YOUR FATHERLINE IS

R1b-S735

PICTISH

Thank you for having your ancestral DNA tested. Not only are you about to discover things you could never know about your past, about where you and your ancestors come from, you have also made an important contribution to the sum of knowledge about our collective DNA. I hope you find your results fascinating, unexpected.

Congratulations on discovering a story about yourself that only DNA could have told, until now a hidden story about your long past and about where you come from.

Best wishes,

Alistair Moffat, Managing Director.

The Science

We have extracted DNA from your saliva and read your genetic code. As you may know, we all inherit about six billion letters of DNA from our parents and geneticists read them in sequences of the letters A, C, G and T, the chemicals that make up the DNA molecule, the double helix. We have looked at a large number of variable letters in your sequence, which are known as markers, in order to discover your personal genetic signature.

Y chromosome DNA, or YDNA, is a piece of DNA which is passed on from father to son to grandson. Women do not carry a Y chromosome. It is inherited as one block and contains many markers which allow us to identify over one hundred different groups of related lineages and thousands of subtypes within these groups. It provides no information about all your non-male line ancestors.

Y chromosome markers are named with a letter followed by the number of the markers. The letter is usually one of M, S, P or V: M is for marker, S is for SNP (the scientific name for the kind of marker being tested), P is for polymorphism, another word for marker and V is for variant. Other prefixes include the initials of the discoverer (e.g. CTS). The markers are numbered in the order they were found or characterised by various researchers; this has no relationship to age or branching order. If you carry the marker, this is indicated by a plus sign, e.g. M89+, S43+, CTS6919+. If you do not carry the marker it is not listed in your signature, but can be found in the raw data file.

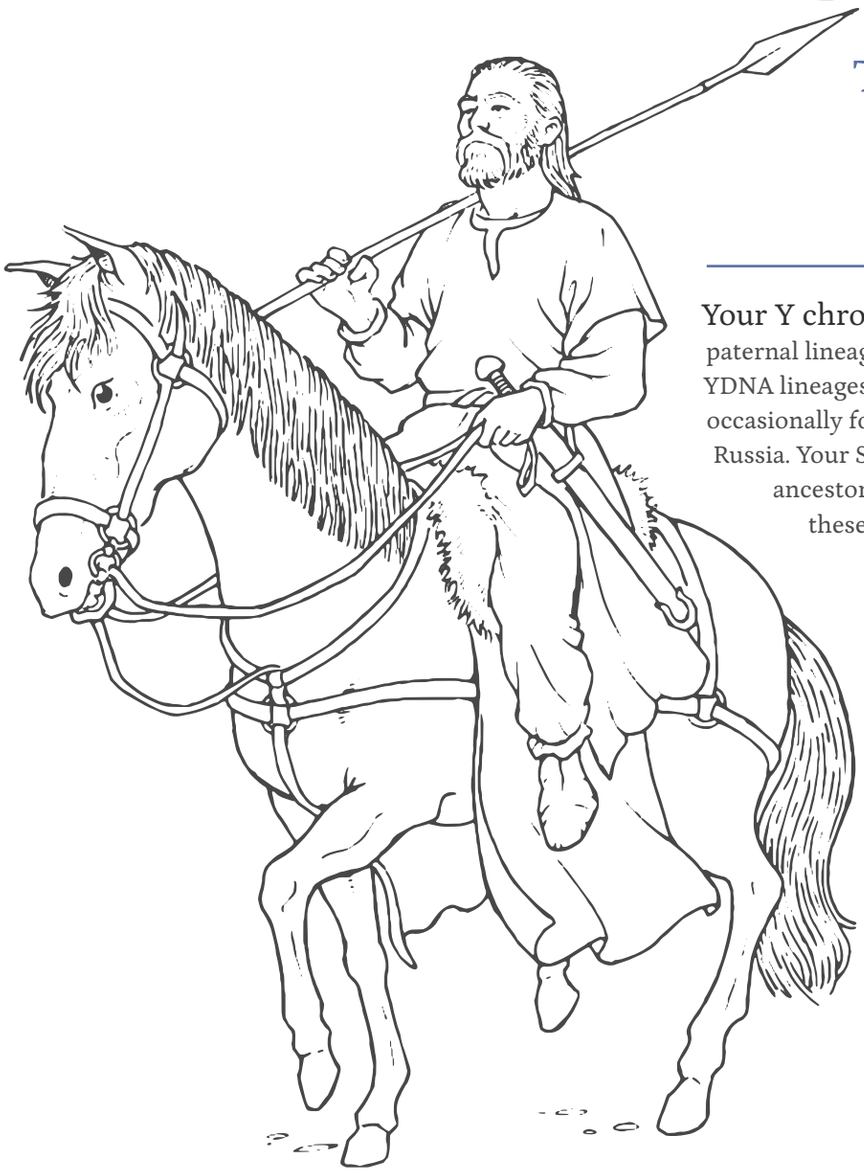
Some of the variants you carry are key markers which define a larger group of related ancestral lineages to which you belong, your haplogroup. These ancient lineages are known by names including a letter and the key marker, such as R1b-S28 or I-M253. Some haplogroups are specific to particular parts of the world and others are more widespread. By comparison with published and unpublished databases, geneticists are able to infer roughly where and when in prehistory each haplogroup originated, as well as tracing the probable route taken by the deeper ancestors of the haplogroup. For example I-M253 is about 15,000 years old and arose in Europe.

We have tested about 14,500 Y chromosome markers and report those where you differ from the ancestral Y chromosome sequence, known as Y Chromosome Adam. Your blood relatives in the male line will share your Y chromosome results.

Some markers have not yet been tested in large samples of known heritage, particularly those that have been discovered recently, and so they, not surprisingly, are poorly understood - as yet. We make it clear in your results if this is the case. There are inevitable biases in the databases of samples available, in the markers discovered or used, and the statistical methods and study designs utilised in the published literature and elsewhere. And that therefore means that geneticists occasionally have different levels of confidence in the interpretation of some markers.

