

ANCESTRAL ORIGINS™

Thank you for purchasing the Ancestral Origins™ product. This document will help you understand your ancestral report and get the most out of what is represented on your customised map.



ABOUT THE POPULATION MATCH MAP AND ITS STRENGTH INDICATOR GRAPH

Each dot in the large population match map represents an individual population that the tested individual's genetic profile was compared with. Hundreds of populations, comprising fifteen anthropological regions, are utilised to create this map.

Through several stages of analysis and statistical calculation that take genetic and anthropological factors into account, populations that the tested profile is most likely to be genetically linked with become apparent. The populations with an apparent link to the tested profile are indicated by highlighting them in green or yellow, depending on the strength of the link.

Each population's dot has a shape that indicates which anthropological region it belongs to. This, in addition to the colour of the population's dot, allows the populations and regions that the tested individual is most closely related to - in a "geogenetic sense" - to be seen at a glance.

The populations in the African Immigrant, European Immigrant, and Hispanic Immigrant anthropological regions are known as "dispersed" populations, and indicate migration to North America from other native lands. Where possible, they have been placed where they belong in North America. However, with the dispersed populations that appear in the ocean, only the ethnicities of the people sampled and the fact that they are somewhere in North America is known, not their current specific location.

The Population Match Map has a Strength Indicator Graph on the right side of the poster. Where the colours of dots in the Population Match Map indicate the strength of each individual population, the bars in the population match strength indicator graph display the overall strength of all the populations contained in each matched anthropological region in comparison with other matched regions.



ABOUT THE NATIVE REGION MATCH MAP AND ITS STRENGTH INDICATOR GRAPH

A modified set of analyses and statistical calculations have been performed to identify the so-called "Native Regions" of the tested genetic profile. Most people will only have one or two regions. These anthropological regions indicate a more "deep roots" match than does the Population Match, and as such there are no "dispersed" anthropological regions indicated on this map. If there is more than one match, the strongest match is indicated in green, the rest in yellow.

The Native Region Match Strength Indicator Graph displays the strength of the tested profile's native region matches in relation with each other. Of course if there is only one match, there will be only one bar.



UNDERSTANDING MIGRATION

It is not uncommon to find some surprises in your Ancestral Origins™ map. One key to understanding your unique geogenetic makeup is to understand the history of human migration and how natural migrations along with conquest and discovery have contributed to the mixing of people and nations. Human migration is movement (physical or psychological) by humans from one district to another, sometimes over long distances or in large groups.

The movement of populations in modern times has continued under the form of both voluntary migration within one's region, country, or beyond, and involuntary migration (which includes the slave trade, trafficking in human beings and ethnic cleansing). People who migrate are called migrants, or, more specifically, emigrants, immigrants, or settlers, depending on historical setting, circumstances and perspective.



PERSONAL PROFILE AND TOP PERSONAL MATCHES FOR: **Jane Doe**

STR DNA PROFILE

Locus	Normal Range	Allele(s)	
D3S1358	(12 - 20)	14	16
TH01	(4 - 13.3)	9.3	
D21S11	(24 - 38)	28	29
D18S51	(8 - 27)	13	15
Penta E	(5 - 24)	9	16
D5S818	(7 - 16)	11	13
D13S317	(7 - 15)	12	
D7S820	(6 - 14)	9	12
D16S539	(5 - 15)	8	15
CSF1PO	(6 - 15)	10	12
Penta D	(2.2 - 17)	12	14
vWA	(10 - 22)	14	19
D8S1179	(7 - 18)	13	14
TPOX	(6 - 13)	11	
FGA	(16 - 46.2)	19	21
Amelogenin	(XX - XY)	X	

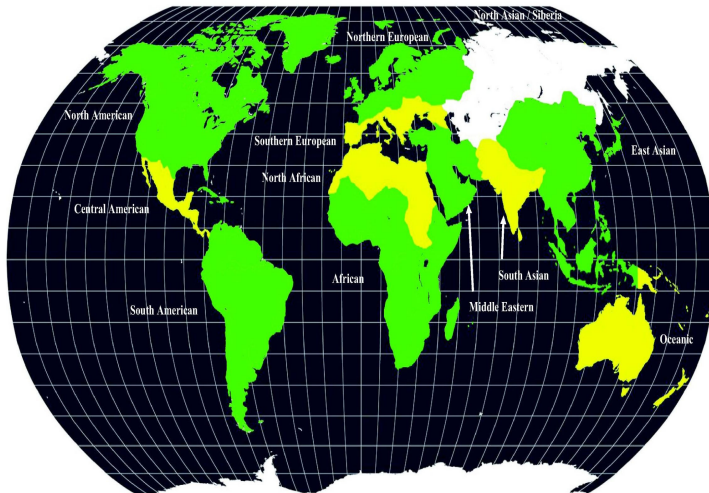
ABOUT YOUR PROFILE

Your **STR PROFILE** is a permanent means of individual identification. Unlike a name that may be shared, a identification card number that can be stolen, or photographs that change over time, your personal DNA identity remains constant from the moment of conception to the end of life. Your profile demonstrates your genetic similarity to family members as well as the genetic uniqueness that distinguishes you from the rest of the world. Should you or your family need help from a law enforcement agency – such as in search for a missing person due to abduction, accident, or a natural disaster – your profile is fully compatible with the internationally recognized DNA identity standards.

