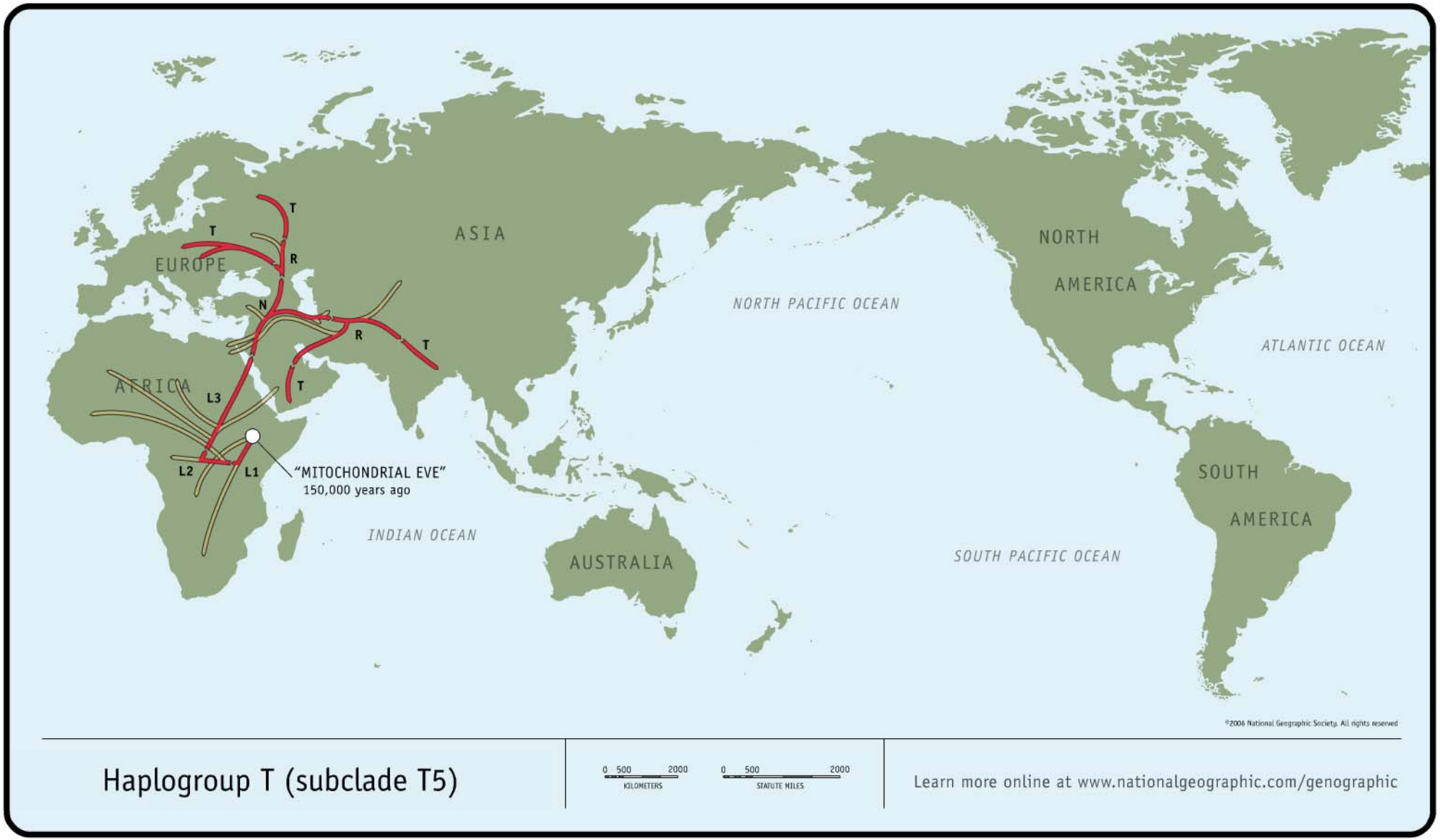
THE GENOGRAPHIC PROJECT

MIGRATION ROUTES: SP FATHER'S MATERNAL LINEAGE (ISAAC)



Haplogroup T (subclade T5)

Learn more online at www.nationalgeographic.com/genographic

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Certificate of mtDNA testing

In recognition of your participation in the Genographic Project, we hereby certify that

SP father's maternal lineage (Isaac)

belongs to:

Haplogroup T (subclade T5)

The letters designating the bases adenine, cytosine, guanine, or thymine of your mtDNA differ from Cambridge Reference Sequence (CRS) at each of the following positions:

16126C, 16153A, 16294T, 16519C

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December 5, 2006

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HAPLOGROUP T

Your Branch on the Human Family Tree

Your DNA results identify you as belonging to a specific branch of the human family tree called **haplogroup** *T*. Haplogroup T contains the following subgroups: T, T1, T2, T2b, T3, T4, T5.

The map above shows the direction that your maternal ancestors took as they set out from their original homeland in East Africa. While humans did travel many different paths during a journey that took tens of thousands of years, the lines above represent the dominant trends in this migration.

Over time, the descendants of your ancestors ultimately made it into northeastern Europe, where most members of your haplogroup are found today. But before we can take you back in time and tell their stories, we must first understand how modern science makes this analysis possible.

How DNA Can Help

(To follow along, click **See Your DNA Analysis** *above to view the data produced from your cheek scraping.)*

The string of 569 letters shown above is your mitochondrial sequence, with the letters *A, C, T,* and *G* representing the four nucleotides the chemical building blocks of life that make up your DNA. The numbers at the top of the page refer to the positions in your sequence where informative mutations have occurred in your ancestors, and tell us a great deal about the history of your genetic lineage.

Here's how it works. Every once in a while a mutation a random, natural (and usually harmless) change occurs in the sequence of your mitochondrial DNA. Think of it as a spelling mistake: one of the "letters" in your sequence may change from a *C* to a *T,* or from an *A* to a *G*.

(Explore the **Genetics Overview** *to learn more about population genetics.)*

After one of these mutations occurs in a particular woman, she then passes it on to her daughters, and her daughters' daughters, and so on. (Mothers also pass on their mitochondrial DNA to their sons, but the sons in turn do not pass it on.)

Geneticists use these markers from people all over the world to construct one giant mitochondrial family tree. As you can imagine, the tree is very complex, but scientists can now determine both the age and geographic spread of each branch to reconstruct the prehistoric movements of our ancestors.

By looking at the mutations that *you* carry, we can trace your lineage, ancestor by ancestor, to reveal the path they traveled as they moved out of Africa. Our story begins with your earliest ancestor. Who was she, where did she live, and what is her story?

(Click **Explore Your Route Map** *on the right side of the page to return to the map showing your haplogroup's ancestral journey.)*

Your Ancestral Journey: What We Know Now

We will now take you back through the stories of your distant ancestors and show how the movements of their descendants gave rise to your mitochondrial lineage.

Each segment on the map above represents the migratory path of successive groups that eventually coalesced to form your branch of the tree. We start with your oldest ancestor, "Eve," and walk forward to more recent times, showing at each step the line of your ancestors who lived up to that point.

Mitochondrial Eve: The Mother of Us All

Ancestral Line: "Mitochondrial Eve"

Our story begins in Africa sometime between 150,000 and 170,000 years ago, with a woman whom anthropologists have nicknamed "Mitochondrial Eve."

She was awarded this mythic epithet in 1987 when population geneticists discovered that all people alive on the planet today can trace their maternal lineage back to her.

But Mitochondrial Eve was not the first female human. *Homo sapiens* evolved in Africa around 200,000 years ago, and the first hominids characterized by their unique bipedal stature appeared nearly two million years before that. Yet despite humans having been around for almost 30,000 years, Eve is exceptional because hers is the only lineage from that distant time to survive to the present day.

Which begs the question, "So why Eve?"

Simply put, Eve was a survivor. A maternal line can become extinct for a number of reasons. A woman may not have children, or she may bear only sons (who do not pass her mtDNA to the next generation). She may fall victim to a catastrophic event such as a volcanic eruption, flood, or famine, all of which have plagued humans since the dawn of our species.