R1b-S735

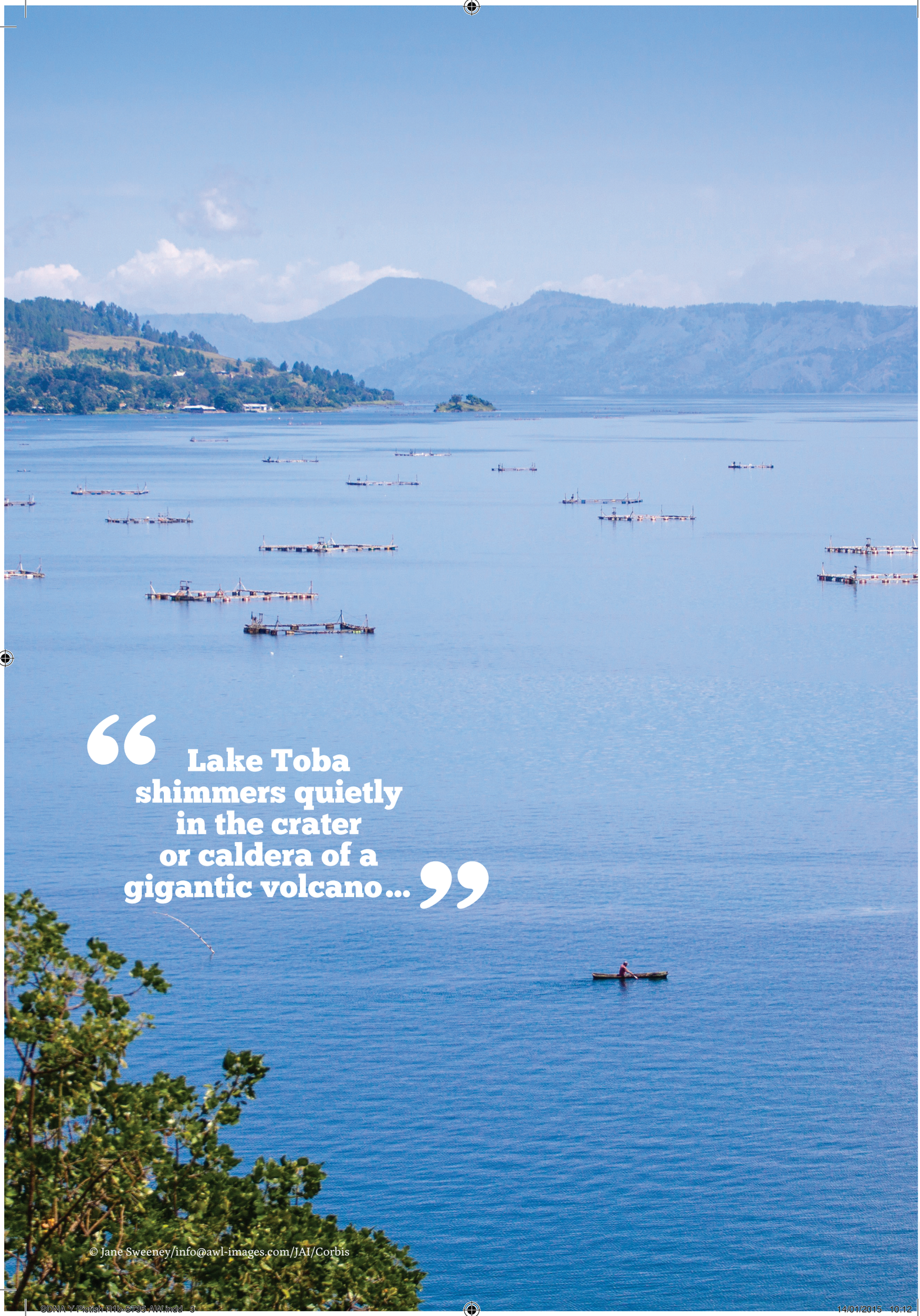
The story of the Pictish



Your Y chromosome group, which tracks your paternal lineage, is R1b. It is one of the most common YDNA lineages in Western Europe but it is also occasionally found as far afield as China, India and Russia. Your S735 marker is that of the Picts and your ancestors were amongst the first inhabitants of these islands to appear on historical record.

Your haplogroup-defining markers

M526 | S1 | S3 | S128 | S116 | S145 | S530 | S735



“Lake Toba shimmers quietly in the crater or caldera of a gigantic volcano...”

DNA markers are the basis of how we trace deep ancestry. In the 1980s Professor Allan Wilson applied a method of dating a marker and he called it the molecular clock. And by looking at the place in the world where a haplogroup is most diverse or has given rise to the most subtypes, he was able to work out where it arose. Linking with pioneering archaeological findings in Africa, Wilson used the molecular clock to date the approximate era when our species began, when people who could be called *Homo sapiens* first walked the Earth. And by looking at how one haplogroup develops out of another, he was able to build a family tree for humankind. It reached back to Africa and took root some time around 190,000BC, approximately the time when modern humans evolved. Wilson also used the tree to establish that we are all descended from one man and one woman, people who lived in Africa at the dawn of our history. They may be called Mitochondrial Eve and Y Chromosome Adam. This work revolutionised the conventional views of our origins.

Wilson and other scientists were also able to show that our ancestors dispersed out of Africa around 60,000 years ago, and the most persuasive theory as to why that great migration began is also the most dramatic.

Lake Toba shimmers quietly in the crater or caldera of a gigantic volcano. Some time around 73,000BC, it suddenly exploded in a super-colossal eruption, an immensely destructive, climate-changing event, the largest anywhere on Earth in the last 25 million years. When Mount Toba blew itself apart, it almost obliterated life on our planet.

> **“It almost obliterated life on our planet.”**

With a roar that must have been heard thousands of kilometres away, the volcano sent out 2,800 cubic kilometres of what geologists call ‘ejecta’. Around 800 cubic kilometres of ash rocketed into the atmosphere to create a vast black cloud. High winds whipped up by the eruption quickly blew the ash to the west, out across the Indian Ocean. The year of this nuclear explosion may be only approximately dated but the season is certain. Toba exploded in the late summer for only the monsoon rains could have deposited such a heavy and rapid fall of ash over the whole of Southern Asia. A layer 15 centimetres thick has been calculated and the ash covered vegetation of all kinds and the long nuclear winter that followed killed it.

> **“The volcano sent out 2,800 cubic kilometres of what geologists call ‘ejecta’!”**

High winds also carried and dropped huge tonnages of ash over the South China Sea, the Indian Ocean and the Arabian Sea. By screening out the sun and poisoning the water, the fallout from Toba killed plankton, sea vegetation, fish and larger creatures. Geologists believe that an even greater volume of volcanic ash may have fallen over the oceans than the land but the effect was no less cataclysmic.

Around 10,000 million tonnes of sulphuric acid were thrown up into the atmosphere and some of it fell as black acid rain and devastated plants, animals and people. Pumice also shot high in the air and when it fell on the ocean, it instantly solidified into vast white rafts between five and ten kilometres across. These were picked up by the tsunamis that radiated from Sumatra and smashed into coastlines thousands of kilometres distant.

As thunder boomed and the Earth shuddered, red hot lava spewed and poisoned rain fell, the eruption continued for two weeks. Sumatra was incinerated and covered by 2,000 square kilometres of boiling lava before the hollowed-out sides of the volcano collapsed in on themselves to form the caldera, what would much later become the beautiful lake. The fires caused by the eruption blazed over a wide swathe and sent vast plumes of smoke into the darkening skies.

At one site in Central India archaeologists have recently found evidence of a suffocating grey blanket of ash six metres in depth!

As far away as Greenland, geologists have detected in the ice cores an abrupt change in the Earth's climate some time between 69,000 and 77,000 years ago. It can only have been caused by the destruction of Toba and the cores show that what followed was a long nuclear winter. A deadly sulphuric aerosol mixed with ash and smoke obscured the sun's rays and temperatures plummeted, particularly in the first three months after the eruption. What extended this half-lit, grey winter was the way in which the sun heated the aerosol, ash and smoke so that it rose into the stratosphere where no rain could fall to wash it out. This almost certainly caused a long period of nuclear darkness lasting perhaps ten or fifteen years. People must have thought the gods were angry and that the world was ending. If nothing could grow through the ash-covered ground, then animals and people could not hope to survive. Mount Toba almost ended the history of human beings, might have made us as extinct as the dinosaurs.

> **"Africa was the refuge where people survived the deadly fallout and the long nuclear winter."**

But the ash did not fall everywhere, and the dark blanketing of the stratosphere cannot have been complete – for human beings did survive. Research into African DNA carried out by Luca Cavalli-Sforza and Allan Wilson suddenly appeared to connect with a recorded historical event. It seemed that the immense, world-wide destruction wreaked by the eruption of Toba was part of the reason why *Homo sapiens* and his (and her) origins are in Africa. It was the refuge where people survived the deadly fallout and the long nuclear winter, and it also created what scientists have called a genetic bottleneck.

