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Introduction

Hello, and welcome to the January 2011 issue of DNA Tribes® Digest. This month’s feature article updates our analysis of the Balkan sub-region based on more detailed genetic divisions presently identified by DNA Tribes® Europa analysis.¹

Best regards,
Lucas Martin
DNA Tribes

¹ A map of current DNA Tribes® Europa sub-regions can be viewed at <http://dnatribes.com/dnatribes-europa.html>. The previous DNA Tribes® analysis of Balkan genetic relationships is available at <http://dnatribes.com/dnatribes-digest-2008-11-28.pdf>. Since that analysis was performed in November 2008, the more general “Norse” zone has since been split into the more specific Norse (Scandinavian) and Belgic (Low Countries and Northern France) sub-regions; additionally, the more general “Balkan” zone has been split into the more specific Balkan (western Balkan Peninsula) and Thracian (Lower Danube, including present day Romania) sub-regions.

An Updated Analysis of the Balkan Sub-Region

Historical Background

The Balkan sub-region includes populations of the western Balkan Peninsula, including the former Yugoslav states that became present day Bosnia and Herzegovina, Croatia, Serbia, and Slovenia (see **Figure 1**).

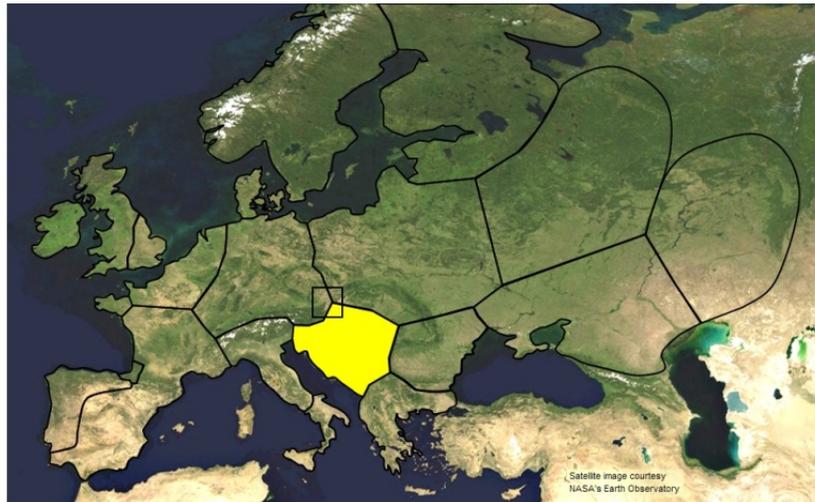


Figure 1: Map of the Balkan sub-region of Europe (highlighted in yellow).

This geographically complex part of Southeastern Europe is crossed by both mountains and river systems and neighbors the Adriatic Sea (linked to the larger Mediterranean Sea) and Pannonian Plain (linked to the larger Eurasian Steppe). In part because of its ecological complexity and relatively mild climate, the Balkan Peninsula has served as a refuge zone for several kinds of plant and animal species. For similar reasons, the Balkans have served as an important nexus for human communities linked to inland Central Europe, the Mediterranean Sea, the Eurasian Steppe, and Southwest Asia.

During the Paleolithic era (Old Stone Age), the Balkan Peninsula was home to hunting and fishing peoples, such as Aurignacian and Gravettian societies that hunted mammoths and other “big game” of the Ice Age. Artifacts from these Paleolithic cultures have been found in a large area stretching from the Iberian Peninsula to Ukraine, suggesting a wide network of contacts linking early hunting-fishing cultures throughout Europe.

However, this earlier way of life was radically transformed by the Neolithic Revolution based on new agrarian technologies. Neolithic farming communities first emerged in the “Fertile Crescent” of Southwest Asia around 10,000 BC and spread to the Balkan Peninsula by way of the Aegean around 7,000 BC. These early farming communities, dubbed “Old Europe” by the archaeologist Marija Gimbutas, developed a peaceful form of society based on farming and stockbreeding. Early artifacts of “Old Europe” include “goddess” sculptures similar to female figures found throughout Southwest Asia during the Neolithic Period (and similar to Paleolithic “Venus” figures found in Europe and Siberia), as well as early written symbols known as the Vinča or Old European script.