None of these extinction events happened to Eve's line. It may have been simple luck, or it may have been something much more. It was around this same time that modern humans' intellectual capacity underwent what author Jared Diamond coined the Great Leap Forward. Many anthropologists believe that the emergence of language gave us a huge advantage over other early human species. Improved tools and weapons, the ability to plan ahead and cooperate with one another, and an increased capacity to exploit resources in ways we hadn't been able to earlier, all allowed modern humans to rapidly migrate to new territories, exploit new resources, and outcompete and replace other hominids, such as the Neandertals.

It is difficult to pinpoint the chain of events that led to Eve's unique success, but we can say with certainty that all of us trace our maternal lineage back to this one woman.

The *L* Haplogroups: The Deepest Branches

Ancestral line: "Eve" > *L1/L0*

Mitochondrial Eve represents the root of the human family tree. Her descendents, moving around within Africa, eventually split

into two distinct groups, characterized by a different set of mutations their members carry.

These groups are referred to as *L0* and *L1,* and these individuals have the most divergent genetic sequences of anybody alive today, meaning they represent the deepest branches of the mitochondrial tree. Importantly, current genetic data indicates that indigenous people belonging to these groups are found exclusively in Africa. This means that, because all humans have a common female ancestor, "Eve," and because the genetic data shows that Africans are the oldest groups on the planet, we know our species originated there.

Haplogroups *L1* and *L0* likely originated in East Africa and then spread throughout the rest of the continent. Today, these lineages are found at highest frequencies in Africa's indigenous populations, the hunter-gatherer groups who have maintained their ancestors' culture, language, and customs for thousands of years.

At some point, after these two groups had coexisted in Africa for a few thousand years, something important happened. The mitochondrial sequence of a woman in one of these groups, *L1,* mutated. A letter in her DNA changed, and because many of her descendants have survived to the present, this change has become a window into the past. The descendants of this woman, characterized by this signpost mutation, went on to form their own group, called *L2*. Because the ancestor of *L2* was herself a member of *L1,* we can say something about the emergence of these important groups: Eve begat *L1,* and *L1* begat *L2*. Now we're starting to move down your ancestral line.

Haplogroup L2: West Africa

Ancestral line: "Eve" > *L1/L0* > *L2*

L2 individuals are found in sub-Saharan Africa, and like their *L1* predecessors, they also live in Central Africa and as far south as South Africa. But whereas *L1/L0* individuals remained predominantly in eastern and southern Africa, your ancestors broke off into a different direction, which you can follow on the map above.

L2 individuals are most predominant in West Africa, where they constitute the majority of female lineages. And because *L2* individuals are found at high frequencies and widely distributed along western Africa, they represent one of the predominant lineages in African-Americans. Unfortunately, it is difficult to pinpoint where a specific *L2* lineage might have arisen. For an African-American who is *L2* the likely result of West Africans being brought to America during the slave trade it is difficult to say with certainty exactly where in Africa that lineage arose.

Fortunately, collaborative sampling with indigenous groups is currently underway to help learn more about these types of questions and to possibly bridge the gap that was created during those transatlantic voyages hundreds of years ago.

Haplogroup L3: Out of Africa

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3*

Your next signpost ancestor is the woman whose birth around 80,000 years ago began haplogroup *L3*. It is a similar story: an individual in *L2* underwent a mutation to her mitochondrial DNA, which was passed onto her children. The children were successful, and their descendants ultimately broke away from the *L2* clan, eventually separating into a new group called *L3*. You can see above that this has revealed another step in your ancestral line.

While *L3* individuals are found all over Africa, including the southern reaches of sub-Sahara, *L3* is important for its movements north. You can follow this movement of the map above, seeing first the expansions of *L1/L0,* then *L2,* and followed by the northward migration of *L3*.

Your *L3* ancestors were significant because they are the first modern humans to have left Africa, representing the deepest branches of the tree found outside of that continent.

Why would humans have first ventured out of the familiar African hunting grounds and into unexplored lands? It is likely that a fluctuation in climate may have provided the impetus for your ancestors' exodus out of Africa.

The African Ice Age was characterized by drought rather than by cold. Around 50,000 years ago the ice sheets of northern Europe began to melt, introducing a period of warmer temperatures and moister climate in Africa. Parts of the inhospitable Sahara briefly became habitable. As the drought-ridden desert changed to savanna, the animals your ancestors hunted expanded their range and began moving through the newly emerging green corridor of grasslands. Your nomadic ancestors followed the good weather and plentiful game northward across this Saharan Gateway, although the exact route they followed remains to be determined.

Today, *L3* individuals are found at high frequencies in populations across North Africa. From there, members of this group went in a few different directions. Some lineages within *L3* testify to a distinct expansion event in the mid-Holocene that headed south, and are predominant in many Bantu groups found all over Africa. One group of individuals headed west and is primarily restricted to Atlantic western Africa, including the islands of Cabo Verde.

Other *L3* individuals, your ancestors, kept moving northward, eventually leaving the African continent completely. These people currently make up around ten percent of the Middle Eastern population, and gave rise to two important haplogroups that went on to populate the rest of the world.

Haplogroup *N:* The Incubation Period

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3* > *N*

Your next signpost ancestor is the woman whose descendants formed haplogroup *N*. Haplogroup *N* comprises one of two groups that were created by the descendants of *L3*.

The first of these groups, *M,* was the result of the first great wave of migration of modern humans to leave Africa. These people likely left the continent across the Horn of Africa near Ethiopia, and their descendants followed a coastal route eastward, eventually making it all the way to Australia and Polynesia.

The second great wave, also of *L3* individuals, moved north rather than east and left the African continent across the Sinai Peninsula, in present-day Egypt. Also faced with the harsh desert conditions of the Sahara, these people likely followed the Nile basin, which would have proved a reliable water and food supply in spite of the surrounding desert and its frequent sandstorms.

Descendants of these migrants eventually formed haplogroup *N*. Early members of this group lived in the eastern Mediterranean region and western Asia, where they likely coexisted for a time with other hominids such as Neandertals. Excavations in Israel's Kebara Cave (Mount Carmel) have unearthed Neandertal skeletons as recent as 60,000 years old,

indicating that there was both geographic and temporal overlap of these two hominids.

The ancient members of haplogroup *N* spawned many sublineages, which spread across much of the rest of the globe and are found throughout Asia, Europe, India, and the Americas.

Haplogroup *R:* Spreading Out

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3* > *N* > *R*

After several thousand years in the Near East, individuals belonging to a new group called haplogroup *R* began to move out and explore the surrounding areas. Some moved south, migrating back into northern Africa. Others went west across Anatolia (present-day Turkey) and north across the Caucasus Mountains of Georgia and southern Russia. Still others headed east into the Middle East, and on to Central Asia. All of these individuals had one thing in common: they shared a female ancestor from the *N* clan, a recent descendant of the migration out of Africa.

The story of haplogroup *R* is complicated, however, because these individuals can be found almost everywhere, and because their origin is quite ancient. In fact, the ancestor of haplogroup *R* lived relatively soon after humans moved out of Africa during the second wave, and her descendants undertook many of the same migrations as her own group, *N*.

Because the two groups lived side by side for thousands of years, it is likely that the migrations radiating out from the Near East comprised individuals from both of these groups. They simply moved together, bringing their *N* and *R* lineages to the same places around the same times. The tapestry of genetic lines became quickly entangled, and geneticists are currently working to unravel the different stories of haplogroups *N* and *R,* since they are found in many of the same far-reaching places.

Haplogroup *T:* Your Branch on the Tree

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3* > *N* > *R* > *T*

We finally arrive at your own clan, a group of individuals who descend from a woman in the *R* branch of the tree. The divergent genetic lineage that constitutes haplogroup *T* indicates that she lived sometime around 40,000 years ago.

Haplogroup *T* has a very wide distribution, and is present as far east as the Indus Valley bordering India and Pakistan and as far south as the Arabian Peninsula. It is also common in eastern and northern Europe. Although your haplogroup was present during the early and middle Upper Paleolithic, *T* is largely considered one of the main genetic signatures of the Neolithic expansions.

While groups of hunter-gatherers and subsistence fishermen had been occupying much of Eurasia for tens of thousands of years, around ten thousand years ago a group of modern humans living in the Fertile Crescent present-day eastern Turkey and northern Syria began domesticating the plants, nuts, and seeds they had been collecting. What resulted were the world's first agriculturalists, and this new cultural era is typically referred to as the Neolithic.