However, not all scientists agree with this interpretation. There is a growing body of opinion that argues that the Mount Toba event was certainly huge, but not as devastating as some believe. They cite finds of sophisticated stone tools all over India identical to those being used by the humans in Africa. This, they say, is evidence that there were people in parts of Asia before the Mount Toba eruption and that they found ways of surviving the ash clouds, the cold and the dark. There is also some evidence (from Greenland ice samples) that the ice age was under way before the Mount Toba event. There is even a theory that the growing cold and glacial movements may have caused the volcanic activity. Recently, geneticists have proposed that if there were humans outside Africa at the time of the Toba event, they were not our ancestors, at least not our Y chromosome and mtDNA ancestors. They believe our fatherline and motherline ancestors only left Africa after the event.

Whichever school of thought wins the day, there is no doubt that the Mount Toba eruption was a huge event. But after about 10,000 years of slow warming and the return of plants and animals, people began their great exodus from Africa. They trekked north and east to the Horn of Africa and across the narrows of the Red Sea we now call the Gate of Tears.

By the time bands of people had moved along the coastal rim of Arabia and reached the Persian Gulf (which may have been a delta of the Tigris and Euphrates river system rather than a body of seawater), some carried on eastwards while others split off and travelled into what became the Fertile Crescent.

Archaeological finds in the Indian subcontinent confirm the recent African origin of the migrants. Stone tools from digs at Patne in Western India, Jwalapuram in Southeast India and Batadomba-lena in Sri Lanka are very similar in form and sophistication to those found in South Africa. The latter were discovered in the Blombos Cave on the Indian Ocean coast and at the Klasies River near the Cape. They were made by the people who carried the mtDNA of the earliest branches from Mitochondrial Eve.

> A deadly sulphuric aerosol mixed with ash and smoke obscured the sun's rays and temperatures plummeted.

Your ancestors were part of the great trek

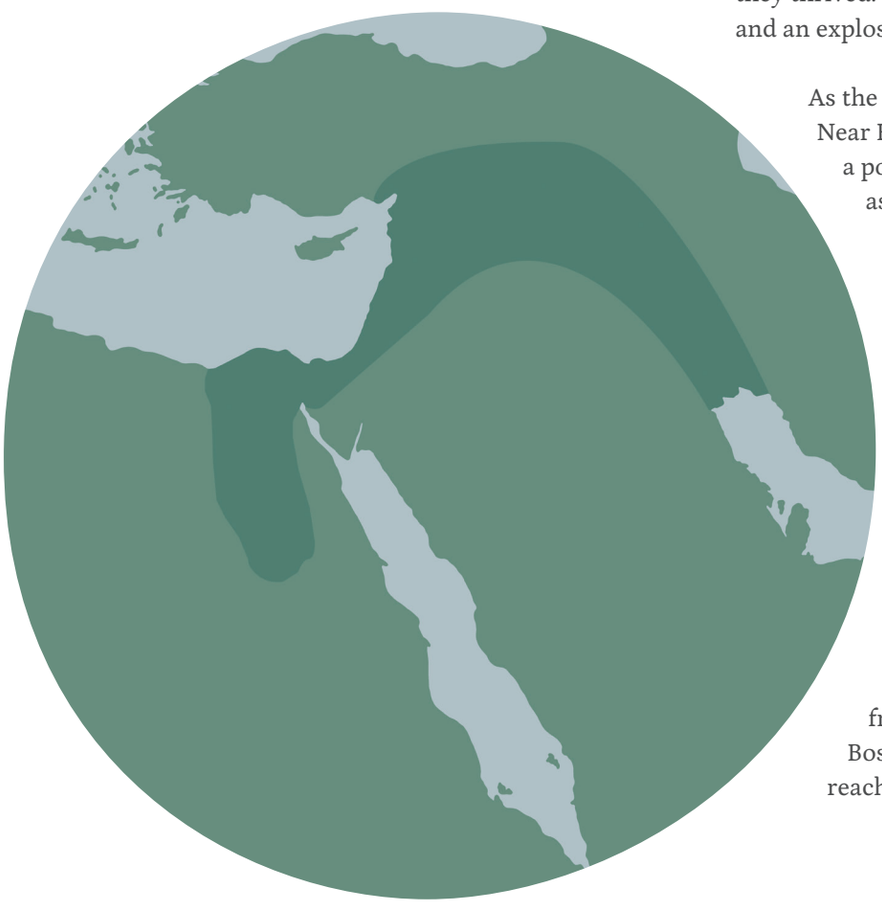
out of Africa to India and beyond, and it appears that they first settled in South and Southeast Asia. That is where your earliest key marker, M526, arose some time between 35,000BC and 45,000BC. Hunter-gatherers, they fished, trapped and lived off a wild harvest of fruits, roots and berries. Their ranges were extensive and since any population movement was prompted by the need to find reliable sources of food or a search for marriage partners outside of family bands, the spread of your marker, M526, was slow.

Eventually change would come which forced movement. It was a revolution in a very meaningful sense and it began some time around 8,500BC in the Near East, the arc known as the Fertile Crescent, from Iraq through Syria to the Levant. There, hunter-gatherers had managed their ranges, encouraging the growth of fruit trees and berry bushes, trying to ensure a continuity of supply. But at some point in the 9th millennium BC, stands of fruit trees became orchards, gardens were planted instead of being the semi-accidental product of self-propagation, and crucially, wild grasses were cultivated as cereals.

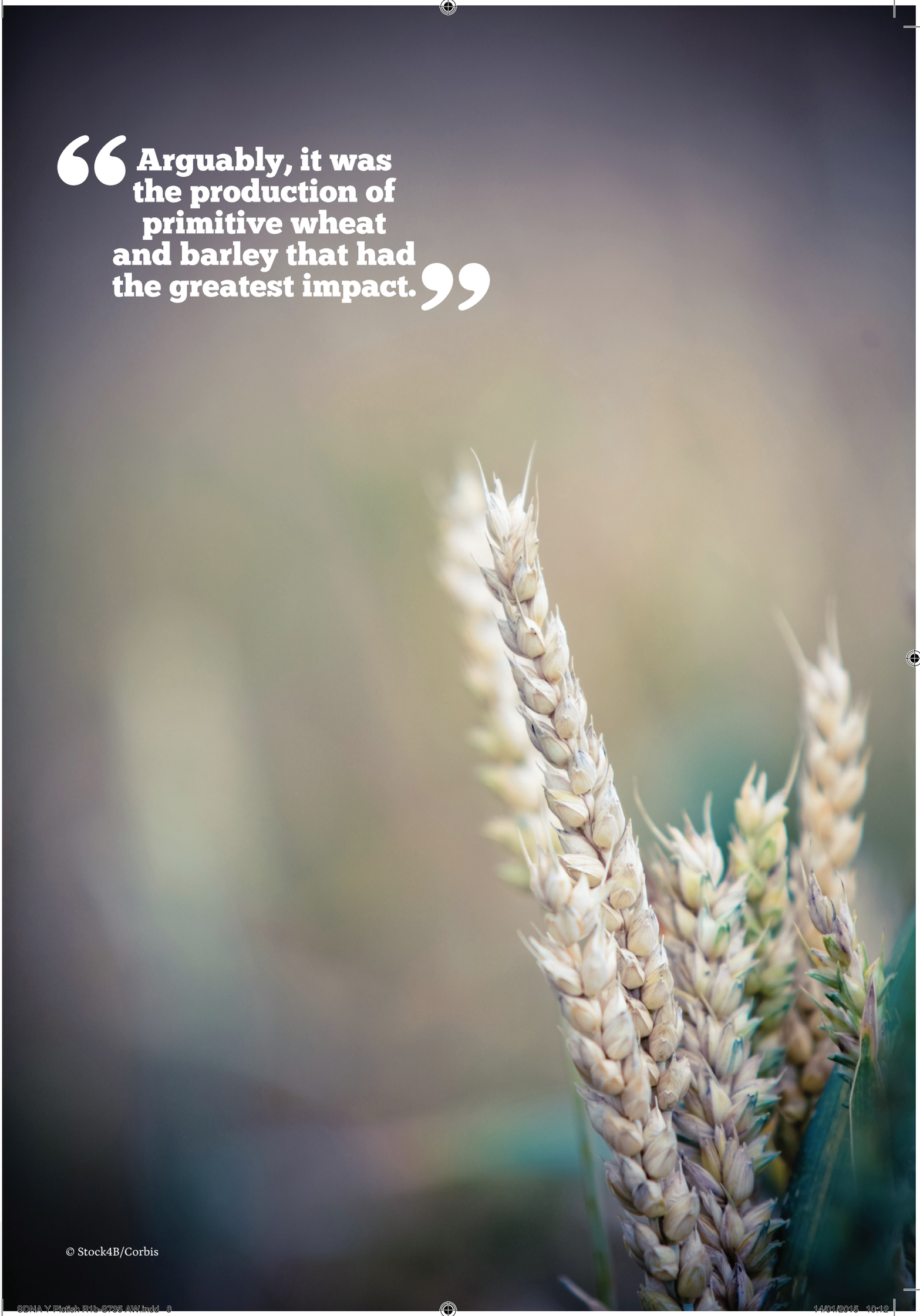
Arguably, it was the production of primitive wheat and barley that had the greatest impact because it transformed child rearing. As these bands moved around their wide ranges, relocating from summer to winter camps, going on seasonal hunting expeditions they needed to be as mobile as possible. That meant only one baby or toddler could be carried along with the other gear needed. And in an age before contraception, another factor came into play. Infant teeth could be too soft to deal with the hunter-gatherer diet and in order to take in enough protein to grow, babies and toddlers almost certainly breast-fed for much longer, perhaps only being weaned as late as four or five years old. During this lengthy period, breast-feeding mothers were usually infertile.