Over the course of several millennia, the Old European civilization spread throughout the Balkan Peninsula and outwards into Central and Western Europe. Trade links connected the Old European farming peoples with Neolithic societies of the Mediterranean as well as with neighboring hunting-fishing societies. Although agricultural lifeways supported the growth of early farming communities, the new living conditions and foods caused an initial decline in health for the farmers themselves.² Meanwhile, neighboring non-farming populations remained relatively healthy based on older fishing and hunting lifeways. Eventually, some Neolithic techniques (stockbreeding in particular) were adapted to generate the mobile, pastoral Kurgan societies of the Bronze Age.³

Another crucial ingredient that stimulated the emergence of new Bronze Age societies was metallurgy. This began with copper and later included the copper-arsenic and copper-tin alloys known as bronze. One of several early centers of metallurgy development⁴ was the Balkan Peninsula, where evidence of large scale mining operations and specialized skills has been found. The development of copper and bronze metallurgy gave rise to more complex divisions of labor and long distance trade.⁵ This stimulated the development of new, highly mobile Kurgan cultures that spanned the Eurasian steppe and linked early societies of Europe and Asia.

The early interactions of Balkan Neolithic farmers and their hunting-fishing and (later) pastoralist Kurgan neighbors relate to a question that linguists have debated for several decades: the origins of the Indo-European (IE) family of languages. Marija Gimbutas held that the Old Europeans spoke a non-IE language (or languages) and that the IE languages originated with mobile Kurgan societies of the European steppe. Alternatively, Colin Renfrew has proposed an Anatolian hypothesis: that the IE languages instead were brought to Europe from Anatolia by the Old European farmers themselves. Supporting the Kurgan hypothesis is shared IE vocabulary related to pastoralism and related technologies; supporting the Anatolian hypothesis is evidence for the divergence of IE languages too early for a Kurgan origin but closer to the time of Neolithic origins.⁶

However, both the Kurgan and the Anatolian hypotheses tend to leave the older hunting-fishing populations of Europe virtually mute. However, this gap is filled by another hypothesis, the Paleolithic Continuity Theory (PCT). This theory suggests the Indo-European languages were already in Europe since the Old Stone Age. Instead of presuming a linguistic “singularity event” in which a new IE language arose and swept across Europe leaving little trace of its predecessors, the Paleolithic Continuity Theory proposes longstanding local continuity and gradual development of languages.⁷ Yet another

² For more information, see “The agricultural revolution as environmental catastrophe: Implications for health and lifestyle in the Holocene” by Clark Spencer Larsen and “The origins of agriculture: Population growth during a period of declining health” by George J. Armelagos et. al.

³ Differences and interactions between sedentary agrarian and mobile pastoralist forms of society are discussed in *Europe Before History* by K. Kristiansen, pp. 185-192.

⁴ Other early centers of the Copper Age included the Southwest Asian highlands, the Timna Valley and the Iberian Peninsula.

⁵ See *The Rise of Bronze Age Society* by Kristiansen and Larsson, pp. 133-136.

⁶ See “Language-tree divergence times support the Anatolian theory of Indo-European origin” at http://language.psy.auckland.ac.nz/files/gray_and_atkinson2003/grayatkinson2003.pdf.