Rank	Regional Affiliation	Number of Population Matches
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1	Northern European	12
2	European Immigrants	6
3	Southern European	2

Regional Affiliation Reference Map



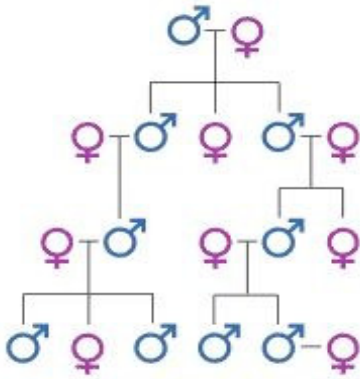
The **Regional Affiliation** refers to the 15 anthropological regions currently included in the database (FoGG DB). The Number of **Population Matches** refers to the number of databases in the corresponding **Regional Affiliation** that rank as **Good** (Yellow Symbol) or **Best** (Green Symbol) on your unique map. Individuals that are known or suspected to be multi-racial may show a stronger linkage to a particular **Regional Affiliation** due to the statistical odds of genetic inheritance.

The following listing of databases are based on the **Regional Affiliation(s)** ranked above. They indicate the closest **Population Matches** to your unique **DNA Profile** and appear in no particular order:

Netherlands	Bavarian
United Kingdom	Austrians
German	Norwegian
Maine Caucasian	Portugese
Austrian	Indiana Caucasian



DNA BASICS



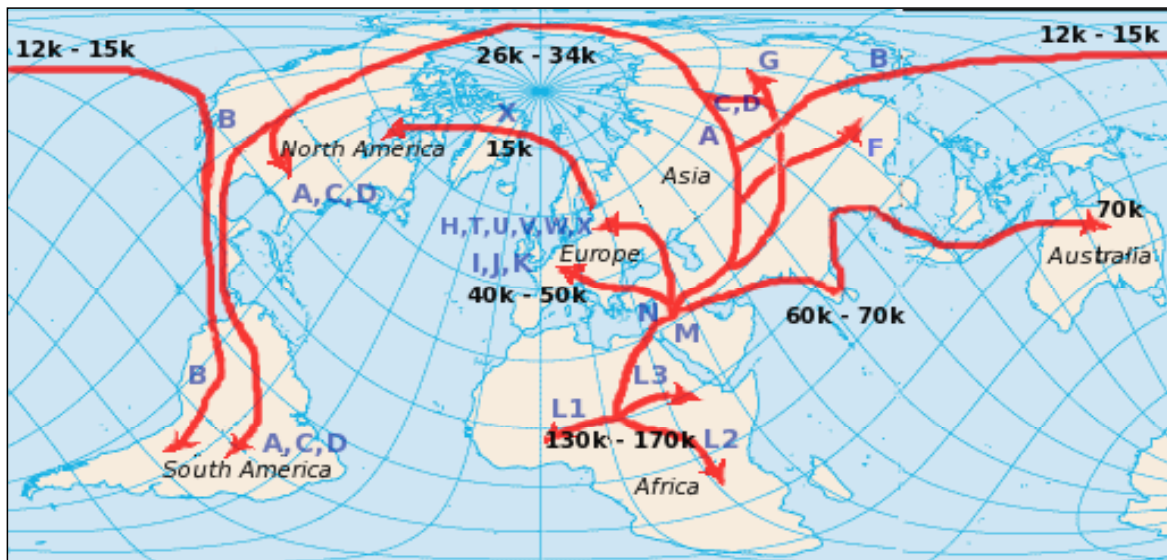
Deoxyribonucleic acid (DNA) is the body's instruction manual for making you who you are. It is present in any living being. It carries all of the instructions for making all of the structures and materials the body needs to function. All of the cells of an individual contain the same **DNA**, essentially creating a specific identity for that individual. **DNA** is established at conception, and does not change throughout your life. You receive one-half of your **DNA** from your mother and one-half from your father. **DNA** is what allows for the transmission of genetic material from one generation to the next.