What also inhibited the growth of populations were the short fertile lives of most women. There is evidence that women in prehistory began their menstrual cycle later, maybe at the age of 13 to 15, and most surveys of surviving skeletons report that the majority of people died relatively young with few of them reaching their thirties. Over such a short time, most women will have given birth to only three or at most four babies, not all of whom will have reached adulthood. The production of cereals changed this cycle radically.

When the ears of wheat were dried, and sometimes charred, they could be mashed into a nourishing porridge with animal milk or water. Not required to be masticated, this could be fed to infants and they thrived. This in turn led to earlier weaning – and an explosion in the prehistoric population.



As the population grew after c8,500BC in the Near East, pressure built up. Farming led to a powerful sense of the ownership of land as those who had expended great labour in creating gardens and small fields insisted on their rights. That in turn forced a calculation. In the new world of farming, what was the carrying capacity of the land, how many mouths could its produce feed? When the birth interval halved from four to five years to two or three, that led to a rapid increase in numbers. As more and more land was brought into cultivation, those it could no longer support were forced to move and the techniques of farming began to ripple westwards from the Fertile Crescent, crossing the Bosphorus, the Black Sea or the Aegean to reach Europe where many new markers arose.



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Recent evidence reveals that our most ancient ancestors trekked well beyond the Fertile Crescent to penetrate Europe. In 1927 a dramatic discovery was made. In a well-organised archaeological dig in Torquay at Kent's Cavern, the Torquay Natural History Society found a fossilised fragment of an upper jawbone. It was thought to have belonged to a Neanderthal, and there was evidence that these folk had occupied the cavern in which the dig took place. In 1989 the bone fragment was carbon dated to between 34,400BC and 32,700BC. But in 2011 fossils from strata very close to where the jawbone was found were dated considerably earlier, to between 42,200BC and 39,500BC. From an analysis of the dental structure, the researchers also established something sensational. The fragment came not from a Neanderthal but from *Homo sapiens*.

This radical redating pulled the arrival of *Homo sapien*s in Britain, Ireland and Europe back to 44,000BC.

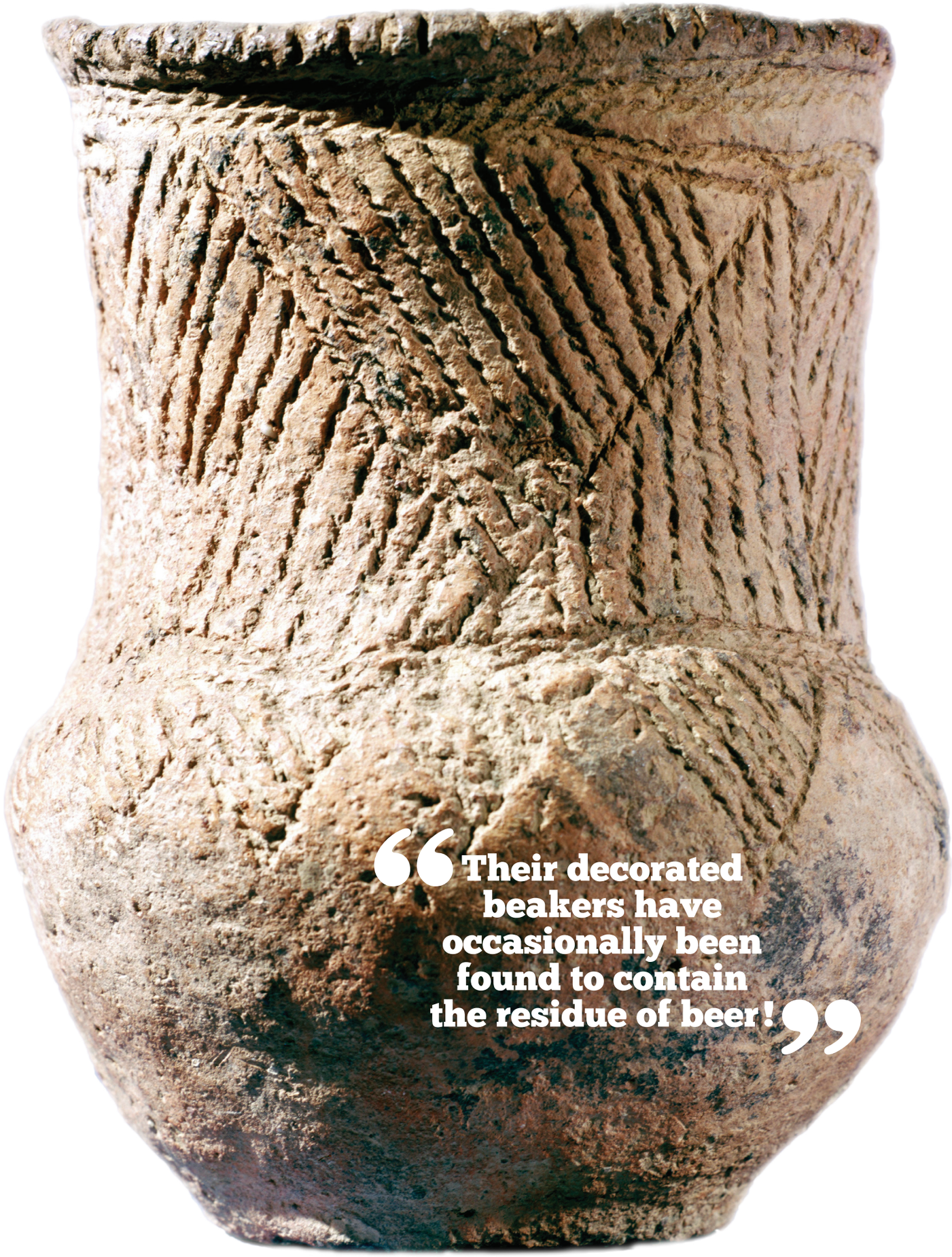
It is generally assumed that bands of pioneers crossed at the narrowest point between Asia Minor and Europe, the Bosphorus. This seems unlikely. The Black Sea runs very strongly indeed through the straits, flowing into the Sea of Marmara before being narrowed once more into a torrent at the Dardanelles. And to make a crossing even more treacherous, there is also a mysterious undercurrent carrying water from the Mediterranean in the opposite direction, back into the Black Sea. The Bosphorus has long been recognised as a very dangerous stretch of water.