Groups of individuals able to support larger populations with this reliable food source began migrating out of the Middle East, bringing their new technology with them. By then, humans had already settled much of the surrounding areas, but this new agricultural technology proved too successful to ignore, and the surrounding groups quickly copied these new immigrants. Interestingly, DNA data indicate that while these new agriculturalists were incredibly successful at planting their technology

in the surrounding groups, they were far less successful at planting their own genetic seed. Agriculture was quickly and widely adopted, but the lineages carried by these Neolithic expansions are found today at frequencies seldom greater than 20 percent in Europe, the Middle East, and Central Asia.

Anthropology vs. Genealogy

DNA markers require a long time to become informative. While mutations occur in every generation, it requires at least hundreds normally thousands of years for these markers to become windows back into the past, signposts on the human tree.

Still, our own genetic sequences often reveal that we fall within a particular sub-branch, a smaller, more recent branch on the tree.

While it may be difficult to say anything about the history of these sub-groups, they do reveal other people who are more closely related to us. It is a useful way to help bridge the anthropology of population genetics with the genealogy to which we are all accustomed.

One of the ways you can bridge this gap is to compare your own genetic lineage to those of people living all over the world. Mitosearch.org is a database that allows you to compare both your genetic sequence as well as your surname to those of thousands of people who have already joined the database. This type of search is a valuable way of inferring population events that have occurred in more recent times (i.e., the past few hundred years).

Looking Forward (Into the Past): Where Do We Go From Here?

Although the arrow of your haplogroup currently ends across sub-Saharan Africa, this isn't the end of the journey for haplogroup *T*. This is where the genetic clues get murky and your DNA trail goes cold. Your initial results shown here are based upon the best information available today but this is just the beginning.

A fundamental goal of the Genographic Project is to extend these arrows further toward the present day. To do this, Genographic has brought together ten renowned scientists and their teams from all over the world to study questions vital to our understanding of human history. By working together with indigenous peoples around the globe, we are learning more about these ancient migrations.

Help Us Find More Clues!

But there is another way that we will learn more about the past. By contributing your own results to the project, you will be allowed to participate anonymously in this ongoing research effort. This is important because it may contribute a great deal to our understanding of more recent human migrations. Click the yellow button below in the "Help Us Tell the Story" section of your results profile to learn more about this. It's quick, easy, and anonymous, but will help us further refine our analyses.

Don't Be a Stranger

Finally, keep checking these pages to follow along with the project and our latest findings; your results profile will be automatically updated to reflect any new information that may come to light based on the research.

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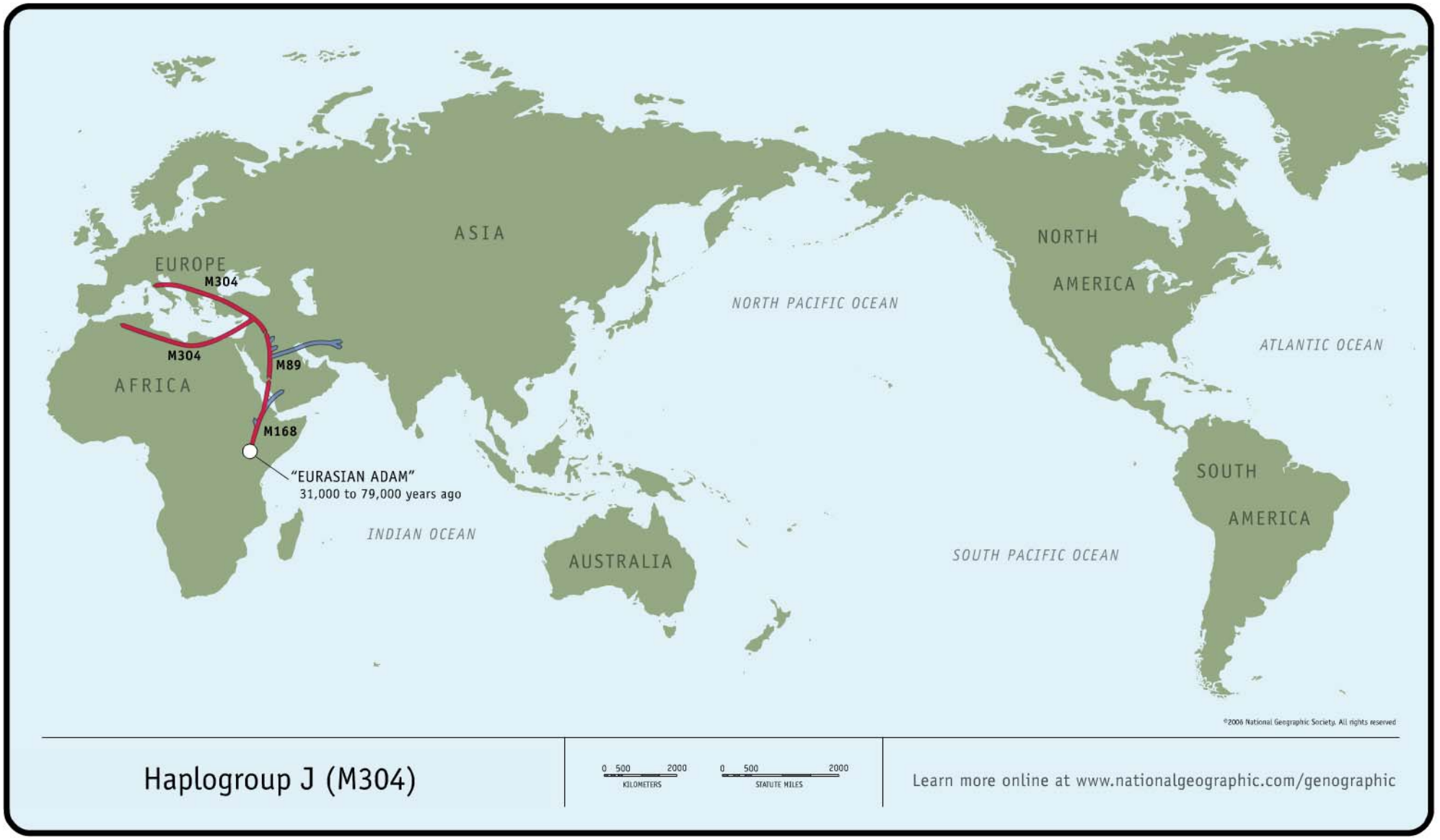
MIGRATION ROUTES: SP PARENTAL LINEAGE (SOLOMON)



Haplogroup J (M304)

0 500 2000 KILOMETERS

0 500 2000 STATUTE MILES

Learn more online at www.nationalgeographic.com/genographic

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Certificate of Y-chromosome DNA testing

In recognition of your participation in the Genographic Project, we hereby certify that

SP parental lineage (Solomon)

belongs to:

Haplogroup J (M304)

The designations for all twelve loci examined for this purpose are listed here, along with the Short Tandem Repeats (STRs) outcome for each.

393	19	391	439	389-1	389-2	388	390	426	385a	385b	392
12	14	10	12	13	16	17	23	11	14	18	11

December 5, 2006

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HAPLOGROUP J (M304)

Your Y-chromosome results identify you as a member of **haplogroup** *J*.

The genetic markers that define your ancestral history reach back roughly 60,000 years to the first common marker of all non-African men, *M168*, and follows your lineage to present day, ending with *M304*, the defining marker of haplogroup *J*.

If you look at the map highlighting your ancestors' route, you will see that members of Haplogroup *J* carry the following Y-chromosome markers:

M168 > M89 > M304

Today, descendants of this line appear in the highest frequencies in the Middle East, North Africa, and Ethiopia, and at a much lower frequency in Europe, where it is observed exclusively in the Mediterranean area. Approximately 20 percent of the males in southern Italy carry the marker, along with 10 percent of men in southern Spain.

What's a haplogroup, and why do geneticists concentrate on the Y-chromosome in their search for markers? For that matter, what's a marker?

Each of us carries DNA that is a combination of genes passed from both our mother and father, giving us traits that range from eye color and height to athleticism and disease susceptibility. One exception is the Y-chromosome, which is passed directly from father to son, unchanged, from generation to generation.