HISTORICAL MIGRATION

For your convenience we present next an article available via Wikipedia concerning Historical Migration. This article is licensed under the GNU Free Documentation License. It uses material from the Wikipedia article "Historical Migration": < http://en.wikipedia.org/w/index.php?title=Historical_migration&oldid=170802377 >. Copyright (c) The Genetic Testing Laboratories. Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is available at <http://www.gnu.org/licenses/fdl.txt>.

Historical migration of human populations begins with the movement of Homo erectus out of Africa across Eurasia about a million years ago. Homo sapiens appears to have colonized all of Africa about 150 millennia ago, moved out of Africa some 80 millennia ago, and spread across Eurasia and to Australia before 40 millennia ago. Migration to the Americas took place about 20 to 15 millennia ago, and by 1 millennia ago, all the Pacific Islands were colonized. Later population movements notably include the Neolithic revolution, Indo-European expansion, and the Early Medieval Great Migrations including Turkic expansion. The Age of Exploration and European Colonialism led to an accelerated pace of migration since Early Modern times.



DNA-based chart (model) of early human migrations



EARLY MIGRATIONS

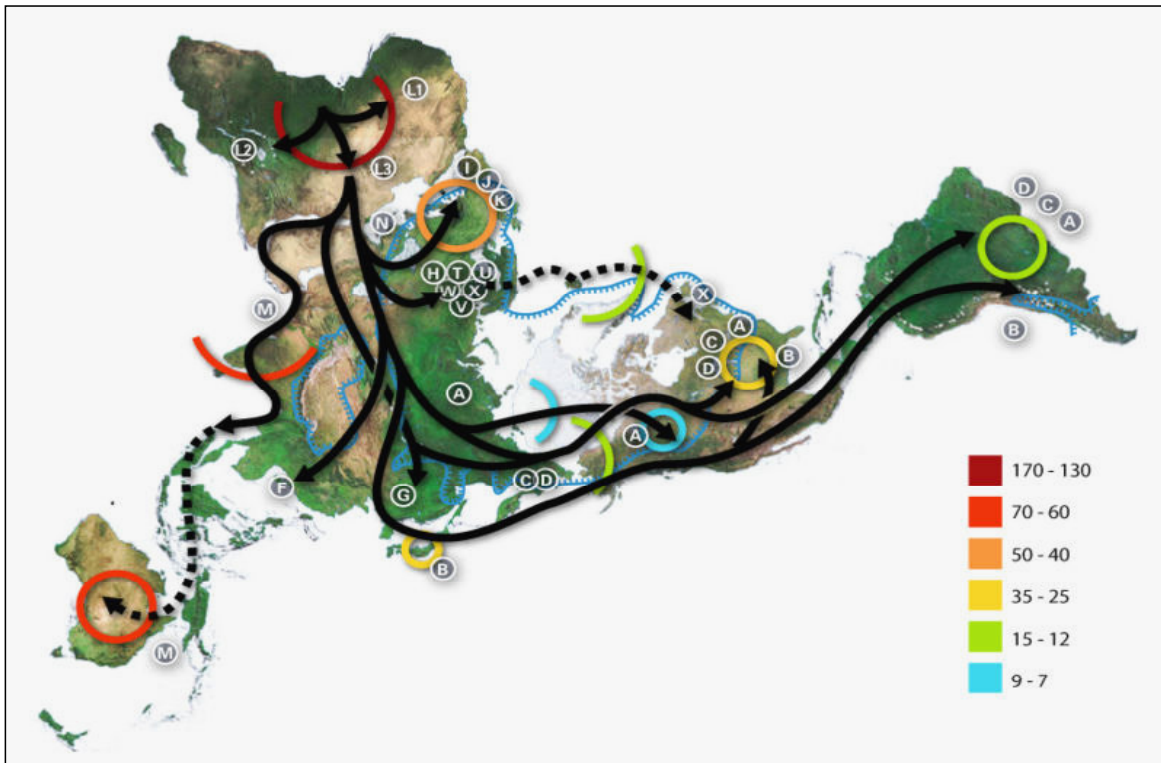
Evolution of the genus Homo took place in Africa. First Homo erectus migrated out of Africa across Eurasia, beginning about one million years ago, no doubt using some of the same available land routes north of the Himalayas that were later to become the Silk Road, and across the Strait of Gibraltar. Bruce Bower controversially suggested that Homo erectus may have built rafts and sailed oceans.