It seems much more likely that a crossing from Asia Minor was made serially, by island-hopping around the northern rim of the Aegean Sea. This argues for a culture able to build and propel boats rather than using simple rafts, but of course, no material evidence of their seacraft survives. Once they came ashore in what is now Northern Greece and were faced with the massif of the Balkans, bands of our ancestors may have coasted up the Black Sea and then moved into the heart of Europe by following the course of the Danube, probably not always on foot. Dated archaeological finds track this epic journey into history.

“Our ancestors may have coasted up the Black Sea and then moved into the heart of Europe by following the course of the Danube.”

Neanderthal communities were already living in Europe at this time. There must have been encounters. In Aquitaine, in Southwest France, there is a striking density of both Neanderthal and *Homo sapiens* sites, the highest recorded in Europe. And it seems that their population increased markedly after 38,000BC, the time when the pioneers arrived. The number of caves or rock shelters in one region rose from around 30 to 108 and the number of open sites from 7 to 39. It seems that in a relatively short period there was an explosion in population by a factor of ten, *Homo sapiens* hugely outnumbering Neanderthals in the region. Such an increase is thought to have been sustained by better hunting and gathering methods, more efficient food storage and processing (preservation by drying, smoking and roasting), enhanced mobility and better contacts within and between groups of *Homo sapiens*. The cumulative effect seems to have been inexorable and by 24,000BC *Homo sapiens* had out-competed Neanderthals, who were marginalised and became extinct.

From its mouth at the Black Sea, the Danube River winds back through major settlements such as Ruse, Belgrade, Zemun, Novi Sad, Budapest, Bratislava, Vienna, Linz and Ulm before reaching Donaueschingen in the Black Forest of Germany (pictured).



This is a Late Neolithic/early Bronze Age ceramic beaker. It has a distinctive bell-shape with stamped geometric decoration, characteristic of a people known as the Beaker Folk from temperate zones of Europe.

By far the largest group of Y chromosome markers in Western Europe, your marker belongs to the R1b cluster. In England 60% of men carry one of the subgroups of R1b, in Scotland it is 72% and in Ireland, the number is even higher at 85%.

The population explosion associated with the coming of farming around 4,000BC was thought to have been driven by the success of carriers of R1b, but recent research has radically redated the appearance of this widely spread marker. Now, it is thought that R1b spread out c2,500BC and that it was brought to Britain and Ireland by an incursion of the kindreds known as the Beaker People. These people are associated most closely with your S116 marker which eventually gave rise to a number of subgroups. Recognised by fine pottery deposited as grave goods and by the introduction of metalworking in copper and gold, the Beaker People appear to have attacked and largely destroyed communities of earlier farmers.

Geneticists can tell that there was a very rapid expansion of population because S116 immediately divides into many subgroups, a sign that many sons of each man were living, as were the grandsons of these men. Lineages were multiplying as people multiplied and spread. And the rate of fertility was exponential as your S116 markers expanded in every direction.

Why were the Beaker Folk so successful? Others brought the new techniques of farming with them but your ancestors probably derived tremendous prestige and power from other skills. Their decorated beakers have occasionally been found to contain the residue of beer and there is some evidence that the cultivation of barley increased after c2,500BC. But however attractive brewing may have been, it was more likely that their abilities as metalworkers powered their tremendous expansion. Copper is a comparatively soft metal but it could still be fashioned into fearsome weaponry. Axe-like halberds have been found. It may well be that the dominance of R1b lineages in general and R1b-S116 in particular came about because of an aggressive takeover of land. And as the Beaker Folk established themselves, their markers multiplied quickly.

It is likely that these new people originated in the Iberian Peninsula. And there is also strong evidence that female lineages were surging across Europe at the same time. What that suggests is not the more familiar pattern of incursions by small groups of men who then took native women as partners, but the movement of larger populations of men, women and perhaps children.

Further downstream from your S116 marker, you tested positive for the more specific S145 marker. This means you are certainly descended from the early peoples to inhabit Britain and Ireland. In addition to being skilled in metalworking and mining, your ancestors were principally farmers, and it seems very likely that they brought Celtic languages to Britain and Ireland. Irish and Scots Gaelic, Welsh, Cornish and Manx still survive, just, and their ancient vocabulary describes the land, the seasons, the weather, flora and fauna in remarkable detail. Dialects of Old Welsh were once spoken all over England and Britain and some of our most ancient place-names, towns such as Dover, Lincoln, and perhaps even London remember the old speech of our nation.

It may well be that the spread of your marker and Beaker Culture all over western Europe encouraged the spread of the Indo-European families of languages: Celtic, Romance, Germanic. This mirrors the expansion of farming across similar latitudes, east to India and west as far as Britain and Ireland. And while we may believe Sanskrit to be very different from English, there are in fact deep similarities. The words for numbers, for example, are clearly cognate.

The people known as the Pretani, likely carriers of the S145 marker, gave the British their name. It was conferred by a Greek traveller, Pytheas, the first to record his journeys to the north. Pretannike was the name he gave Britain, what the Romans adapted as Britannia. It originally meant the People of the Tattoos and it remembered the British habit of body decoration.

You are living proof that the Picts did not fade from the map of history, and you are the heir of a fascinating, enigmatic people.

Within R1b-S145, you belong to a very revealing further subgroup defined by your S735 marker, the marker of the Picts.

> **The Picts are alive, well and living amongst us!**

Many generations of historians have puzzled over what used to be called the problem of the Picts. Where did they come from? Who were they? Why did they seem to disappear from history? We have found a marker that strongly suggests that they did not fade from the map of our history, the Picts are alive, well and living amongst us! And you are one of them.

We have tested this new fatherline, labelled R1b-S735, in over 3,000 British and Irish men. We discovered an amazing statistic, something completely unexpected. S735 is ten times more common in men with Scottish grandfathers than it is in men with English grandfathers! Ten percent of over 1,000 Scottish men tested carry R1b-S735 while only 0.8% of Englishmen have it. These statistics are robust enough to apply to the general population and they are clear evidence of a very Scottish marker. And there is more.

The pattern in Ireland is instructive as about 4% of Ulstermen carry the lineage, but was only seen in 0.5% of men from the rest of Ireland. It could be assumed that the presence in Ulster is due to the plantations of Lowland Scots in the 16th and 17th centuries. This is a pattern often seen with quintessentially Scottish markers.

Ancient Pictland is often defined by historians as the area where the enigmatic Pictish symbol stones are found, as well as Pictish place-names such as those that have the prefix Pit or Pett. This heartland is in Scotland north of the Forth and particularly in Fife, Perthshire, Tayside, the North East and around the Moray Firth coastlands.

And indeed, within Scotland there is a strong concentration of the R1b-S735 group in those same areas, particularly in Central Scotland (17%) and Northeast Scotland (14%), with a decline towards North and Western Scotland at 8% and Southeast and Southwest Scotland at 6%. The difference between Central and Grampian regions and the rest of Scotland is very statistically significant ($P < 0.0001$). We have yet to see this marker outside Britain and Ireland.