Unchanged, that is unless a mutation a random, naturally occurring, usually harmless change occurs. The mutation, known as a marker, acts as a beacon; it can be mapped through generations because it will be passed down from the man in whom it occurred to his sons, their sons, and every male in his family for thousands of years.

In some instances there may be more than one mutational event that defines a particular branch on the tree. This is the case for your haplogroup *J*, since this branch can be defined by two markers, either *M304* or *12f2.1*. What this means is that either of these markers can be used to determine your particular haplogroup, since for every individual that has one of these markers, he also has the other. Therefore, either marker can be used as a genetic signpost leading us back to the origin of your group, and guiding our understanding of what was happening at that early time.

When geneticists identify such a marker, they try to figure out when it first occurred, and in what geographic region of the world. Each marker is essentially the beginning of a new lineage on the family tree of the human race. Tracking the lineages provides a picture of how small tribes of modern humans in Africa tens of thousands of years ago diversified and spread to populate the world.

A haplogroup is defined by a series of markers that are shared by other men who carry the same random mutations. The markers trace the path your ancestors took as they moved out of Africa. It's difficult to know how many men worldwide belong to any particular haplogroup, or even how many haplogroups there are, because scientists simply don't have enough data yet.

One of the goals of the five-year Genographic Project is to build a large enough database of anthropological genetic data to answer some of these questions. To achieve this, project team members are traveling to all corners of the world to collect more than 100,000 DNA samples from indigenous populations. In addition, we encourage you to contribute your anonymous results to the project database, helping our geneticists to reveal more of the answers to our ancient past.

Keep checking these pages; as more information is received, more may be learned about your own genetic history.

Your Ancestral Journey: What We Know Now

M168: **Your Earliest Ancestor**

Fast Facts

Time of Emergence: Roughly 50,000 years ago

Place of Origin: Africa

Climate: Temporary retreat of Ice Age; Africa moves from drought to warmer temperatures and moister conditions

Estimated number of *Homo sapiens*: Approximately 10,000

Tools and Skills: Stone tools; earliest evidence of art and advanced conceptual skills

Skeletal and archaeological evidence suggest that anatomically modern humans evolved in Africa around 200,000 years ago, and began moving out of Africa to colonize the rest of the world around 60,000 years ago.

The man who gave rise to the first genetic marker in your lineage probably lived in northeast Africa in the region of the Rift Valley, perhaps in present-day Ethiopia , Kenya, or Tanzania, some 31,000 to 79,000 years ago. Scientists put the most likely date for when he lived at around 50,000 years ago. His descendants became the only lineage to survive outside of Africa, making him the common ancestor of every non-African man living today.

But why would man have first ventured out of the familiar African hunting grounds and into unexplored lands? It is likely that a fluctuation in climate may have provided the impetus for your ancestors' exodus out of Africa.

The African ice age was characterized by drought rather than by cold. It was around 50,000 years ago that the ice sheets of northern Europe began to melt, introducing a period of warmer temperatures and moister climate in Africa. Parts of the inhospitable Sahara briefly became habitable. As the drought-ridden desert changed to a savanna, the animals hunted by your ancestors expanded their range and began moving through the newly emerging green corridor of grasslands. Your nomadic ancestors followed the good weather and the animals they hunted, although the exact route they followed remains to be determined.

In addition to a favorable change in climate, around this same time there was a great leap forward in modern humans' intellectual capacity. Many scientists believe that the emergence of language gave us a huge advantage over other early human species. Improved tools and weapons, the ability to plan ahead and cooperate with one another, and an increased capacity to exploit resources in ways we hadn't been able to earlier, all allowed modern humans to rapidly migrate to new

territories, exploit new resources, and replace other hominids.

M89: **Moving Through the Middle East**

Fast Facts

Time of Emergence: 45,000 years ago

Place: Northern Africa or the Middle East

Climate: Middle East: Semi-arid grass plains

Estimated number of *Homo sapiens*: Tens of thousands

Tools and Skills: Stone, ivory, wood tools

The next male ancestor in your ancestral lineage is the man who gave rise to *M89*, a marker found in 90 to 95 percent of all non-Africans. This man was born around 45,000 years ago in northern Africa or the Middle East.

The first people to leave Africa likely followed a coastal route that eventually ended in Australia. Your ancestors followed the expanding grasslands and plentiful game to the Middle East and beyond, and were part of the second great wave of migration out of Africa.

Beginning about 40,000 years ago, the climate shifted once again and became colder and more arid. Drought hit Africa and the grasslands reverted to desert, and for the next 20,000 years, the Saharan Gateway was effectively closed. With the desert impassable, your ancestors had two options: remain in the Middle East, or move on. Retreat back to the home continent was not an option.

While many of the descendants of *M89* remained in the Middle East, others continued to follow the great herds of buffalo, antelope, woolly mammoths, and other game through what is now modern-day Iran to the vast steppes of Central Asia.

These semi-arid grass-covered plains formed an ancient "superhighway" stretching from eastern France to Korea. Your ancestors, having migrated north out of Africa into the Middle East, then traveled both east and west along this Central Asian superhighway. A smaller group continued moving north from the Middle East to Anatolia and the Balkans, trading familiar grasslands for forests and high country.

M304: **The Spread of Agriculture**

Fast Facts

Time of Emergence:15,000 to 10,000 years ago

Place of origin: Fertile Crescent

Climate: ice age ending

Estimated number of *Homo sapiens*: Millions

Language: Unknown earliest evidence of modern language families

Tools and Skills: Neolithic Revolution

The patriarch of Haplogroup *J* was a descendant of the *M89* Middle Eastern clan. He was born between 15,000 to 10,000 years ago in the Fertile Crescent, a region that extends from the Mediterranean Sea to the Persian Gulf where the Euphrates and Tigris rivers form an extremely rich floodplain. Today the region includes all or parts of Israel, the West Bank, Jordan, Lebanon, Syria, and Iraq.

The descendants of this man played a crucial role in modern human development. They pioneered the first Neolithic Revolution, the point at which humans changed from nomadic hunter-gatherers to settled agriculturists.

The end of the last Ice Age around 10,000 years ago, and the subsequent shift in climate to one more conducive to plant production probably helped spur the discovery of how to grow food.

Control over their food supply marks a major turning point for the human species: the beginning of civilization. Occupying a single territory required more complex social organization, moving from the kinship ties of a small tribe to the more elaborate relations of a larger community. It spurred trade, writing, calendars, and pioneered the rise of modern, sedentary communities and cities.

The *M304* marker appears at its highest frequencies in the Middle East, North Africa, and Ethiopia. In Europe, it is seen only in the Mediterranean region.

An important subgroup of haplogroup *J* includes the descendants of another man from the *M89* Middle Eastern clan born in the Fertile Crescent at about the same time, carrying the marker *M172*. This related haplogroup is called *J2*.

The early farming successes of these lineages spawned population booms and encouraged migration throughout much of the Mediterranean world. In fact, both haplogroup *J* and its subgroup *J2* are found at a combined frequency of around 30 percent amongst Jewish individuals.

This is where your genetic trail as we know it today, ends. However, be sure to revisit these pages. As additional data are collected and analyzed, more will be learned about your place in the history of the men and women who first populated the Earth. We will be updating these stories throughout the life of the project.