The expansion of Homo erectus was followed by that of Homo sapiens. The matrilinear most recent common ancestor shared by all living human beings, dubbed Mitochondrial Eve, probably lived roughly 150-120 thousand years ago, the time of Homo sapiens idaltu, probably in the area of modern Ethiopia, Kenya or Tanzania. Around 100-80 thousand years ago, three main lines of Homo sapiens sapiens diverged, bearers of mitochondrial haplogroup L1 (mtDNA) / A (Y-DNA) colonizing Southern Africa (the ancestors of the Khoisan (Capoid) peoples), bearers of haplogroup L2 (mtDNA) / B (Y-DNA) settling Central and West Africa (the ancestors of Niger-Congo and Nilo-Saharan speaking peoples and of the Mbuti pygmies), while the bearers of haplogroup L3 remained in East Africa. Some 70 thousand years ago, a part of the L3 bearers migrated into the Near East, spreading east to southern Asia and Australasia some 60 thousand years ago, northwestwards into Europe and eastwards into Central Asia some 40 thousand years ago, and further east to the Americas from about 30 thousand years ago.



MIGRATIONS TO THE NEW WORLD

There are two main models for the history of the first settlement of the Americas. One school of thought believes in a "short chronology," believing that the first movement into the New World occurred no earlier than 14,000 – 16,000 years ago. On the other hand, the "long chronology" camp posits that people entered the hemisphere at a much earlier date, theorizing the possibility of migration 20,000 years ago or earlier.

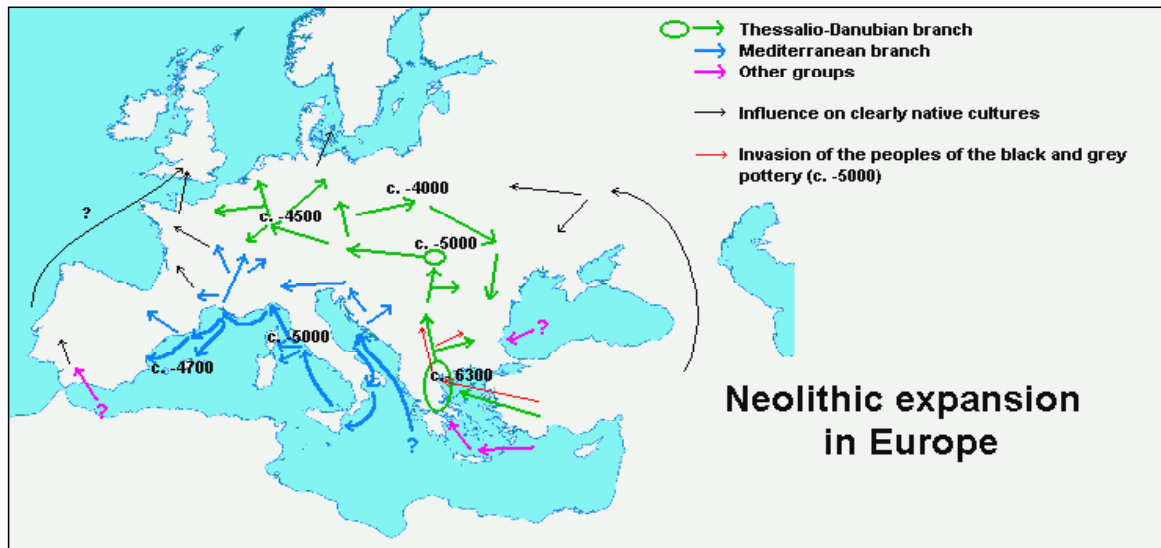


Map of early human migrations according to mitochondrial population genetics (numbers are millennia before present)



NEOLITHIC REVOLUTION

Agriculture is believed to have first been practised some 10,000 years ago in the Fertile Crescent. From there it propagated as a "wave" across Europe, a view supported by Archaeogenetics, reaching northern Europe some 5 thousand years ago.



Neolithic expansions from the 7th to the 5th millennium BC



PACIFIC EXPANSION

The islands of the Pacific were the last region on Earth to be populated by humans, as recently as 15 to 12 centuries ago. With the art of open-sea navigation involving the most confident and courageous use of the available technologies of boat-building, combined with the most sophisticated understanding of currents and prevailing winds, the Polynesians, starting with the Lapita culture, have proven to be the most successful in the art of navigation, if the permanent spread of culture is taken into account, for the Norse adventurers in the North Atlantic and the Arab traders in the Indian Ocean did not create permanent settlements. The Lapita people, who got their name from the archaeological site in Lapita, New Caledonia, where their characteristic pottery was first discovered, came from Austronesia, probably New Guinea. Their navigation skills took them to the Solomon Islands, around 1600 BC, and later to Fiji and Tonga.