But where does it come from? What does it mean? A marker that is very common and widespread in Scotland implies that it has been in Scotland a long time, and the S735 marker is estimated to be about 2000-3000 years old. This strongly suggests that it was common among the ancestors of the Picts, the original inhabitants of Scotland. It seems their direct male line descendants are living amongst us in the shape of people like yourself. And it appears that many of your people have not wandered far over the last few thousand years – otherwise this lineage would be more common in England.

> **The S735 marker is estimated to be about 2000-3000 years old.**

A speculative and entertaining footnote. There may be a royal connection. Since this marker is carried by the chiefly line of Clan Gregor who claim descent from Kenneth MacAlpin, traditionally seen as the first king to rule over both Picts and Scots, the marker may also signify descent from him. Throughout history, powerful men have been in the habit of fathering many children with different mothers. Known as social selection by geneticists, this phenomenon means that large groups of men can sometimes claim royal descent, legitimate or otherwise. You may perhaps be a descendant of Pictish royalty.

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The Geography

Now that you have read about the ancient history of your haplogroup, we will guide you through its geography.

Genetic genealogy and ancestry testing is an expanding area. More individuals, new populations, further markers and novel analytical techniques all mean more data. And that means we can learn more about both the history and geography of our ancestral DNA. Thanks to the participants in our project, we have been able to put together the first map of Britain and Ireland showing the frequencies of your haplogroup across the different regions. Is your haplogroup more common in the east or the west? Or is it more northerly? Or perhaps it has a more complicated pattern? It is interesting to consider how these patterns arose, why some haplogroups show such widespread distributions, while others are more local.

Because our participants detail where their grandparents and in some cases deeper ancestors lived, we can use that to plot frequencies of these types over 100 years ago. This avoids the mixing that has occurred in the 20th century, in the age of mass transport, which inevitably begins to erase these patterns. We can thus peer back in time to see the ancestral distribution.

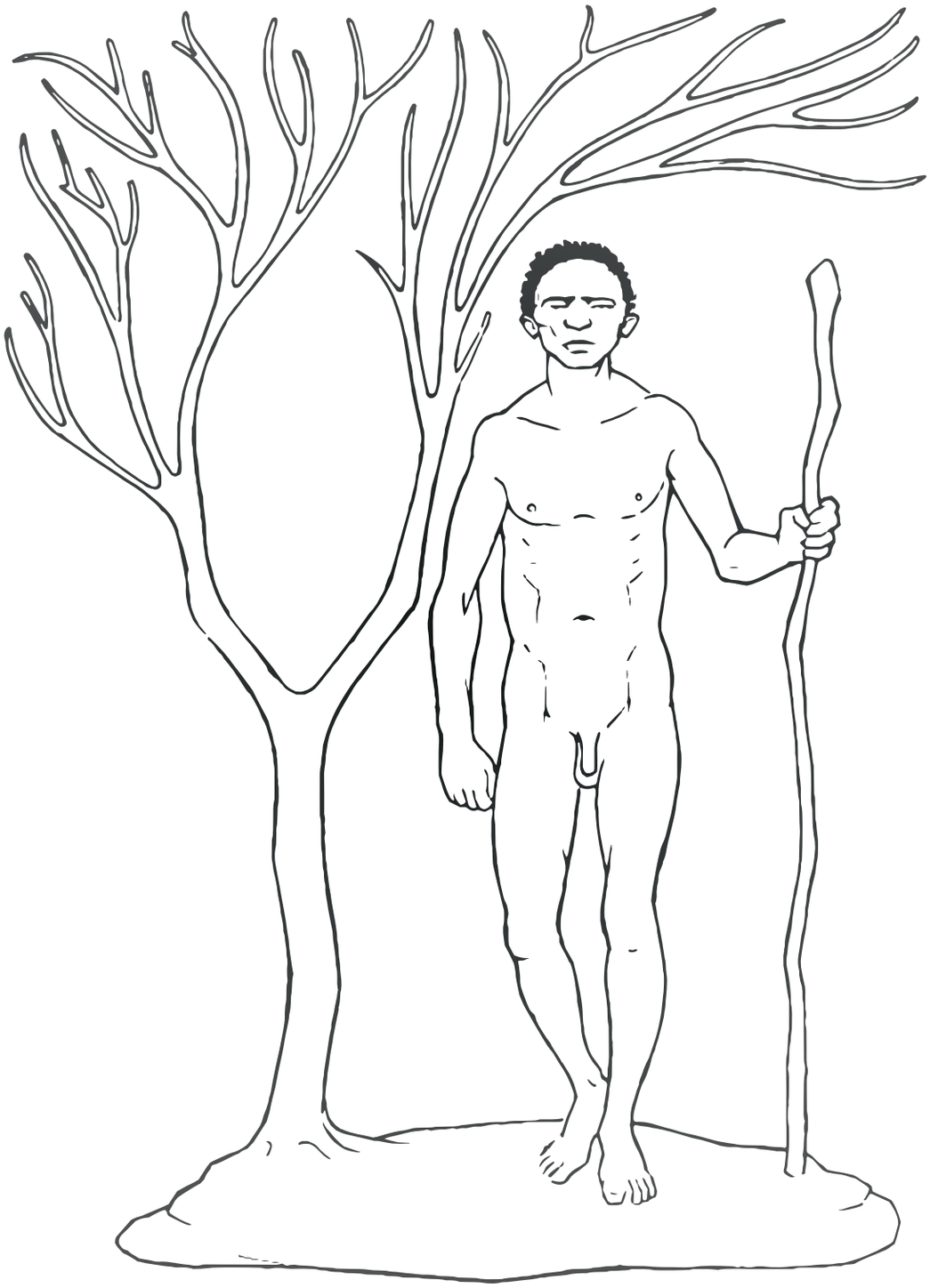
What about beyond Britain and Ireland? We show which populations in the world have the highest proportion of your haplogroup using data from many sources. In some cases the pattern in Britain and Ireland fits into a greater European distribution, at other times it is idiosyncratic.

Finally we show you how your haplogroup fits in with all the others in the YDNA tree. This tree links every man in the world, a family tree of mankind, all descended from Y Chromosome Adam. We do not have room to show the full tree here but instead provide an outline to help you see which groups are more closely related to you, which are more distant, and how you descend from Adam, our fatherline ancestor.

The YDNA Tree

The Y Chromosome DNA tree shows how your YDNA haplogroup descends from Y Chromosome Adam and how it is related to all other haplogroups. The phylogenetic tree is very large with over one hundred major haplogroups and thousands of individual lineages. Indeed this tree would connect every man in the world if everyone had their YDNA tested! We have therefore provided a condensed tree which has been personalised to show where your haplogroup falls on the tree and which others it is related to.

A more complete version of the YDNA tree can be viewed in the online results package, where you are able to pan and zoom across all the branches. Use the myDNA sign in at the top of the home page to access your results. If you do not have an online account, our customer services team will be happy to set one up for you.