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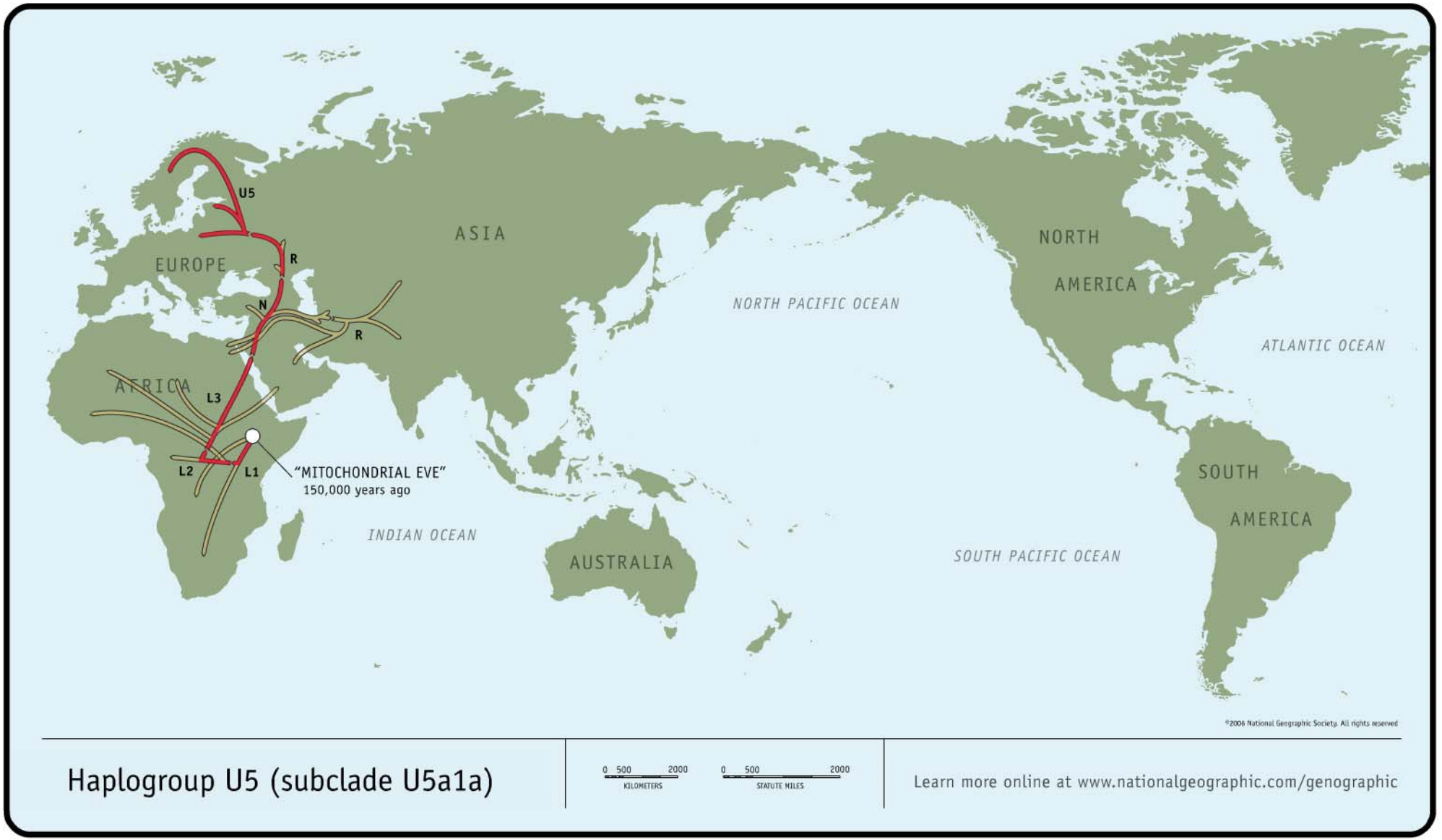
MIGRATION ROUTES: SP MATERNAL LINEAGE (MANI)



Haplogroup U5 (subclade U5a1a)

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Certificate of mtDNA testing

In recognition of your participation in the Genographic Project, we hereby certify that

SP maternal lineage (Mani)

belongs to:

Haplogroup U5 (subclade U5a1a)

The letters designating the bases adenine, cytosine, guanine, or thymine of your mtDNA differ from Cambridge Reference Sequence (CRS) at each of the following positions:

16256T, 16270T, 16399G

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December 5, 2006

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HAPLOGROUP U5

Your Branch on the Human Family Tree

Your DNA results identify you as belonging to a specific branch of the human family tree called **haplogroup** *U5*. Haplogroup U5 contains the following subgroups: U5, U5a, U5a*, U5a1, U5a1a, U5b, U5b1, U5b1b, U5b1c, U5b2.

The map above shows the direction that your maternal ancestors took as they set out from their original homeland in East Africa. While humans did travel many different paths during a journey that took tens of thousands of years, the lines above represent the dominant trends in this migration.

Over time, the descendants of your ancestors ultimately made it into northeastern Europe, where most members of your haplogroup are found today. But before we can take you back in time and tell their stories, we must first understand how modern science makes this analysis possible.

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Here's how it works. Every once in a while a mutation a random, natural (and usually harmless) change occurs in the sequence of your mitochondrial DNA. Think of it as a spelling mistake: one of the "letters" in your sequence may change from a C to a T, or from an A to a G.

(Explore the **Genetics Overview** *to learn more about population genetics.)*

After one of these mutations occurs in a particular woman, she then passes it on to her daughters, and her daughters' daughters, and so on. (Mothers also pass on their mitochondrial DNA to their sons, but the sons in turn do not pass it on.)

Geneticists use these markers from people all over the world to construct one giant mitochondrial family tree. As you can imagine, the tree is very complex, but scientists can now determine both the age and geographic spread of each branch to reconstruct the prehistoric movements of our ancestors.

By looking at the mutations that *you* carry, we can trace your lineage, ancestor by ancestor, to reveal the path they traveled as they moved out of Africa. Our story begins with your earliest ancestor. Who was she, where did she live, and what is her story?

(Click Explore Your Route Map on the right side of the page to return to the map showing your haplogroup's ancestral journey.)

Your Ancestral Journey: What We Know Now

We will now take you back through the stories of your distant ancestors and show how the movements of their descendants gave rise to your mitochondrial lineage.

Each segment on the map above represents the migratory path of successive groups that eventually coalesced to form your branch of the tree. We start with your oldest ancestor, "Eve," and walk forward to more recent times, showing at each step the line of your ancestors who lived up to that point.

Mitochondrial Eve: The Mother of Us All

Ancestral Line: "Mitochondrial Eve"

Our story begins in Africa sometime between 150,000 and 170,000 years ago, with a woman whom anthropologists have nicknamed "Mitochondrial Eve."

She was awarded this mythic epithet in 1987 when population geneticists discovered that all people alive on the planet today can trace their maternal lineage back to her.

But Mitochondrial Eve was not the first female human. *Homo sapiens* evolved in Africa around 200,000 years ago, and the first hominids characterized by their unique bipedal stature appeared nearly two million years before that. Yet despite humans having been around for almost 30,000 years, Eve is exceptional because hers is the only lineage from that distant time to survive to the present day.

Which begs the question, "So why Eve?"

Simply put, Eve was a survivor. A maternal line can become extinct for a number of reasons. A woman may not have children, or she may bear only sons (who do not pass her mtDNA to the next generation). She may fall victim to a catastrophic event such as a volcanic eruption, flood, or famine, all of which have plagued humans since the dawn of our species.

None of these extinction events happened to Eve's line. It may have been simple luck, or it may have been something much more. It was around this same time that modern humans' intellectual capacity underwent what Jared Diamond coined the Great Leap Forward. Many anthropologists believe that the emergence of language gave us a huge advantage over other early human species. Improved tools and weapons, the ability to plan ahead and cooperate with one another, and an increased capacity to exploit resources in ways we hadn't been able to earlier, all allowed modern humans to rapidly migrate to new territories, exploit new resources, and outcompete and replace other hominids, such as the Neandertals.

It is difficult to pinpoint the chain of events that led to Eve's unique success, but we can say with certainty that all of us trace our maternal lineage back to this one woman.

The *L* Haplogroups: The Deepest Branches

Ancestral line: "Eve" > *L1/L0*

Mitochondrial Eve represents the root of the human family tree. Her descendents, moving around within Africa, eventually split

into two distinct groups, characterized by a different set of mutations their members carry.

These groups are referred to as *L0* and *L1,* and these individuals have the most divergent genetic sequences of anybody alive today, meaning they represent the deepest branches of the mitochondrial tree. Importantly, current genetic data indicates that indigenous people belonging to these groups are found exclusively in Africa. This means that, because all humans have a common female ancestor, "Eve," and because the genetic data shows that Africans are the oldest groups on the planet, we know our species originated there.

Haplogroups *L1* and *L0* likely originated in East Africa and then spread throughout the rest of the continent. Today, these lineages are found at highest frequencies in Africa's indigenous populations, the hunter-gatherer groups who have maintained their ancestors' culture, language, and customs for thousands of years.