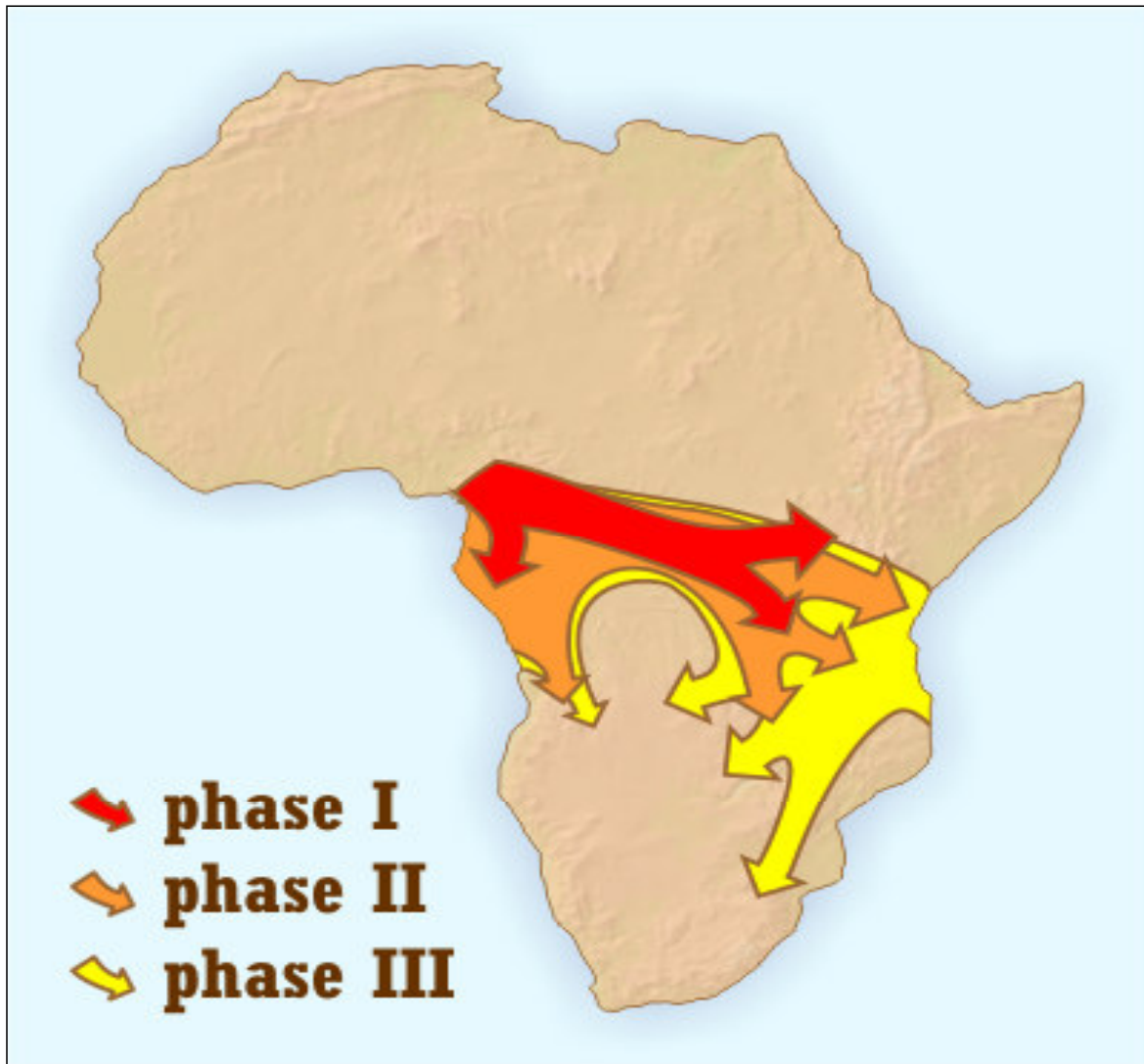


By the beginning of the 1st millennium BC, most of Polynesia was a loose web of thriving cultures who settled on the islands' coasts and lived off the sea. By 500 BC Micronesia was completely colonized; the last region of Polynesia to be reached was New Zealand in around AD 1000. Polynesian migration patterns also have been studied by linguistic analysis, and recently by analyzing characteristic genetic alleles of today's inhabitants. Both methods resulted in supporting the original archaeological findings.



BANTU EXPANSION

The Bantu first originated around the Benue-Cross rivers area in southeastern Nigeria and spread over Africa to the Zambia area. Sometime in the second millennium BC, perhaps triggered by the drying of the Sahara and pressure from the migration of people from the Sahara into the region, they were forced to expand into the rainforests of central Africa (phase- I). In the 1st millennium BC, they began a more rapid second phase of expansion beyond the forests into southern and eastern Africa, and again in the 1st millennium AD as new agricultural techniques and plants were developed in Zambia. By about AD 1000 it had reached modern day Zimbabwe and South Africa. In Zimbabwe a major southern hemisphere empire was established, with its capital at Great Zimbabwe. By the 14th or 15th century, the Empire had surpassed its resources and had collapsed.