⁷ A speculative discussion of genetic relationships possibly related to language contacts in Europe is available at <http://dnatribes.com/dnatribes-digest-2009-07-29.pdf> and <http://dnatribes.com/dnatribes-digest-2009-08-29.pdf>. Some (but not all) ideas from PCT might provide a useful basis for a “modified Kurgan” theory of IE origins consistent with genetic evidence of pre-Neolithic population continuity in Europe. For instance, perhaps Kurgan societies spoke an IE language developed from older IE or IE-like Paleolithic languages already spoken in parts of Europe. However, the PCT itself problematically associates Bronze Age Kurgan cultures with Turkic languages,

theory is the “Neolithic creolisation hypothesis,” which proposes that Proto-Indo-European emerged as a new contact language between hunting-fishing cultures and Neolithic farming cultures. Nevertheless, Gimbutas’ Kurgan hypothesis of IE language origins remains the most accepted theory in academic literature.

Regardless of the details of early language origins, the Balkan Peninsula is today home to a variety of languages, including Slavic, Italic, Albanian, and Indic (Romany) languages. At the time of early written histories of Classical antiquity, the western Balkans was home to several cultures. For instance, the Illyrians of the Adriatic coast were known as pirates to the Romans. Other cultures active nearby included the Adriatic Veneti, possibly involved in Amber Road trade between northeast Italy and the Baltic Sea.

During the Migration Period that accompanied the collapse of the Roman Empire, several waves of cultures entered the Balkan Peninsula. These included Indo-European speaking Scythians fleeing their former territories in the European steppe, which was rapidly being conquered by Hunnic armies. For instance, the Sarmatians Alans were a steppe population that settled the lands of Hungary. It has also been suggested that cultural ancestors of the Croats (*Hrvati*) might have included Iranian speaking steppe populations, possibly linked to the ancient civilization center of Greater Khorasan in Central Asia.

Other possibly Iranian related cultures to enter the Balkans during this time included the Turkic or Turkicized Bulgars and Eurasian Avars (described as “fugitive Scythians” by the khan of the Göktürks). IE cultures fleeing from the east during this period also included Gothic populations, which passed through the Balkan Peninsula as they fled their former home near the Black Sea. These several waves of cultures that entered Europe during the Migration Period were remnants of IE speaking societies that had formerly reached across the expansive Eurasian steppes since the Bronze Age, thereafter replaced by new Turkic and Mongolic speaking empires.

The collapse of Iranian steppe territories throughout Europe and Asia also disrupted the western Sarmatian territories, which had previously extended to the Vistula River in Poland. After the Migration Period collapse, a new group of Slavic speaking cultures emerged northeast of the Carpathian Mountains and came in contact with the Byzantine (Eastern Roman) civilization of the Balkan Peninsula. These cultures became the ancestors of the South Slavic peoples, including Bosnians, Croats, Serbs, and Slovenes.

Genetic Analysis of the Balkan Sub-Region

Genetic contributions to the Balkan sub-region of Europe were identified. Results are summarized in **Table 1** and illustrated in **Figure 2**.

Discussion: Results indicate genetic contributions to the western Balkan Peninsula from several surrounding regions. Contributions from the southeast included Greek (15.3%) and Thracian (4.0%), perhaps related to early Old European agricultural contacts via the Aegean Sea (Greek contributions) and Danube River (Thracian contributions). Also possibly related to Old European farming contacts is the

which are not known to have expanded into Europe until the much later Migration Period in which IE speaking societies of the steppes were replaced by Turkic and Mongolic speaking cultures. The previous IE speaking “Scythian” cultures of the steppes included Gothic and Sarmatian refugee populations that entered the Balkan Peninsula during the Migration Period, described in this article.

Italian contribution (11.6%), which might express links with maritime Cardium Ware cultures via the Adriatic Sea, as well as later links with Etruria and Rome.⁸

Genetic links with neighboring sub-regions of Central and Eastern Europe were also identified, including Polish (45.0%) and Germanic (17.0%) contributions. These might express relationships with hunting-fishing populations that came in contact with early farming populations, as well as the more recent Slavic expansion. Also identified was a small but substantial Scythian contribution (3.9%), which might express Bronze Age Kurgan contacts as well as later migrations of steppe populations fleeing Hunnic conquests during the Migration Period.

