



DNA Tribes® Digest April 29, 2011
Copyright © 2011 DNA Tribes®. All rights reserved.

To request an email subscription to DNA Tribes® Digest, email digest@dnatribes.com with the subject heading “Subscribe.” To unsubscribe from DNA Tribes® Digest, email digest@dnatribes.com with the subject heading “Unsubscribe.” Previous issues of DNA Tribes® Digest are available online at <http://dnatribes.com/library.html>.

Table of Contents:

Introduction.....	1
An Updated Analysis of the Greek Sub-Region.....	2
Historical Background.....	2
Genetic Analysis of the Greek Sub-Region.....	4
Getting the Most from Your Testing.....	6

Introduction

Hello, and welcome to the April 2011 issue of DNA Tribes® Digest. This month’s feature article will update our analysis of the Greek sub-region of Europe, 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 Greek genetic relationships is available at <http://dnatribes.com/dnatribes-digest-2009-03-28.pdf>. Since that analysis was performed, 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 Greek Sub-Region

Historical Background

The Greek sub-region of Europe characterizes populations of modern Greece, Southern Italy and (to some extent) Western Turkey (see **Figure 1**). These maritime lands surrounding the Aegean Sea have served as a melting pot since early times, synthesizing cultural impulses from Europe and the East Mediterranean. Greek civilization has flourished repeatedly in several eras, including: early “Old European” societies of the Neolithic; the heroic Mycenaean societies of the Bronze Age; some of the first democratic *poleis* (city-states) of Iron Age Europe; and culminating in the Hellenistic civilization of Alexander the Great and his successors.

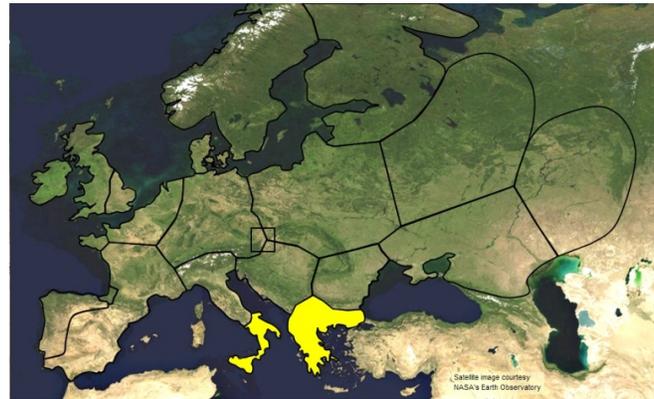


Figure 1: Map of the Greek sub-region (highlighted).

The early roots of Greek culture begin with Neolithic farming communities that spread to Greece from the Fertile Crescent approximately 6500 BCE. These “Old European” civilization builders entered Europe through the Aegean and founded agricultural settlements first in the Mediterranean and Balkan Peninsula and later in more distant parts of Europe. The language or languages of these “Old Europeans” remain a mystery, but archaeological clues suggest contacts with the Balkan Peninsula (including the Danubian civilization), Anatolia, and the northern Levant. According to later Greek writers, the Aegean had once been home to several pre-Greek populations, including Pelasgians, Minyans, Tyrrhenians (associated with Italy and the island of Lemnos), and Eteocretans (“True Cretans,” possibly the builders of the Minoan civilization).

Of these, the Minoans of Crete (named for the legendary king Minos) have left some of the most beautiful but also enigmatic traces in the archaeological record beginning approximately 1900 BCE. On Crete, palaces decorated with naturalistic paintings have been discovered along with writing including Cretan hieroglyphs and the undeciphered Linear A script. The Minoans traded with the Greek mainland, Old Kingdom Egypt, Cyprus, Anatolia, and the Levant, establishing a vibrant mercantile civilization sometimes described as a thalassocracy (“rule of the sea”). However, this island civilization was impacted by a massive volcanic eruption on Thera sometime between 1627 and 1500 BCE, possibly disrupting trade and other economic activities.