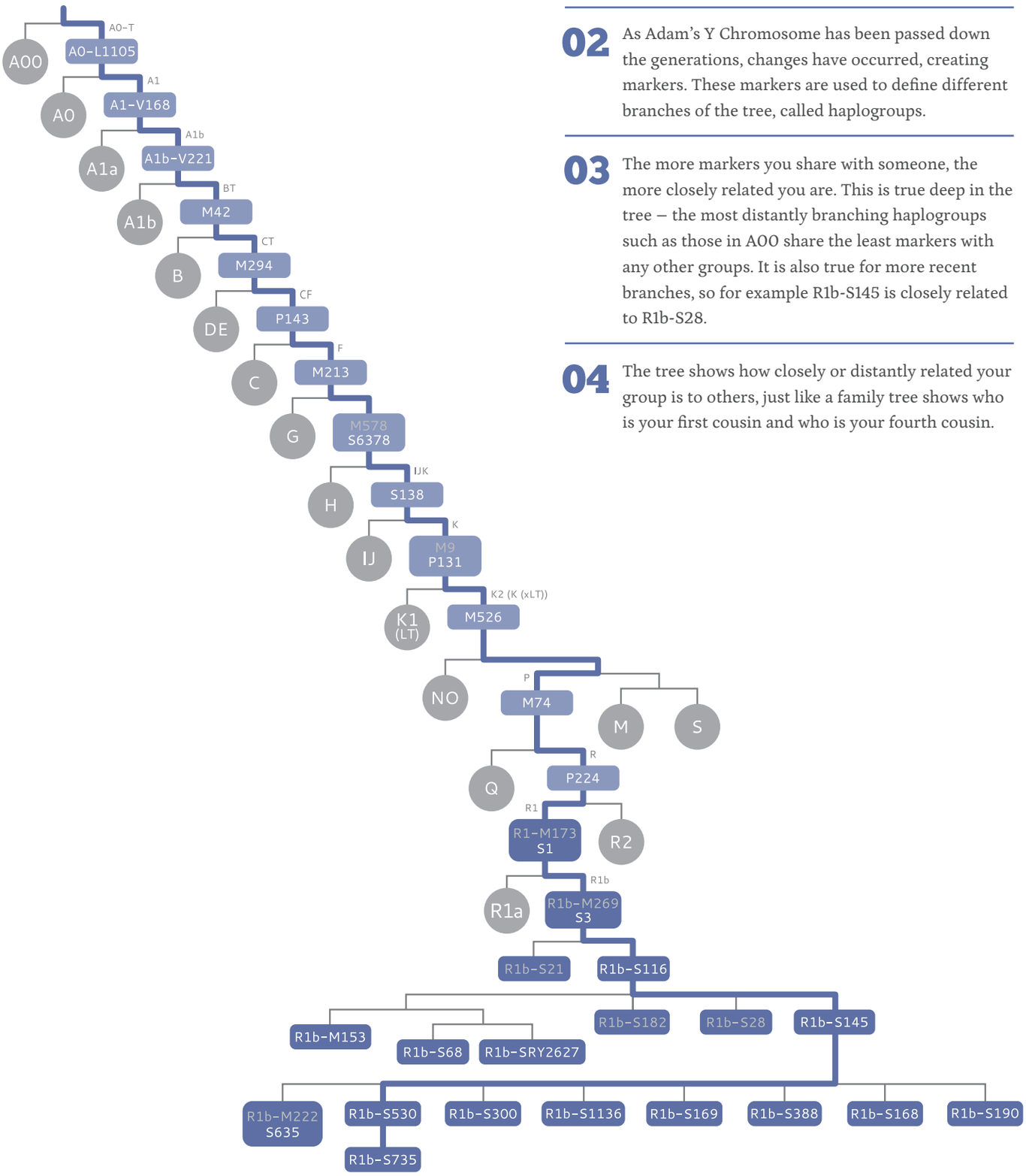
A Tree-Reading Tutorial.

01 Deep in the past all our fatherlines descend from one man, dubbed Y Chromosome Adam. He is our most recent common male line ancestor.

02 As Adam's Y Chromosome has been passed down the generations, changes have occurred, creating markers. These markers are used to define different branches of the tree, called haplogroups.

03 The more markers you share with someone, the more closely related you are. This is true deep in the tree – the most distantly branching haplogroups such as those in A00 share the least markers with any other groups. It is also true for more recent branches, so for example R1b-S145 is closely related to R1b-S28.

04 The tree shows how closely or distantly related your group is to others, just like a family tree shows who is your first cousin and who is your fourth cousin.



World Distribution of the R1b-S735 Haplogroup

Scottish	10%
Irish	2%
English	0.8%
Welsh	0%

Percentage of ancestral populations

5 10

Since the markers which define your haplogroup first arose, they have been spread far and wide by the migrations of people over many millennia. The frequency estimated for each population relates to the whereabouts of your haplogroup about 1500, in the era before inter-continental travel.

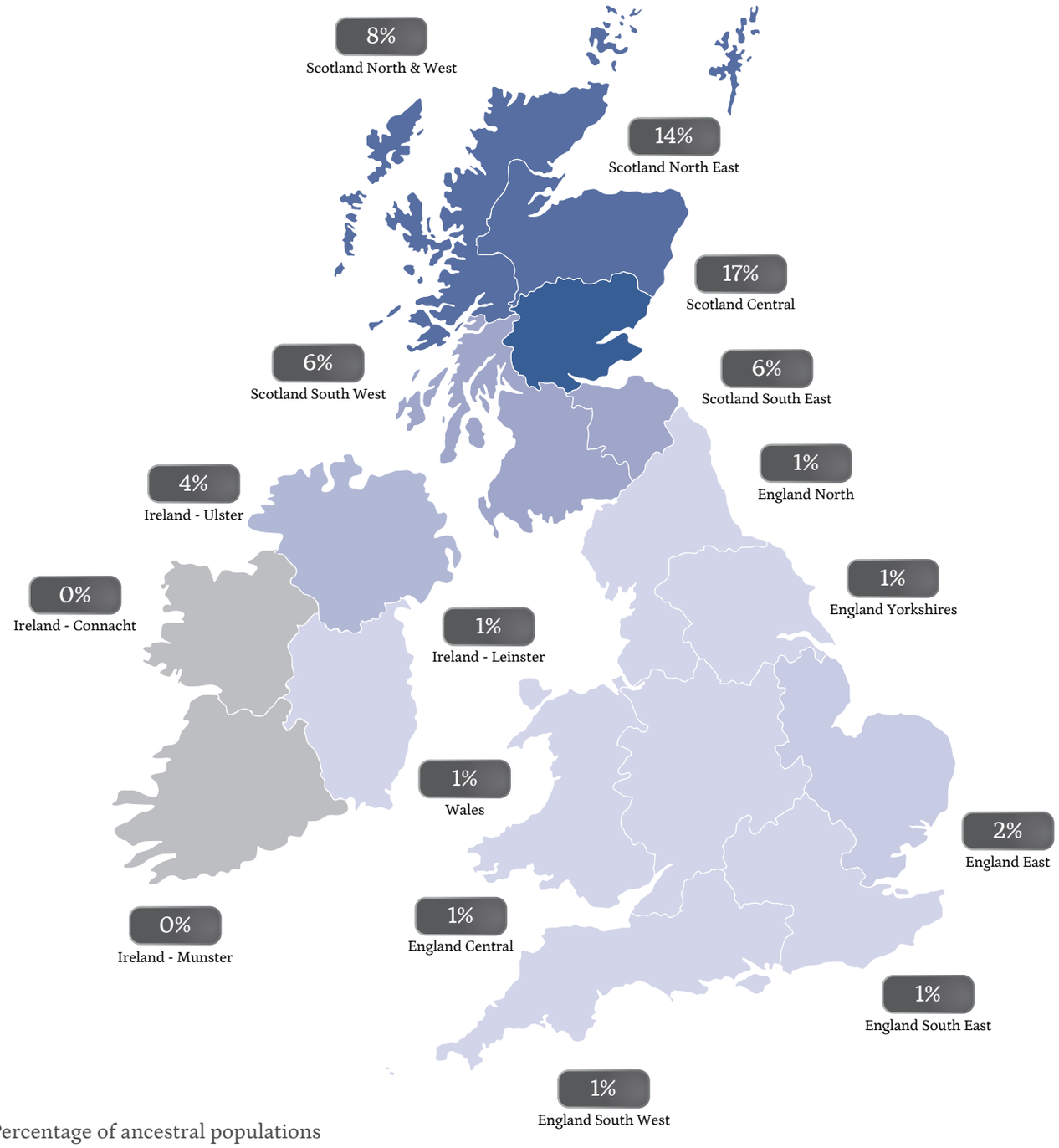
When a country is greyed out it means that we do not at present have data to plot, it does not mean that your haplogroup is not found there. A graduated colour scale is provided to highlight where your group is common and rare.