This variety of genetic links suggests a rich complexity of interactions linking the Balkan Peninsula to surrounding continental and maritime areas. Moreover, this suggests a geographically oriented pattern of interactions between neighboring communities, perhaps dating to the Neolithic and earlier Paleolithic periods.

| World Region or European Sub-Region | Genetic Contribution |
|-------------------------------------|----------------------|
| Polish | 45.0% |
| Germanic | 17.0% |
| Greek | 15.3% |
| Italian | 11.6% |
| Thracian | 4.0% |
| Scythian | 3.9% |
| Other | 3.2% |

Table 1: Genetic contributions to the Balkan sub-region of Europe.

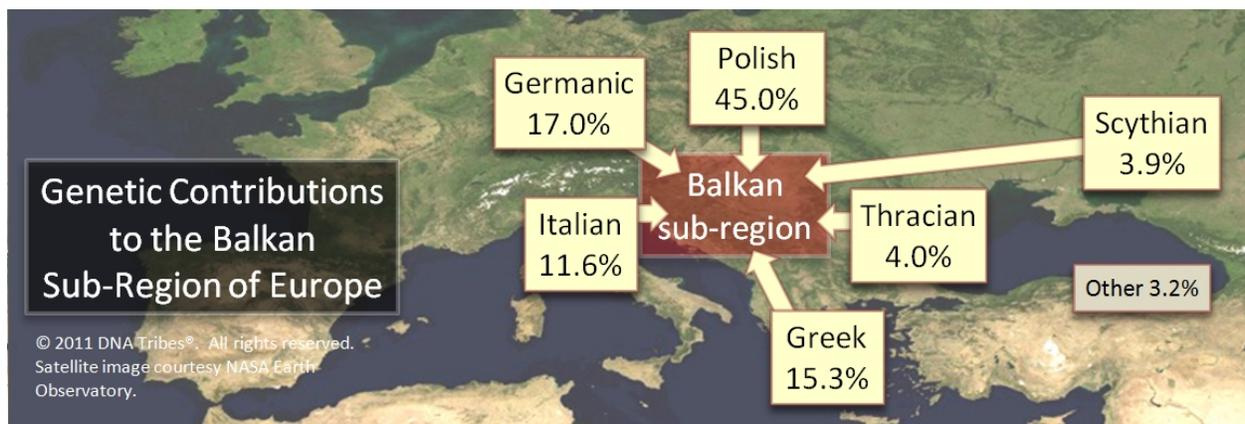


Figure 2: Genetic contributions to the Balkan sub-region of Europe.

⁸ For more information about Italian genetic links, see <http://dnatribes.com/dnatribes-digest-2010-11-30.pdf>.



New Populations and Panel Options for January 2011

New Populations: DNA Tribes is pleased to announce the addition of several new populations to our global database:

East Asian:

- Hui (Ningxia, China) (2975)

European:

- Basque (Basque Country, Spain) (104)
- Serbia (356)
- Sweden (424)
- United Kingdom (242)

Near Eastern:

- Lebanon (192)

South Asian:

- Tamil (Tamil Nadu, India) (136)

Native American:

- Amuzco (Oaxaca, Mexico) (30)
- Chinanteco (Oaxaca, Mexico) (40)
- Chontal (Oaxaca, Mexico) (29)
- Guaraní (Misiones, Argentina) (121)
- Huave (Oaxaca, Mexico) (29)
- Mazateco (Oaxaca, Mexico) (31)
- Mixe (Oaxaca, Mexico) (30)
- Mixteco (Oaxaca, Mexico) (30)
- Triqui (Oaxaca, Mexico) (37)
- Zapoteco del Istmo (Oaxaca, Mexico) (30)
- Zapoteco del Valle (Oaxaca, Mexico) (40)
- Zoque (Oaxaca, Mexico) (35)

Global Diasporic

- Afro-Caribbean (Haiti) (795)
- Mestizo (Nicaragua) (200)

Updates: Updates to incorporate these new populations are available for order through our secure checkout system at http://dnatribes.com/order_addons.html.