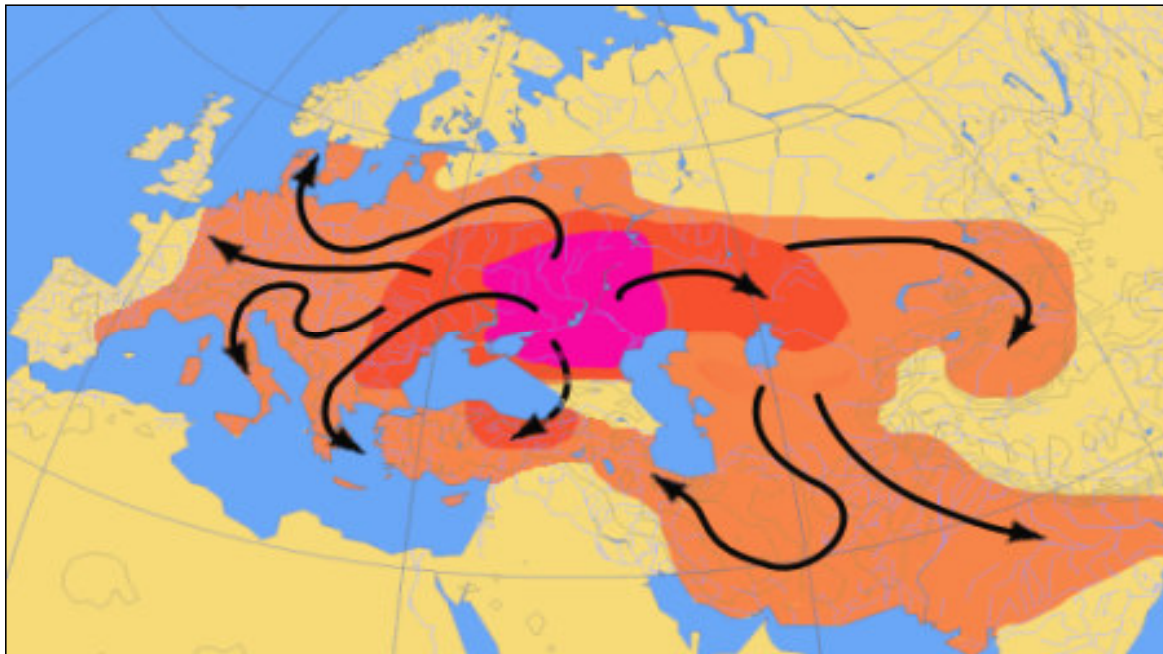
One common hypothesis of the Bantu expansion



EURASIAN EXPANSION

Indo-Europeans: The Indo-European migration had variously been dated to the end of the Neolithic, the early Neolithic and the late Palaeolithic. The speakers of the Proto-Indo-European language are usually believed to have originated to the North of the Black Sea (today Eastern Ukraine and Southern Russia), and from there they gradually migrated into, and spread their language by cultural diffusion to, Anatolia, Europe, and Central Asia Iran and South Asia starting from around the end of the Neolithic period. Other theories, such as that of Colin Renfrew, posit their development much earlier, in Anatolia, and claim that Indo-European languages and culture spread as a result of the agricultural revolution in the early Neolithic.

Relatively little is known about the inhabitants of pre-Indo-European "Old Europe". They are believed to have been hunter-gatherers. The Basque language remains from that era, as do the indigenous languages of the Caucasus. The Sami are genetically distinct among the peoples of Europe, but the Sami languages, as part of the Finno-Ugric languages, spread into Europe about the same time as the Indo-European languages. However, since that period speakers of other Finno-Ugric languages such as the Finns and the Estonians have had more contact with other Europeans, thus today sharing more genes



Scheme of Indo-European migrations from ca. 4000 to 1000 BC according to the Kurgan hypothesis. The purple area corresponds to the assumed Urheimat. The red area corresponds to the area which may have been settled by Indo-European-speaking peoples up to ca. 2500 BC; the orange area to 1000 BC.

Bronze Age: The earliest migrations we can reconstruct from historical sources are those of the 2nd millennium BC. It is speculated that the Proto-Indo-Iranians began their expansion from ca. 2000 BC, the Indo-Aryan migration hypothesis suggests that they reached Assyria in the west and the Punjab in the east by ca. 1500 BC. In the Late Bronze Age, the Aegean and Anatolia were overrun by moving populations, summarized as the "Sea Peoples", leading to the collapse of the Hittite Empire and ushering in the Iron Age.