At some point, after these two groups had coexisted in Africa for a few thousand years, something important happened. The mitochondrial sequence of a woman in one of these groups, *L1,* mutated. A letter in her DNA changed, and because many of her descendants have survived to the present, this change has become a window into the past. The descendants of this woman, characterized by this signpost mutation, went on to form their own group, called *L2*. Because the ancestor of *L2* was herself a member of *L1,* we can say something about the emergence of these important groups: Eve begat *L1,* and *L1* begat *L2*. Now we're starting to move down your ancestral line.

Haplogroup L2: West Africa

Ancestral line: "Eve" > *L1/L0* > *L2*

L2 individuals are found in sub-Saharan Africa, and like their *L1* predecessors, they also live in Central Africa and as far south as South Africa. But whereas *L1/L0* individuals remained predominantly in eastern and southern Africa, your ancestors broke off into a different direction, which you can follow on the map above.

L2 individuals are most predominant in West Africa, where they constitute the majority of female lineages. And because *L2* individuals are found at high frequencies and widely distributed along western Africa, they represent one of the predominant lineages in African-Americans. Unfortunately, it is difficult to pinpoint where a specific *L2* lineage might have arisen. For an African-American who is *L2* the likely result of West Africans being brought to America during the slave trade it is difficult to say with certainty exactly where in Africa that lineage arose.

Fortunately, collaborative sampling with indigenous groups is currently underway to help learn more about these types of questions and to possibly bridge the gap that was created during those transatlantic voyages hundreds of years ago.

Haplogroup L3: Out of Africa

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3*

Your next signpost ancestor is the woman whose birth around 80,000 years ago began haplogroup *L3*. It is a similar story: an individual in *L2* underwent a mutation to her mitochondrial DNA, which was passed onto her children. The children were successful, and their descendants ultimately broke away from the *L2* clan, eventually separating into a new group called *L3*. You can see above that this has revealed another step in your ancestral line.

While *L3* individuals are found all over Africa, including the southern reaches of sub-Sahara, *L3* is important for its movements north. You can follow this movement of the map above, seeing first the expansions of *L1/L0,* then *L2,* and followed by the northward migration of *L3*.

Your *L3* ancestors were significant because they are the first modern humans to have left Africa, representing the deepest branches of the tree found outside of that continent.

Why would humans have first ventured out of the familiar African hunting grounds and into unexplored lands? It is likely that a fluctuation in climate may have provided the impetus for your ancestors' exodus out of Africa.

The African Ice Age was characterized by drought rather than by cold. Around 50,000 years ago the ice sheets of northern Europe began to melt, introducing a period of warmer temperatures and moister climate in Africa. Parts of the inhospitable Sahara briefly became habitable. As the drought-ridden desert changed to savanna, the animals your ancestors hunted expanded their range and began moving through the newly emerging green corridor of grasslands. Your nomadic ancestors followed the good weather and plentiful game northward across this Saharan Gateway, although the exact route they followed remains to be determined.

Today, *L3* individuals are found at high frequencies in populations across North Africa. From there, members of this group went in a few different directions. Some lineages within *L3* testify to a distinct expansion event in the mid-Holocene that headed south, and are predominant in many Bantu groups found all over Africa. One group of individuals headed west and is primarily restricted to Atlantic western Africa, including the islands of Cabo Verde.

Other *L3* individuals, your ancestors, kept moving northward, eventually leaving the African continent completely. These people currently make up around ten percent of the Middle Eastern population, and gave rise to two important haplogroups that went on to populate the rest of the world.

Haplogroup *N:* The Incubation Period

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3* > *N*

Your next signpost ancestor is the woman whose descendants formed haplogroup *N*. Haplogroup *N* comprises one of two groups that were created by the descendants of *L3*.

The first of these groups, *M,* was the result of the first great wave of migration of modern humans to leave Africa. These people likely left the continent across the Horn of Africa near Ethiopia, and their descendants followed a coastal route eastward, eventually making it all the way to Australia and Polynesia.

The second great wave, also of *L3* individuals, moved north rather than east and left the African continent across the Sinai Peninsula, in present-day Egypt. Also faced with the harsh desert conditions of the Sahara, these people likely followed the Nile basin, which would have proved a reliable water and food supply in spite of the surrounding desert and its frequent sandstorms.

Descendants of these migrants eventually formed haplogroup *N*. Early members of this group lived in the eastern Mediterranean region and western Asia, where they likely coexisted for a time with other hominids such as Neandertals. Excavations in Israel's Kebara Cave (Mount Carmel) have unearthed Neandertal skeletons as recent as 60,000 years old,

indicating that there was both geographic and temporal overlap of these two hominids.

The ancient members of haplogroup *N* spawned many sublineages, which spread across much of the rest of the globe and are found throughout Asia, Europe, India, and the Americas.

Haplogroup *R:* Spreading Out

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3* > *N* > *R*

After several thousand years in the Near East, individuals belonging to a new group called haplogroup *R* began to move out and explore the surrounding areas. Some moved south, migrating back into northern Africa. Others went west across Anatolia (present-day Turkey) and north across the Caucasus Mountains of Georgia and southern Russia. Still others headed east into the Middle East, and on to Central Asia. All of these individuals had one thing in common: they shared a female ancestor from the *N* clan, a recent descendant of the migration out of Africa.

The story of haplogroup *R* is complicated, however, because these individuals can be found almost everywhere, and because their origin is quite ancient. In fact, the ancestor of haplogroup *R* lived relatively soon after humans moved out of Africa during the second wave, and her descendants undertook many of the same migrations as her own group, *N*.

Because the two groups lived side by side for thousands of years, it is likely that the migrations radiating out from the Near East comprised individuals from both of these groups. They simply moved together, bringing their *N* and *R* lineages to the same places around the same times. The tapestry of genetic lines became quickly entangled, and geneticists are currently working to unravel the different stories of haplogroups *N* and *R,* since they are found in many of the same far-reaching places.

Haplogroup *U:* Toward the Black Sea

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3* > *N* > *R* > *U*

Descending from the *R* group, a woman gave rise to people who now constitute haplogroup *U*. Because of the great genetic diversity found in haplogroup *U,* it is likely that this woman lived around 50,000 years ago.

Her descendants gave rise to several different subgroups, some of which exhibit very specific geographic homelands. The very old age of these subgroups has led to a wide distribution; today they harbor specific European, northern African, and Indian components, and are found in Arabia, the northern Caucasus Mountains, and throughout the Near East.

One interesting subgroup is *U6,* which branched off from haplogroup R while still in the Middle East, moved southward, and today is found in parts of northern Africa. Today, *U6* individuals are found in around ten percent of people living in North Africa.

Other members of the larger haplogroup *U* descend from a group that moved northward out of the Near East. These women crossed the rugged Caucasus Mountains in southern Russia, and moved on to the steppes of the Black Sea. These individuals represent movements from the Black Sea steppes west into regions that comprise the present-day Baltic States and western Eurasia. This grassland then served as the home base for subsequent movements north and west. Today, members of these lineages are found in Europe and the eastern Mediterranean at frequencies of almost seven percent of the population.

While you do share distant ancestry with these subgroups of *U,* your genetic lineage went in a different direction.

Haplogroup *U5:* Your Branch on the Tree

Ancestral line: "Eve" > *L1/L0* > *L2* > *L3* > *N* > *R* > *U* > *U5*

We finally arrive at your own clan, a group of individuals who descend from a woman in the *U* branch of the tree. Her descendants, and the most recent common ancestor for all *U5* individuals, broke off from the rest of the group and headed north into Scandinavia. Even though *U5* is descended from an ancestor in haplogroup *U,* it is also ancient, estimated to be around 50,000 years old.

U5 is quite restricted in its variation to Scandinavia, and particularly to Finland. This is likely the result of the significant geographical, linguistic, and cultural isolation of the Finnish populations, which would have restricted geographic distribution of this subgroup and kept it fairly isolated genetically. The Saami, reindeer hunters who follow the herds from Siberia to Scandinavia each season, have the *U5* lineage at a very high frequency of around 50 percent, indicating that it may have been introduced during their movements into these northern territories.

The *U5* lineage is found outside of Scandinavia, though at much lower frequencies and at lower genetic diversity. Interestingly, the *U5* lineage found in the Saami has also been found in some North African Berber populations in Morocco, Senegal, and Algeria. Finding similar genetic lineages in populations living thousands of miles apart is certainly unexpected, and is likely the result of re-expansions that occurred after the last glacial maximum around 15,000 years ago. Humans who had been confined to narrow patches in southern Europe began to move outward again, recolonizing ancient territories and bringing new genetic lineages with them.