When a country is coloured the lightest colour, it means that reasonable numbers have been tested but that your haplogroup has not been found there.

A list of the populations tested is provided with their frequencies shown descending from highest to lowest. In some cases the figures relate to a particular people within that country.

The results for the world distribution have been brought to you from a combination of the published literature, our own data and databases available from other research projects.

R1b-S735 Haplogroup Distribution in Britain and Ireland



We are proud to be the first company to present a breakdown of your haplogroup distribution at a regional level across Britain and Ireland. As with the World Distribution map, it represents the locations of lineages 100 years ago or more, in the era before mass transport. Some maps show a steady decline from west to east whereas others show a more complicated pattern.

What does this map mean to you? Perhaps your haplogroup is common in an area you had not considered in your genealogical research or maybe your ancestral lineage has not moved far over a long line of generations.

Glossary of Terms

DNA

Deoxyribonucleic acid is the complex chemical in which the instructions to build and run our bodies are written – this genetic code is the 'blueprint' for life. It is also the means of transmitting this information to the next generation. The code is written in four letters, A, C, G or T, which are in reality different chemicals making up the larger molecule. We each carry an enormous number of DNA letters (six billion) – all of which we have inherited from our ancestors – it is thus an archive of our ancestry.

Genetic Signature

Your genetic signature is the list of all the tested markers which you carry. This includes the older markers which define your haplogroup, the markers which define your subtype and the most recent markers which are possibly specific to your recent lineage, such as your surname.

Haplogroup

A haplogroup is a large group of related lineages which share a common ancestor. A haplogroup is defined by a number of markers which it shares to the exclusion of other lineages. A haplogroup is made up of many different subtypes, some of which may have been accorded haplogroup status in their own right. Haplogroups are known by a series of letters, sometimes including a marker name.

Marker

A marker is a change or a mistake in the copying of the genetic code - the six billion letters of your DNA. These changes define different haplogroups and subtypes and help map your ancestors' journey across the globe. There are a number of different kinds of marker but the most abundant are known as single nucleotide polymorphisms or SNPs, where one DNA letter is changed to another.

Subgroup

Used in the text to refer to when a haplogroup is a subdivision of another haplogroup. For example, in YDNA, R1b-M222 and R1b-S530 are subgroups of R1b-S145 and in mtDNA, H1 is a subgroup of H.

Subtype

A subtype is a sub-branch of your haplogroup. This is sometimes known as haplotype and is younger than the haplogroup. Subtypes share more markers than lineages across a haplogroup: they are more closely related. A subtype ending in an asterisk indicates that this lineage is not part of any of the defined subtypes.

Super-cluster

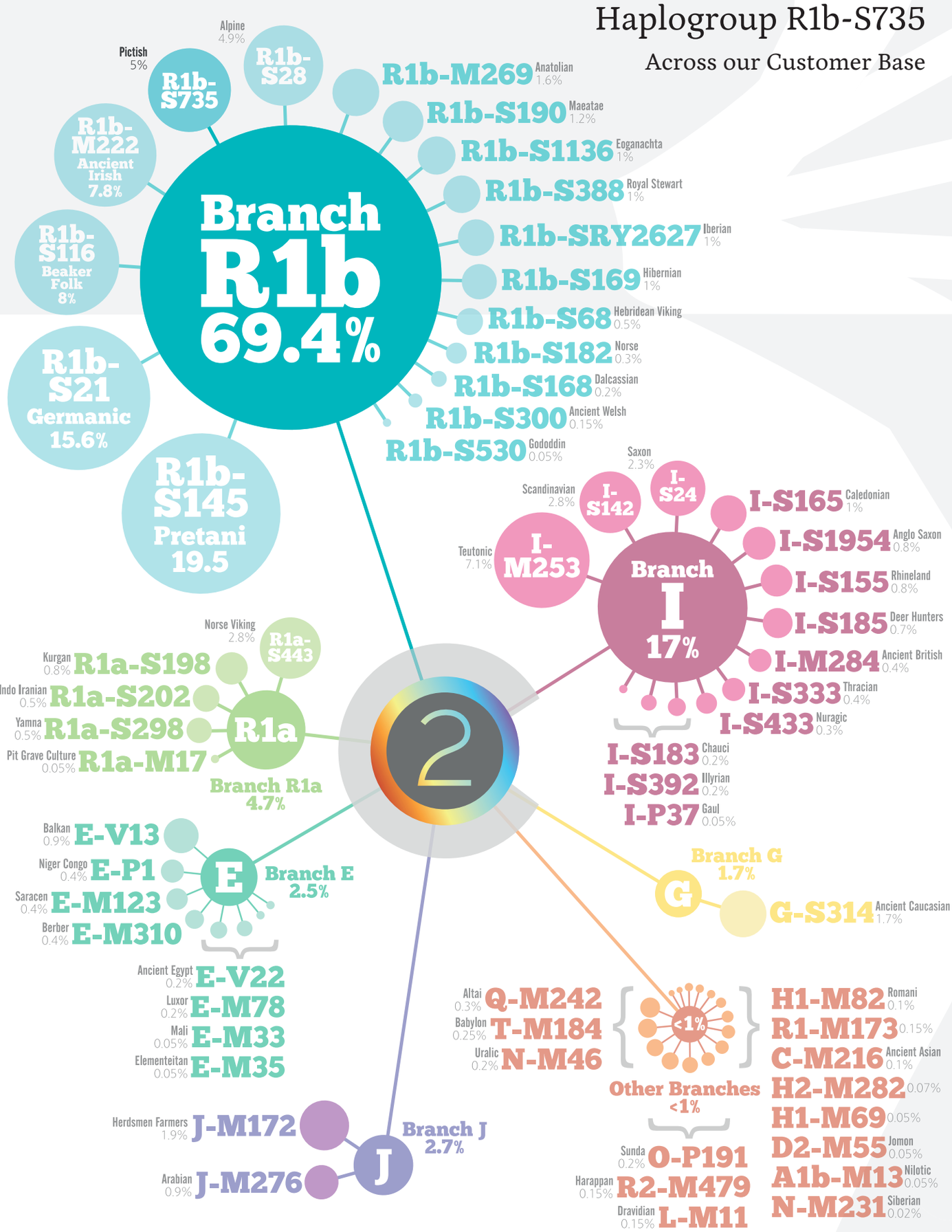
A point deep in the tree from which many branches and haplogroups descend, e.g. in YDNA the M526 marker defines a super-cluster, from which arise all the R1a and R1b haplogroups, as well as Q, N, O, M and S. In mtDNA, the M, N and R branches are super-clusters, each of which divide into more than 20 haplogroups.

YDNA

The Y chromosome is a piece of DNA inherited from father to son down the generations. Women do not have a Y chromosome because its function is to determine if a baby is a boy. The Y chromosome is inherited as one block and contains many markers that allow us to identify over one hundred haplogroups and thousands of subtypes within each group.

Haplogroup R1b-S735

Across our Customer Base



The main seven circles coming from the centre represent the super-clusters of the YDNA tree and the smaller circles stemming from these show the different haplogroups. The larger the circle, the greater percentage of customers who belong to the haplogroup. Your haplogroup and major branch have been highlighted. Note that the connections between haplogroups and super-clusters do not portray their genealogical connections - these are shown in the YDNA tree.