Early Iron Age: The Dorian invasion of Greece led to the Greek Dark Ages. Very little is known about the period of the 12th to 9th centuries BC, but there were significant population movements throughout Anatolia and the Iranian plateau. Iranian peoples invaded the territory of modern Iran in this period, taking over the Elamite Empire. The Urartians were displaced by Armenians, and the Cimmerians and the Mushki migrated from the Caucasus into Anatolia. A Thraco-Cimmerian connection links these movements to the Proto-Celtic world of central Europe, leading to the introduction of Iron to Europe and the Celtic



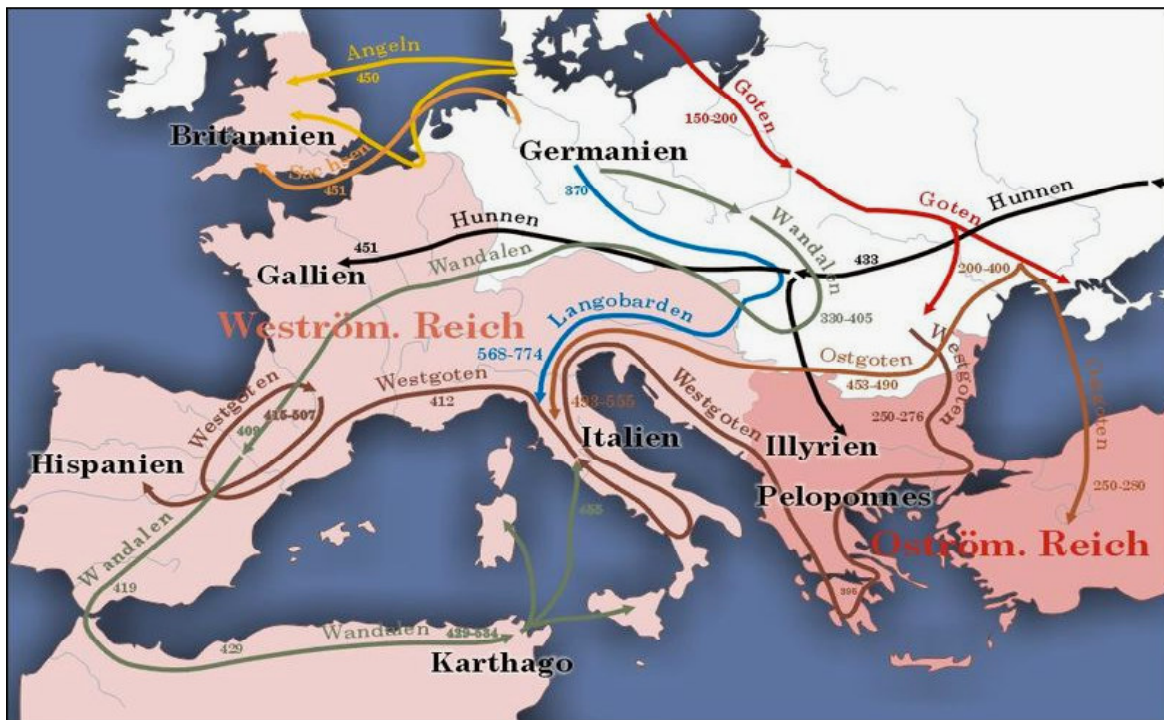
THE GREAT MIGRATIONS

Western historians refer to the period of migrations that separated Antiquity from the Middle Ages in Europe as the Great Migrations or as the Migrations Period. This period is further divided into two phases.

The first phase, from 300 to 500 AD, saw the movement of Germanic and other tribes and ended with the settlement of these peoples in the areas of the former Western Roman Empire, essentially causing its demise.

The second phase, between 500 and 900 AD, saw Slavic, Turkic and other tribes on the move, re-settling in Eastern Europe and gradually making it predominantly Slavic. Moreover, more Germanic tribes migrated within Europe during this period, including the Lombards (to Italy), and the Angles, Saxons, and Jutes (to the British Isles). See also: Avars, Bulgars, Huns, Arabs, Vikings, Varangians. The last phase of the migrations saw the coming of the Hungarians to the Pannonian plain.

German historians of the 19th century referred to these Germanic migrations as the *Völkerwanderung*, the migrations of the peoples. The European migration period is connected with the simultaneous Turkic expansion which at first displaced other peoples towards the west, and by High Medieval times, the Seljuk Turks themselves reached the Mediterranean.



2nd to 5th century migrations



MEDIEVAL AND EARLY MODERN EUROPE

The medieval period, although often presented as a time of limited human mobility and slow social change in the history of Europe, in fact saw widespread movement of peoples. The Vikings from Scandinavia raided all over Europe from 8th century and settled in many places, including Normandy, the north of England, Scotland and Ireland (most of whose urban centres were founded by the Vikings). The Normans later conquered the Saxon Kingdom of England, most of Ireland, southern Italy and Sicily - although the migration associated with these conquests was relatively limited - the Normans in most cases forming only a small ruling class. Iberia was invaded by Muslim Arabs, Berbers and Moors in the eighth century, founding new Kingdoms such as al Andalus and bringing with them a wave of settlers from North Africa.