In addition to being present in some parts of North Africa, *U5* individuals also live sporadically in the Near East at two percent about one-fifth as frequent as in parts of Europe and are completely absent from Arabia. Their distribution in the Near East is largely confined to surrounding populations, such as Turks, Kurds, Armenians, and Egyptians. Because these individuals contain lineages that first evolved in Europe, their presence in the Near East is the result of a back-migration of people who left northern Europe and headed south, as though retracing the migratory paths of their own ancestors.

Anthropology vs. Genealogy

DNA markers require a long time to become informative. While mutations occur in every generation, it requires at least hundreds normally thousands of years for these markers to become windows back into the past, signposts on the human tree.

Still, our own genetic sequences often reveal that we fall within a particular sub-branch, a smaller, more recent branch on the tree.

While it may be difficult to say anything about the history of these sub-groups, they do reveal other people who are more closely related to us. It is a useful way to help bridge the anthropology of population genetics with the genealogy to which we are all accustomed.

One of the ways you can bridge this gap is to compare your own genetic lineage to those of people living all over the world. Mitosearch.org is a database that allows you to compare both your genetic sequence as well as your surname to those of thousands of people who have already joined the database. This type of search is a valuable way of inferring population events

that have occurred in more recent times (i.e., the past few hundred years).

Looking Forward (Into the Past): Where Do We Go From Here?

Although the arrow of your haplogroup currently ends across sub-Saharan Africa, this isn't the end of the journey for haplogroup *U5*. This is where the genetic clues get murky and your DNA trail goes cold. Your initial results shown here are based upon the best information available today but this is just the beginning.

A fundamental goal of the Genographic Project is to extend these arrows further toward the present day. To do this, Genographic has brought together ten renowned scientists and their teams from all over the world to study questions vital to our understanding of human history. By working together with indigenous peoples around the globe, we are learning more about these ancient migrations.

Help Us Find More Clues!

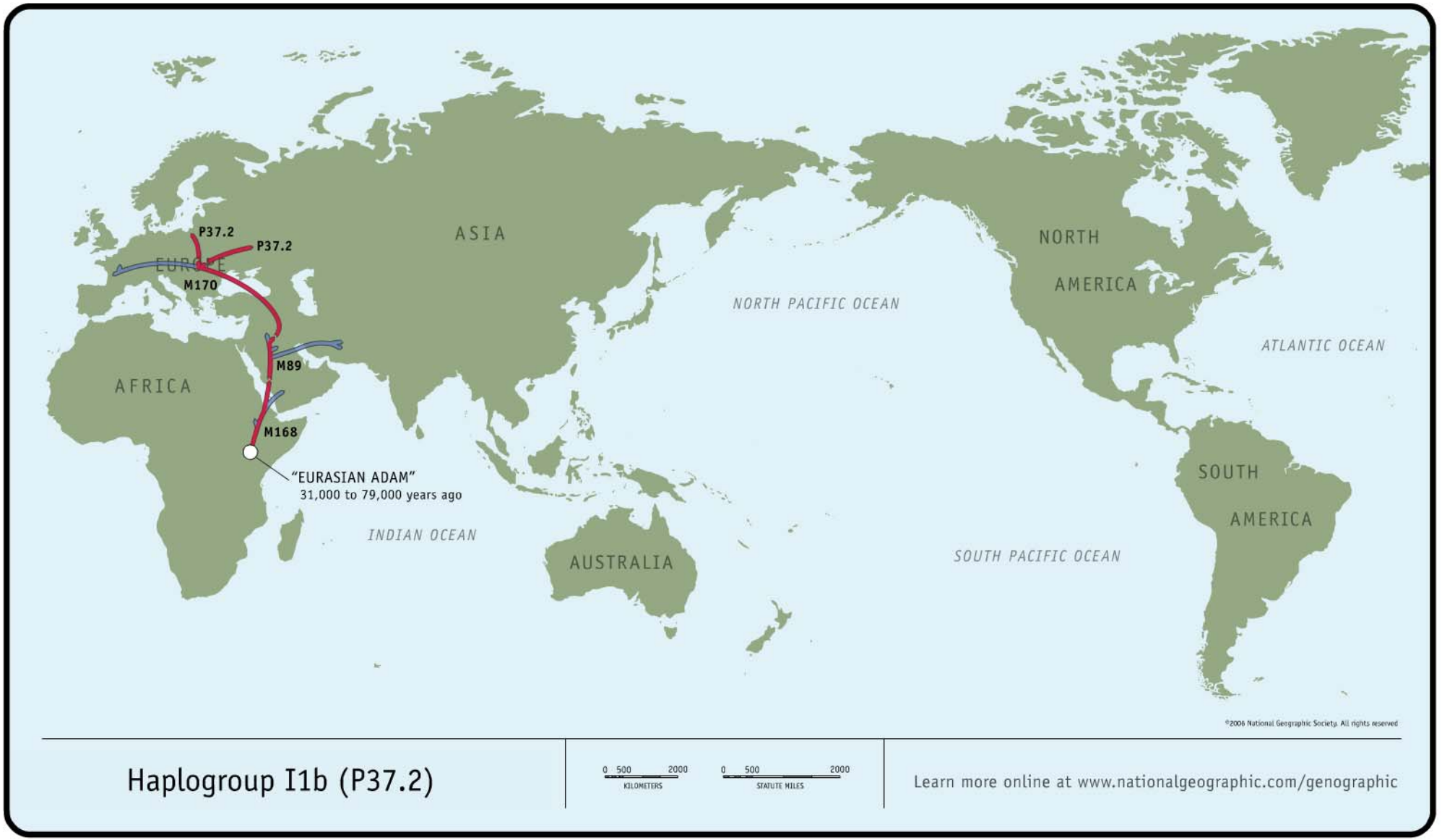
But there is another way that we will learn more about the past. By contributing your own results to the project, you will be allowed to participate anonymously in this ongoing research effort. This is important because it may contribute a great deal to our understanding of more recent human migrations. Click the yellow button below in the "Help Us Tell the Story" section of your results profile to learn more about this. It's quick, easy, and anonymous, but will help us further refine our analyses.

Don't Be a Stranger

Finally, keep checking these pages to follow along with the project and our latest findings; your results profile will be automatically updated to reflect any new information that may come to light based on the research.

THE GENOGRAPHIC PROJECT

MIGRATION ROUTES: SP MOTHER'S PATERNAL LINEAGE (STOYAN)



Haplogroup I1b (P37.2)

Learn more online at www.nationalgeographic.com/genographic

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THE GENOGRAPHIC PROJECT

Certificate of Y-chromosome DNA testing

In recognition of your participation in the Genographic Project, we hereby certify that

SP mother's paternal lineage (Stoyan)

belongs to:

Haplogroup I1b (P37.2)

The designations for all twelve loci examined for this purpose are listed here, along with the Short Tandem Repeats (STRs) outcome for each.

393	19	391	439	389-1	389-2	388	390	426	385a	385b	392
13	16	10	13	13	18	13	25	11	13	15	11

December 5, 2006

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Your ancestors were part of the *M89* Middle Eastern Clan that continued to migrate northwest into the Balkans and eventually spread into central Europe. These people may have been responsible for the expansion of the prosperous Gravettian culture, which spread through northern Europe from about 21,000 to 28,000 years ago.

The Gravettian culture represents the second technological phase to sweep through prehistoric Western Europe. It is named after a site in La Gravette, France, where a set of tools different from the preceding era (Aurignacian culture) was found. The Gravettian stone tool kit included a distinctive small pointed blade used for hunting big game.

The Gravettian culture is also known for their voluptuous carvings of big-bellied females often dubbed "Venus" figures. The small, frequently hand-sized sculptures appear to be of pregnant women obesity not being a problem for hunter-gatherers and may have served as fertility icons or as emblems conferring protection of some sort. Alternatively, they may have represented goddesses.

These early European ancestors of yours used communal hunting techniques, created shell jewelry, and used mammoth bones to build their homes. Recent findings suggest that the Gravettians may have discovered how to weave clothing using natural fibers as early as 25,000 years ago. Earlier estimates had placed weaving at about the same time as the emergence of agriculture, around 10,000 years ago.