In the wake of Minoan decline, a new civilization emerged in the Aegean: the Mycenaeans. Although the Mycenaeans in many ways continued the indigenous Minoan culture of the Aegean, they also transmitted cultural forms from the Balkan Peninsula and Eurasia. These included an emphasis on fortifications, chariot warfare, and design elements (including early use of the “Greek key” or meander motif²) derived from the Sintashta-Petrovka “Country of Towns” of the southern Urals. Other

² Decorative motifs from the Sintashta-Petrovka and other Andronovan related archaeological cultures are catalogued in [The Origin of the Indo-Iranians](#) by E. E. Kuz'mina. The cultural impact of the chariot was echoed in

Mycenaean traditions, such as *tholos* (beehive) tombs, had roots not only in the Urals, but also in the Mediterranean and Southwest Asia.³

Continuing Minoan sea contacts, the Mycenaeans were active in the East Mediterranean, trading as far as the Levant and Egypt. These sea contacts were remembered in myths surrounding legendary Greek figures, such as the kings Belus, Aegyptus, and Danaus, as well as the Phoenician Agenor. Late in the Mycenaean period, archaeological evidence of Mycenaean influence has been discovered in the Southern Levant (at the time among the domains of New Kingdom Egypt⁴) and thought to be related to the Philistines (*Prst*) described by early Hebrews and Egyptians. Some of these Mycenaean linked cultures might also have been involved in the “Sea Peoples” confederation that confronted Egypt towards the end of the Bronze Age.

In addition, Mycenaean influence is thought to have transmitted Aegean cultural forms into the Balkan Peninsula and more distant parts of Europe during the Bronze Age.⁵ The far reaching trade contacts of the Mycenaean world are illustrated by the Uluburun shipwreck (discovered near modern Turkey). The cargo of this Bronze Age ship included trade goods from not only the East Mediterranean, but also African ebony and ivory, Baltic amber, and Southwest Asian armor.

The language of the Mycenaean palace system is thought to have been an early form of Greek (recorded in Linear B writing fragments), a *centum* (western) Indo-European language that also shares features with Armenian and Indo-Iranian languages spoken further east. However, archaeological evidence of extensive trade links during this period suggests the possibility of contacts with many neighboring cultures in the East Mediterranean and beyond. However, as with the preceding Minoans, the Mycenaean world was disrupted: this time by a largely unexplained event known as the Bronze Age Collapse of approximately 1200 BCE. This collapse affected not only the Aegean, but also large parts of Southwest Asia.

The aftermath of these events was perhaps dimly recalled in later Greek legends of the “Return (Coming Down) of the Heracleidae.” Although sometimes understood by modern historians as somehow describing a triumphant “Dorian invasion,” the actual Greek term suggests instead a return from exile by the remnants of the former Mycenaean ruling families. Similarly, Homer’s *Odyssey* tells the story of a Greek king (Odysseus) who wins success in the Trojan War, then is cursed to lose his memory and wander the sea for ten years before returning to his kingdom in Ithaca.

Plato’s *Phaedrus*, in which the human soul was symbolized by a chariot. Similar chariot imagery appeared in early literature of South Asia, such as the *Mahabharata* and *Katha Upanishad*.

³ See *Rise of the Bronze Age* by K. Kristiansen and T. B. Larsson, pp. 171-185. Evidence of an ancient “Country of Towns” based on pastoralism and extensive mining operations in the Urals has been compared to Avestan traditions of Jamshid, who constructed a *vara* (enclosure) to protect life against oncoming severe winters. Archaeologists believe migrations from Sintashta-Petrovka were in part driven by climate change. See *Complex Societies of Central Eurasia from the 3rd to the 1st Millennium BC* (Volume I), ed. by K. Jones-Bley and D. G. Zdanovich.

⁴ Prior to Greek related Philistine settlements in Canaan, New Kingdom Egypt had controlled large areas of the Levant and Sinai Peninsula. These Canaanite speaking borderlands of Egypt had been administered by local rulers, whose often Hurrian (*Kharu*) and Indic names (listed in the Amarna Letters) remained as late cultural traces of previous Hurrian expansions into the Fertile Crescent during the second millennium BCE.

⁵ According to the archaeologists Kristiansen and Larsson, Mycenaean trade networks established a secondary or peripheral center in Southern Scandinavia, where Bronze Age tumuli (“kurgans”) dot the landscape (over 20,000 in Denmark alone). One of these mounds, the “King’s Grave” in Kivik, Sweden, includes petroglyphs illustrating chariot races, athletic contests, musical instruments, and burial customs that have been compared to Aegean cultural forms recorded in Homer’s *Iliad*. See *Rise of the Bronze Age* by K. Kristiansen and T. B. Larsson, pp. 186-204.