In the other direction, European Christian armies conquered Palestine for a time during the Crusades 11th-13th centuries, founding three Christian kingdoms and settling them with Christian Knights and their families. This permanent migration was relatively small however and was one of the reasons why the Crusaders eventually lost their hold on the Holy Lands.

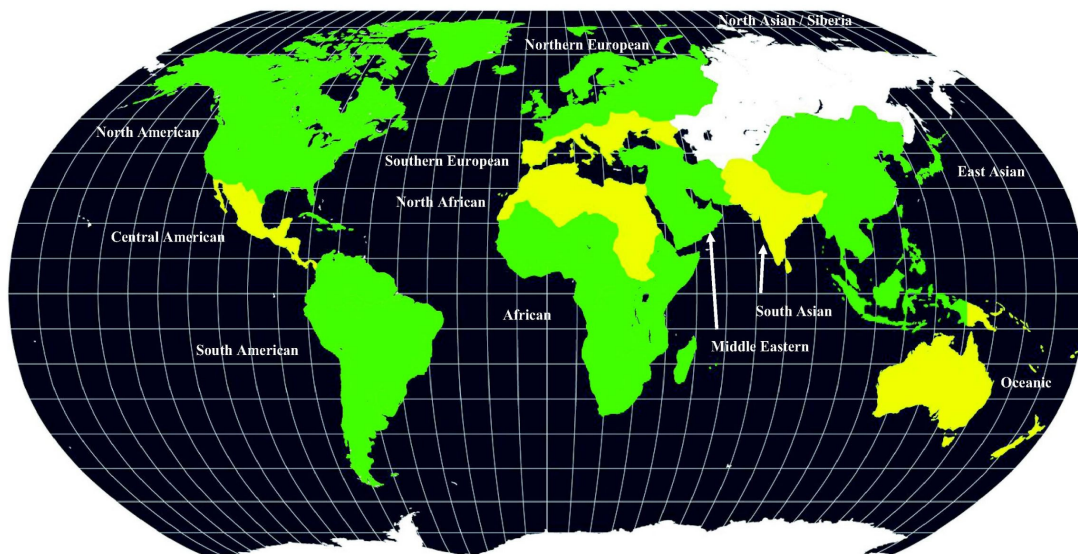
In the 14th century, German military colonists settled the Baltic region, becoming a ruling elite. At the end of the Middle Ages, the Roma arrived in Europe (to Iberia and the Balkans) from the Middle East, originating from the Indus river.

Internal European migration stepped up in the Early Modern Period. In this period, major migration within Europe included the recruiting by monarchs of landless labourers to settle depopulated or uncultivated regions and a series of forced migration caused by religious persecution. Notable examples of this phenomenon include mass migration of Protestants from the Spanish Netherlands to the Dutch Republic after the 1580s, the expelling of Jews and Moriscos from Spain in the 1590s and the expulsion of the Huguenots from France in the 1680s.

Since the 14th century, the Serbs started leaving the areas of their medieval Kingdom and Empire that was overrun by the Ottoman Turks and migrated to the north, to the lands of today's Vojvodina (northern Serbia), which was ruled by the Kingdom of Hungary at that time. The Habsburg monarchs of Austria encouraged them to settle on their frontier with the Turks and provide military service by granting them free land and religious toleration. The two greatest migrations took place in 1690 and 1737. Other instances of labour recruitments include the Plantations of Ireland - the settling of Ireland with Protestant English colonists in the period 1560-1690 and the recruitment of Germans by Catherine the Great of Russia to settle the Volga region in the 18th century.

European Colonialism from the 16th to the early 20th centuries led to an imposition of a European colonies in many regions of the world, particularly in the Americas, South Asia, Sub-Saharan Africa and Australia, where European languages remain either prevalent or in frequent use as administrative languages. Major human migration before the 18th century was largely state directed. For instance, Spanish emigration to the New World was limited to settlers from Castile who were intended to act as soldiers or administrators. Mass immigration was not encouraged due to a labour shortage in Europe (of which Spain was the worst affected by a depopulation of its core territories in the 17th century). Europeans also tended to die of tropical diseases in the New World in this period and for this reason, England, France and Spain preferred using slaves to free labour in their American possessions.

This changed in the 18th century due to population increases in Europe. Spanish restrictions on emigration to Latin America were revoked and the English colonies in North America saw a major influx of settlers attracted by cheap or free land, economic opportunity and religious toleration. By 1800, European emigration had transformed the demographic character of the American continent. Their influence elsewhere was less pronounced as in South Asia and Africa, European settlement in this period was limited to thin layer of administrators, traders and soldiers.



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