Scythian men and Amazon women. Despite the punning etymologies proposed by Greek authors, perhaps these names simply derived from common autonyms found near the forest-steppe (Uralic-Iranian) contact zones: "Amadz-on-es" or "*Mart-*"+[Iranian plural]+[Greek plural]; and "Sar-Mat-ai" or "*Sar(k)-*"+"*Ma(r)t-*"+[Greek plural]. That is, the Amazons might simply have been a Uralic culture (similar to Mari, Udmurt,

Mordvins, etc.), and the Sarmatians a kurganized (Iranianized) Uralic culture. If so, both the Amazons and Sarmatians probably figured among the early cultural relatives of the Magyars who later invaded Hungary. ¹² Today, Uralic languages retain loanwords from Iranian languages, and the Uralic Hungarian language is also characterized by Turkic loanwords (including terms related to statecraft, farming, and kinship).



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conquests in Asia¹⁴, perhaps including populations from ancient centers of Iranian civilization such as Greater Khorasan. The map in **Figure 1** illustrates this complex interplay of Indo-European, Uralic, and Turkic steppe cultures in the time of the Magyar conquest of Hungary.



Figure 1: Map of steppe dynamics related to the settlement of Hungary.

Another factor in the history of Hungary has been links with Northwest European cultures. This history begins with Celtic settlements near present day Budapest, suggesting possible links with the Celtic world along the Atlantic coastline of Europe. Other early settlers included the Germanic Ostrogoths and Lombards, both thought to have originated near Scandinavia. During the medieval period, a broad pattern of Germanic expansions in Central and Eastern Europe has been described as the *Ostsiedlung* ("Settlement of the East"). These settlers introduced new farming techniques, cleared forests, and drained swamplands in Central and Eastern Europe. In Hungary, French and German settlers were invited to help rebuild the settlements of Buda and Pest in the wake of the destructive Mongol campaigns.

To evaluate genetic evidence of these interactions, we will examine both the general Hungarian population as well as the Székely¹⁵, who are thought to be descended from a Hungarian military subgroup that settled in Transylvania.

¹⁴ Archaeologists have suggested that environmental conditions near Mongolia created periodic conditions of overpopulation, resulting in Mongolian populations expanding outwards over time. See <u>The Urals and Western</u> <u>Siberia in the Bronze and Iron Ages p. 211</u>. These Mongolian expansions culminated in the Hunnish, Turkic, and Mongol empires, but perhaps began with earlier migrations, such as the Dandybay culture associated with a ruling elite in Saka cultures. See <u>The Origin of the Indo-Iranians</u> by E. E. Kuz'mina, pp. 78-79.

¹⁵ The name of the Székely suggests a possible relationship with "Saka" populations, as speculatively mentioned in "Kurgan Riddles" at <u>http://dnatribes.com/dnatribes-digest-2010-05-31.pdf</u>.



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Genetic Analysis of Hungary (General Population)

Genetic contributions to general Hungarian populations were identified. Results are summarized in **Table 1** and illustrated in **Figure 2**.

Genetic Contribution
29.2%
23.8%
22.7%
13.0%
11.1%
0.3%

Table 1: Genetic contributions to the generalHungarian population.



Figure 2: Genetic contributions to the general population of Hungary.

Discussion: Results indicate substantial genetic contributions from several parts of Europe. The largest contributions identified were from neighboring sub-regions adjacent to Hungary: Polish (29.2%), Thracian (23.8%), and Balkan (22.7%), for a combined Central and Eastern European contribution of 75.6%. This suggests that despite conquests by incoming military elites (including steppe elites such as the Magyar confederation), general Hungarian populations share genetic characteristics with neighboring Central and Eastern European populations. This is consistent with substantially autochthonous origins in and near Hungary, perhaps rooted in populations resident in Europe since the Paleolithic era¹⁶.

¹⁶ See "Old Europes" (Part One) at <u>http://dnatribes.com/dnatribes-digest-2009-07-29.pdf</u>.



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This also suggests that gene flow from Asia to general Hungarian populations has been mediated through neighboring European regions: in particular, contributions from Uralic speaking cultures via the Polish and Thracian regions¹⁷, and perhaps gene flow from Indic and Iranian speaking cultures via the Thracian region¹⁸.

In addition, substantial genetic contributions were also observed from the Norse (13.0%) and Belgic (11.1%) sub-regions, for a combined contribution of 24.1% from northwestern parts of Europe. This might reflect contacts with Celtic and later Germanic speaking cultures that have settled in lands of Hungary from ancient times through the medieval period.

Genetic Analysis of Székely

Genetic contributions to the Székely population, thought to be descended from Hungarian military subgroup that settled in Romania, were identified. Results are summarized in Table 2 and illustrated in Figure 3.

Genetic Contribution
58.9%
13.6%
11.9%
9.2%
4.8%
1.6%

Table 2: Genetic contributions to Székely (Hungarian subgroup).

In contrast to the general Hungarian population, results for the Székely suggest substantial contributions from steppe related populations: including Scythian (11.9%), Finnic (9.2%), and Altaian (4.8%), for a combined contribution of 25.8% from non-adjacent lands of Europe and Asia. The Scythian contribution (11.9%) might reflect contacts with Iranian steppe nomads (such as the Jász populations) and perhaps other Indo-European speaking peoples pushed westward by Turkic and Mongolic expansions. The Finnic contribution (9.2%) suggests contacts with peoples of the northerly Taiga zone, whose Uralic languages are related to *magyar nyelv* (Hungarian).

More distantly, the Altaian contribution (4.8%) suggests a small but substantial contribution from more easterly Turkic steppe populations, who are perhaps descended from a mixture that included Indo-European and Mongolic speaking populations¹⁹. This might include contributions from the Kabar, a Turkic culture incorporated in the Magyar military confederation that invaded Hungary.

¹⁷ See "Old Europes" (Part Two) at <u>http://dnatribes.com/dnatribes-digest-2009-08-29.pdf</u>.

¹⁸ See "Kurgan Riddles" at <u>http://dnatribes.com/dnatribes-digest-2010-05-31.pdf</u>.

¹⁹ See "Genetic Relationships in Northern Europe" at <u>http://dnatribes.com/dnatribes-digest-2008-11-28.pdf</u> and "Generals of the Steppes" at <u>http://dnatribes.com/dnatribes-digest-2009-12-29.pdf</u>.



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Figure 3: Genetic contributions to Székely (Hungarian subgroup)

Conclusion

Genetic analysis identified substantial differences between the general Hungarian population and the Székely subgroup: Results indicate that the general Hungarian population is most similar to neighboring Central and Eastern European populations, suggesting local origins that perhaps extend to the Paleolithic Era. In contrast, the Székely population shares genetic characteristics not only with populations neighboring Hungary, but also with non-adjacent populations of both Europe and Asia.

These results are consistent with an "Elite Dominance" model of Magyar settlements in Hungary, in which the Székely subgroup has retained genetic links with distant populations, while the general Hungarian population has retained predominantly autochthonous (geography related) genetic characteristics.



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