The Bronze Age Collapse was followed by a Dark Age in Greece between 1200 and 800 BC. This post-Mycenaean age was symbolized in Hesiod's *Works and Days* by iron: a base metal subject to rust and corrosion, representing corruption and injustice in Hesiod's era. However, Greek civilization was revitalized during the "Orientalizing period" beginning after 800 BCE, when massive cultural imports from the Near East stimulated Greek art, literature, medicine, and religion. Perhaps most importantly, these contacts generated the Greek alphabet, developed from the earlier Phoenician alphabet and still retaining original names for each letter (for instance, Greek *alpha* from the Phoenician *aleph*, meaning "ox").⁶

During the following Classical period, flourishing Greek city-states (each with its own cultural traditions) established colonies throughout the Mediterranean and Black Sea, reaching as far as southern Spain and France, Cyrenaica in North Africa, Egypt, Georgia, and the Crimea. This distinctly Greek culture reached its peak under Alexander the Great (*Megas Alexandros*, traditionally said to be a descendant of both Herakles and Achilles⁷), who turned the tide of Persian expansions and eventually reached Egypt, Transoxiana and India with his armies. In the Hellenistic period that followed Alexander's death in 323 BCE, many cultures from many distant parts of the Europe, Africa, and Asia came in contact, echoing the dynamic trade links created by the earlier Minoan and Mycenaean worlds.

Genetic Analysis of the Greek Sub-Region

Genetic contributions to the Greek sub-region were identified based on autosomal STR data. Results are summarized in **Table 1** and illustrated in **Figure 2**.

World Region or European Sub-Region	Genetic Contribution
Mesopotamian	31.2%
Italian	21.9%
Thracian	18.1%
Levantine	14.8%
Balkan	13.4%
Other	0.5%

Table 1: Genetic contributions to the Greek sub-region.

Discussion: Results in **Table 1** indicate contributions from several neighboring parts of Europe as well as the Near East, perhaps reflecting contacts dating at least to the "Old European" Neolithic period. Near Eastern contacts include Mesopotamian (31.2%) and Levantine (14.8%) contributions, similar not only to

⁶ This transmission was remembered in Greek legends of the Phoenician prince Cadmus, said to have founded the Greek city of Thebes and introduced the Phoenician letters (*Phoinikeia*). For more information, see The Orientalizing Revolution by W. Burkert, pp. 25-33. The Phoenician alphabet was in turn derived from an older Proto-Sinaitic script, used by Canaanite workers in Egyptian-run turquoise mines of Serabit el-Khadim in the Sinai Peninsula.

⁷ A body of legends about Alexander or *Dhul-Qarnayn* became an important part of ancient folklore, eventually developing into the Alexander Romance and included with the tales of heroism collected in Ferdowsi's *Shahnameh*.

the early spread of agricultural civilization from the Fertile Crescent, but also recalling trade contacts during the Minoan and Mycenaean periods and during the later Classical and Hellenistic periods.

Links with Europe include an Italian contribution (21.9%), perhaps related to early “Old European” contacts as well as later links via Mediterranean Sea. Links with the Balkan Peninsula include a westerly Balkan contribution (13.4%) and an easterly Thracian contribution (18.1%); both of these might express contacts dating to “Old Europe” as well as later periods, such as Mycenaean links with Europe and Classical trade and colonial contacts with populations to the north.