The man who gave rise to marker *M170,* was born about 20,000 years ago and was heir to this heritage. He was probably born in one of the isolated refuge areas people were forced to occupy during the last blast of the Ice Age, possibly in the Balkans. As the ice sheets covering much of Europe began to retreat around 15,000 years ago, his descendants likely played a central role in repopulating northern Europe.

It's possible that the Vikings descended from this line. The Viking raids on the British Isles might explain why the lineage can be found in populations in southern France and among some Celtic populations.

P37.2: **Recolonizing Eastern Europe**

Fast Facts

Time of Emergence: 15,000 years ago

Place of Origin: Balkans

Climate: Ice Age Refugia

Estimated Number of Homo sapiens: One Million

Tools and Skills: Late Upper Paleolithic

Your haplogroup, *I1b,* is further defined by a marker known as *P37.2*. This marker appeared in the Balkans about 15,000 years ago and is still most commonly found there today.

The *P37.2* marker likely distinguishes ancient human populations who migrated to Balkan refugia during the glacial maximum

Fast Facts

Time of Emergence: 45,000 years ago

Place: Northern Africa or the Middle East

Climate: Middle East: Semiarid grass plains

Estimated Number of *Homo sapiens:* Tens of thousands

Tools and Skills: Stone, ivory, wood tools

The next male ancestor in your ancestral lineage is the man who gave rise to *M89,* a marker found in 90 to 95 percent of all non-Africans. This man was born around 45,000 years ago in northern Africa or the Middle East.

The first people to leave Africa likely followed a coastal route that eventually ended in Australia. Your ancestors followed the expanding grasslands and plentiful game to the Middle East and beyond, and were part of the second great wave of migration out of Africa.

Beginning about 40,000 years ago, the climate shifted once again and became colder and more arid. Drought hit Africa and the grasslands reverted to desert, and for the next 20,000 years, the Saharan Gateway was effectively closed. With the desert impassable, your ancestors had two options: remain in the Middle East, or move on. Retreat back to the home continent was not an option.

While many of the descendants of *M89* remained in the Middle East, others continued to follow the great herds of buffalo, antelope, woolly mammoths, and other game through what is now modern-day Iran to the vast steppes of Central Asia.

These semiarid grass-covered plains formed an ancient "superhighway" stretching from eastern France to Korea. Your ancestors, having migrated north out of Africa into the Middle East, then traveled both east and west along this Central Asian superhighway. A smaller group continued moving north from the Middle East to Anatolia and the Balkans, trading familiar grasslands for forests and high country.

M170: **Occupying the Balkans**

Fast Facts

Time of Emergence: 20,000 years ago

Place of Origin: Southeastern Europe

Climate: Height of the Ice Age

Estimated Number of *Homo sapiens:* Hundreds of thousands

Tools and Skills: Gravettian culture of the Upper Paleolithic

Keep checking these pages; as more information is received, more may be learned about your own genetic history.

Your Ancestral Journey: What We Know Now

M168: **Your Earliest Ancestor**

Fast Facts

Time of Emergence: Roughly 50,000 years ago

Place of Origin: Africa

Climate: Temporary retreat of Ice Age; Africa moves from drought to warmer temperatures and moister conditions

Estimated Number of *Homo sapiens:* Approximately 10,000

Tools and Skills: Stone tools; earliest evidence of art and advanced conceptual skills

Skeletal and archaeological evidence suggest that anatomically modern humans evolved in Africa around 200,000 years ago, and began moving out of Africa to colonize the rest of the world around 60,000 years ago.

The man who gave rise to the first genetic marker in your lineage probably lived in northeast Africa in the region of the Rift Valley, perhaps in present-day Ethiopia , Kenya, or Tanzania, some 31,000 to 79,000 years ago. Scientists put the most likely date for when he lived at around 50,000 years ago. His descendants became the only lineage to survive outside of Africa, making him the common ancestor of every non-African man living today.

But why would man have first ventured out of the familiar African hunting grounds and into unexplored lands? It is likely that a fluctuation in climate may have provided the impetus for your ancestors' exodus out of Africa.

The African ice age was characterized by drought rather than by cold. It was around 50,000 years ago that the ice sheets of northern Europe began to melt, introducing a period of warmer temperatures and moister climate in Africa. Parts of the inhospitable Sahara briefly became habitable. As the drought-ridden desert changed to a savanna, the animals hunted by your ancestors expanded their range and began moving through the newly emerging green corridor of grasslands. Your nomadic ancestors followed the good weather and the animals they hunted, although the exact route they followed remains to be determined.

In addition to a favorable change in climate, around this same time there was a great leap forward in modern humans' intellectual capacity. Many scientists believe that the emergence of language gave us a huge advantage over other early human species. Improved tools and weapons, the ability to plan ahead and cooperate with one another, and an increased capacity to exploit resources in ways we hadn't been able to earlier, all allowed modern humans to rapidly migrate to new territories, exploit new resources, and replace other hominids.

M89: **Moving Through the Middle East**

HAPLOGROUP I1B (P37.2)

Your Y-chromosome results identify you as a member of **haplogroup** *I1b*.

The genetic markers that define your ancestral history reach back roughly 60,000 years to the first common marker of all non-African men, *M168,* and follow your lineage to present day, ending with *P37.2,* the defining marker of haplogroup *I1b*.

If you look at the map highlighting your ancestors' route, you will see that members of haplogroup *I1b* carry the following Y-chromosome markers:

M168 > M89 > M170 > P37.2

What's a haplogroup, and why do geneticists concentrate on the Y chromosome in their search for markers? For that matter, what's a marker?

Each of us carries DNA that is a combination of genes passed from both our mother and father, giving us traits that range from eye color and height to athleticism and disease susceptibility. One exception is the Y chromosome, which is passed directly from father to son, unchanged, from generation to generation.

Unchanged, that is unless a mutation a random, naturally occurring, usually harmless change occurs. The mutation, known as a marker, acts as a beacon; it can be mapped through generations because it will be passed down from the man in whom it occurred to his sons, their sons, and every male in his family for thousands of years.

In some instances there may be more than one mutational event that defines a particular branch on the tree. This is the case for your haplogroup *I*, since this branch can be defined by two markers, either *M170* or *P19*. This means that either of these markers can be used to determine your particular haplogroup, since every individual who has one of these markers also has the other. Therefore, either marker can be used as a genetic signpost leading us back to the origin of your group, guiding our understanding of what was happening at that early time.

When geneticists identify such a marker, they try to figure out when it first occurred, and in which geographic region of the world. Each marker is essentially the beginning of a new lineage on the family tree of the human race. Tracking the lineages provides a picture of how small tribes of modern humans in Africa tens of thousands of years ago diversified and spread to populate the world.

A haplogroup is defined by a series of markers that are shared by other men who carry the same random mutations. The markers trace the path your ancestors took as they moved out of Africa. It's difficult to know how many men worldwide belong to any particular haplogroup, or even how many haplogroups there are, because scientists simply don't have enough data yet.

One of the goals of the five-year Genographic Project is to build a large enough database of anthropological genetic data to answer some of these questions. To achieve this, project team members are traveling to all corners of the world to collect more than 100,000 DNA samples from indigenous populations. In addition, we encourage you to contribute your anonymous results to the project database, helping our geneticists reveal more of the answers to our ancient past.

at the peak of the last ice age. With much of Europe locked up under frigid sheets of ice humans sought survival in isolated southern European regions that remained habitable.

During the ten thousand years that the ice sheets were at their maximum, individuals living outside of the warmer refugia would have been unable to survive and were thus effectively eliminated from the gene pool. This reduced the genetic diversity of the surviving human populations and helped those lucky lineages to become fixed at higher frequencies in subsequent generations.

When the glaciers finally began to recede, the *I1b* lineage expanded northward and eastward to repopulate Europe and carried the marker *P37.2* along for the ride. Evidence of these journeys can be seen by the marker's significant presence in western Eurasia. Yet today Haplogroup *I1b* remains primarily a central and southeastern European lineage and is found in highest frequency in those regions.

This is where your genetic trail, as we know it today, ends. However, be sure to revisit these pages. As additional data are collected and analyzed, more will be learned about your place in the history of the men and women who first populated the Earth. We will be updating these stories throughout the life of the project.