

# European immigrants introduced farming to prehistoric North Africa, new research shows

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Bowl with Cardium imprint decoration. Cova de la Sarsa. 5th-4th millenia BC, Prehistory Museum of Valencia. Credit: [Jerónimo Roure Pérez/Wikimedia Commons](#), [CC BY-SA](#)

The Neolithic age—when agriculture and animal farming were adopted—has become one of the most widely studied periods of social and economic transition in recent years. It was a period that drove great change in the evolution of human society.

Recent research—the fruit of projects that combine [archaeological excavation](#) and analysis of ancient DNA—points to rapid development in the Middle East, in the region known as the [Fertile Crescent](#). The innovations that came about there subsequently spread, and were adopted by hunter gatherer communities in the Anatolian peninsula (present day Turkey).

About 8,500 years ago, members of farming communities crossed the Aegean Sea, bringing techniques similar to those used in Anatolia to Greece and the Balkans. Five centuries later, some then made the crossing to Italy.

## **The Neolithic age reaches the Iberian Peninsula**

Agriculture first appeared on the Iberian Peninsula about 7,600 years ago. This occurred alongside its appearance on the islands of Corsica and Sardinia, as well as its gradual expansion through the river valleys of continental Europe.

It led to a marked increase in population sizes, and a huge demographic shift took place when local hunter gatherers were assimilated, bringing about broad genetic and cultural variation. These communities were the last of the Mesolithic era.

On the Iberian peninsula, the practices that Neolithic populations brought with them were similar to those that had appeared a few centuries earlier in Italy. The decoration of pottery is particularly significant, as it is a strong indicator of cultural affinities. This generally consisted of impressed motifs, known as Cardium pottery, which often made use of seashells such as cockles.

This type of pottery has been found in [coastal areas](#) throughout the Mediterranean, so it is believed that Neolithic people traveled on simple

boats that sailed close to the shore. In a relatively short time, these populations came to occupy the entire Iberian peninsula, where they underwent rapid cultural evolution.

## **Crossing the Gibraltar strait**

While the Mesolithic was developing in Europe, North African communities also subsisted through hunting and gathering. Genetically, they were very similar to groups from several thousand years earlier, at the end of the Upper Paleolithic, [remains of which have been discovered in the Taforalt cave](#) in Oujda, Morocco. These groups did not seem to have pottery, at least not those in the northern Maghreb.

Further south, the Sahara looked very different to how it does today. It was damper, and even boasted areas of savanna, forest, rivers and lakes. There, the hunter gatherer population did seem to have pottery, specifically in areas such as present day Mali, Niger and Sudan.

About 7,500 years ago, signs of agriculture and animal husbandry began to appear in Northern Morocco, along with Cardium imprinted pottery that bore many similarities to pieces found in Mediterranean Iberia. [These have principally been found](#) in the Tingitana peninsula, near present day Tangier.

Agricultural innovations included cereal crops (wheat and barley) and legumes (beans, peas and lentils), as well as rearing sheep and goats. Along with the appearance of ceramics, there is evidence of beads decorating small marine gastropods, as well as beads made from ostrich eggshells, which were widespread at earlier sites, and throughout ancient Africa more generally.

## **How innovation spread**

Such developments raise the question of whether these innovations could have spread from the Iberian peninsula. If so, how were they adopted?

[The study of human remains dating from this period, discovered in Kaf Taht el-Ghar, near Tétouan in Morocco](#), have provided answers.

Analysis of ancient DNA from four individuals—dating from between 7,400 and 7,100 years ago—tells a tale of interbreeding and transcontinental crossings.

In contrast to previous findings, the Neolithic inhabitants of this cave were genetically similar to European Neolithic people, mostly of Anatolian heritage (from the area roughly corresponding to present day Turkey), with contributions from ancient European Mesolithic hunter gatherers. The local population only made up 15%–20% of the gene pool.

This indicates a Neolithic population in the area that we could define as "Creole." It was genetically similar to that present at the same time in the Iberian Peninsula, and very different from the one that had inhabited the region a few centuries before.

By contrast, in a 7,100 year old necropolis not even 200 km to the south—the Ifri N'Amr Ou Moussa cave—an entire community of farmers was discovered. [Though they had imprinted ceramics, their genetic profile was entirely indigenous to the region](#). This appears to be evidence of the local population simply adopting neolithic practices without assimilating into a new society.

## Following the ceramic trail

One thousand years later, some 6,500 years ago, [new types of ceramics appeared at Neolithic sites on Morocco's Atlantic coast](#). These had mottled decorations and, often, rope impressions similar to those seen in

the Sahara.

[Genetic analysis](#) of three individuals who were linked to this type of pottery—found at the necropolis of Skhirat-Rouazi, near Rabat— once again reveals a process of change. They seem to be descended from Neolithic populations, not from Anatolia but from the Mediterranean Levant (Middle East). It is believed that they traveled from the Sinai, crossing a much wetter, more hospitable Sahara than today, and accompanying herds of animals. Known as pastoralist groups, their genetics also include a small percentage of local hunter gatherers.

Finally, 5,700 years ago, towards the end of the Neolithic era, human DNA discovered at the site of Kelif el Baroud, also near Rabat, [seems to close the circle](#), with evidence of interbreeding between all the previous groups. The genome found there is a mix derived from indigenous North African hunter gatherers, Anatolian farmers mixed with European hunter gatherers, and the pastoralist groups from the Levant.

In the general context of the Western Maghreb, this forms the basis of an ancestral melting pot of cultures that is now shared by most of its inhabitants. The gene pool of the region's present population is a union—formed over millions of years—of three continents.

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