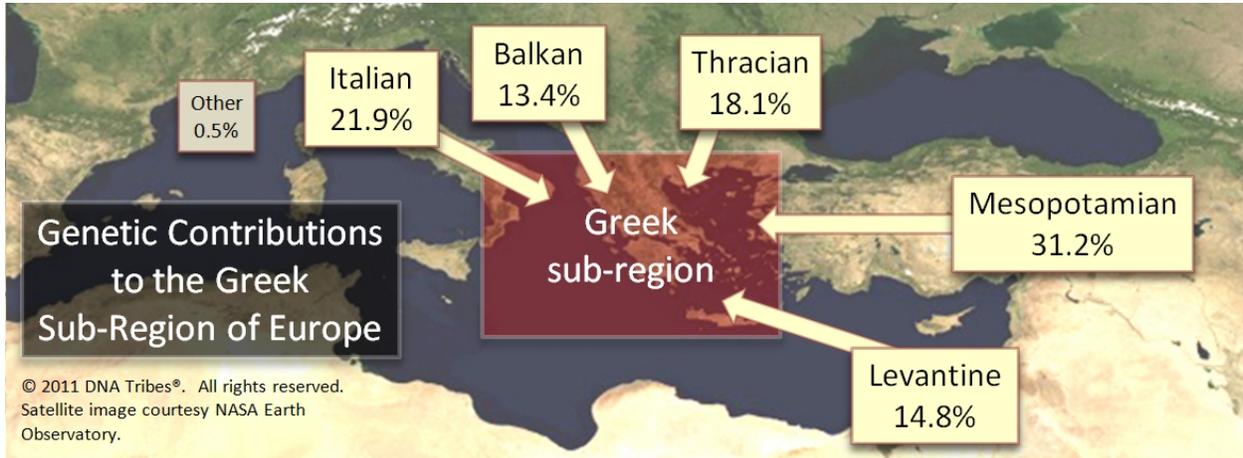


Figure 2: Genetic contributions to the Greek sub-region.



Getting the Most from Your Testing

Once your testing is complete, DNA Tribes® offers several options to keep your report current and to customize your genetic analysis for the information you want. (*Prices are listed as of April 29, 2011 and are subject to change.*)

Updating Your Analysis:

DNA Tribes® analysis is updated on a periodic basis to include new reference data as well as refinements to our match algorithms and world regions analysis. (A map illustrating current populations and genetic regions is available at <http://dnatribes.com/populations.html>.)

After your testing is complete, your analysis can be updated at any times of your choice for \$24.99 through our secure online checkout at http://dnatribes.com/order_addons.html.

Customizing Your Analysis with Add-On Reports:

DNA Tribes® offers several \$24.99 Add-On reports to customize your analysis:

African Panel: A listing of your DNA match scores for all individual Sub-Saharan African populations in our database.

Central Asian Panel: A listing of your DNA match scores for individual native Central Asian and Siberian populations in our database, also including Roma (European Gypsy) match scores.

East Asian Panel: A listing of your DNA match scores for East Asian populations in our database, including all individual Chinese, Japanese, Korean, and Southeast Asian populations.

Middle Eastern Panel: A listing of your DNA match scores for Middle Eastern populations in our database, including all individual Arab, Berber, Caucasus, Jewish, Persian, and Turkish populations.

Native American Panel: A listing of your DNA match scores for all individual Native American populations in our database.

South Asian Panel: A listing of your DNA match scores for South Asian populations in our database, including all individual populations of Bangladesh, India, Nepal, Pakistan, and Sri Lanka.

Extended Match Results: A comprehensive listing of your DNA match scores for all individual populations in our database.

Once lab testing is complete, panels can be performed at any time (without the need to submit new DNA samples) by ordering through our secure online checkout at http://dnatribes.com/order_addons.html.



DNA Tribes® Europa: A Detailed Comparison to European Sub-Regions:

DNA Tribes® Europa provides the most detailed and complete analysis of European autosomal genetic structure available. DNA Tribes® Europa provides your DNA match scores for 17 genetic sub-regions of Europe, which is substantially more robust than the individual population matches in Parts B – C of reports and more detailed than the European world regions referenced in Part D of core results.

More information about DNA Tribes® Europa is available at:
<http://dnatribes.com/dnatribes-europa.html>

Confirm or Clarify Your Results with Lab Upgrade:

For customers who have completed testing with DNA Tribes®, we offer 15-to-21, 15-to-27, and 21-to-27 Marker Upgrade tests. Upgrades include lab testing of additional STR marker systems, allowing a closer comparison of your own DNA to world populations for enhanced match precision and power of exclusion. The incorporation of additional marker systems can confirm or clarify your existing results, and all upgrades includes an update to all Add-On reports previously ordered for your kit.

Upgrades are available through our secure online checkout system at:
http://dnatribes.com/order_upgrades.html.

Researching Your Results:

Each person's DNA Tribes® results are one of a kind and express their own unique collection of genetic material inherited from both paternal and maternal ancestors. Your personal DNA matches can express recent family genealogy and also more ancient genetic relationships among world populations.

A library of articles based on DNA Tribes® original ongoing research and analysis of world genetic structure is available free at <http://dnatribes.com/library.html>.