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The Farmers' Westward Voyages

All signs of human habitation on Cyprus ceased abruptly about 8,000 years ago. No one knows exactly what happened, but it looks as if everyone disappeared. Either they died, or they decided to leave the island. A possible explanation is the period of severe cold that struck north-western Europe 8,200 years ago. For over 100 years, the climate became a great deal colder, and over a 30-year period the average temperature sank by several degrees.

The cold was accompanied by drought, which must have been catastrophic for Cyprus. The landscape remains very dry today, leaving hardly any margin for farmers if it were to become any drier.

After its inhabitants disappeared, the island seems to have remained uninhabited for several centuries. However, about 7,500 years ago a new wave of settlers arrived. They came from the mainland by boat, like their predecessors, with a cargo of seed and domestic animals. But now there was a considerable and significant difference. The new generation of Cypriots mastered the art of making ceramic vessels. These are known as Sotira ceramics after the place where the first potsherds were found.

I visit the little village of Sotira one day in March. The landscape is still green after the winter's rain, and flowers bloom in abundance on the hillsides. A modern farmer is harvesting grain by tractor. In the courtyard outside the village café, four elderly men are having a chat. No sooner do they see me than they invite me over for a cup of Cypriot coffee, which is strong, brewed with the coffee grounds in the pot, and served on a tray with a glass of cool water.

Half an hour or so later, Carole McCartney joins me. She is going to guide me to Sotira Teppes, one of the first settlements on Cyprus where pottery was used. We climb

through long grass up a steep slope, heading for the top. Both of us are out of breath, and I steal an anxious glance at Carole on hearing her strained breathing. She is of mature years and slightly on the plump side, and the last thing I want is for her to have a heart attack on my account. But she continues to stride tirelessly towards the hilltop.

The view from the summit is even more impressive than that from the older settlements further down which I visited earlier, the ones without pottery. You can look out over a wide area, all the way down to the sea a few kilometres away. A fine view seems to have been a high priority for Stone Age people. And another advantage of Sotira Teppes's location was safety. If attackers were to approach from the sea, the villagers would spot them in good time.

The remains of the little village are visible as stone walls in the grass. The first thing that strikes me is that the buildings are no longer circular, but square. The corners of the stone walls, however, are slightly rounded, not set at right angles as in our modern buildings.

Another difference is that these people no longer buried their dead under the floors of their homes, Carole McCartney tells me. Instead, they had special burial sites set slightly apart from their dwellings. They did, however, retain the custom of weighing the dead down with a large stone on their chests.

The ceramic ware produced on Cyprus during this period was coarse and porous. Vessels were painted red or white and patterns were applied with the help of combs. On a subsequent visit to Stockholm's Mediterranean Museum, I discover two small shards of the same type of pottery, displayed in a cabinet along with quantities of ceramics from later periods. There is nothing to explain that this is the first pottery to accompany the spread of agriculture westwards across Europe.

It is absolutely clear that the art of pottery came to Cyprus from the Middle East. But the question is: why did people on the mainland begin to make and fire clay vessels? As I mentioned earlier, the world's oldest ceramic vessels have been found in Japan, China and eastern Siberia. They were used by hunters and fishing folk at least 20,000 years ago. Even earlier

than that – over 30,000 years ago – hunting people in what is now the Czech Republic made figurines of fired clay. So the first pottery had nothing to do with agriculture. Two of humankind's decisive technological advances were wholly independent of one another to begin with.

Somehow, farming people in the Middle East about 9,000 years ago realised that vessels made of fired clay were preferable to the stone vessels previously used. One theory is that this knowledge spread from eastern Asia, where it had existed for many millennia, to the Middle East. Another possibility is that the art of producing ceramic vessels reached the Middle East from Africa. There are finds of clay vessels from Mali that date back about 11,500 years, while ceramics older than any known Middle Eastern pottery have also been found in southern Egypt.

The third possibility is that the farmers of the Middle East invented ceramics themselves, independently of both East Asia and Africa. This was not necessarily such a huge step forward, as there are terracotta figures several thousand years older in existence. Early finds of this type also occur on Cyprus.

In the Cyprus Archaeological Museum in Nicosia, I look at a series of displays showing how vessels of various kinds developed over the millennia. The earliest stone vessels definitely look heavy and cumbersome. Ceramic vessels must have been much more practical, and, above all, considerably easier to produce once people had a basic grasp of the technique.

It is cool and comfortable inside the museum, which provides an excellent account both of Cypriot history and of how the world's first agriculture developed. You can follow the descriptions of how wild pigs gradually developed into the domesticated variety; how goats were initially left to run wild in the mountains, but later domesticated to provide milk in the villages; how people tried using sheep as a source of milk, but later reared them more for their meat and wool; and how difficult it seems to be to raise generation after generation of domestic cattle, especially in a dry environment.

Sometimes domestic animals died as a result of poor animal husbandry and inbreeding. In the Bible, it is by no means coincidental that God instructs Noah to take seven males and seven females of every type of animal with him in the ark. God was simply giving Noah a basic tip on how to build up a genetically viable pool of animals. It must have taken thousands of years to acquire such knowledge.

Sometimes people died from privations such as disease, drought or famine. At least once, and possibly several times, the entire population of Cyprus disappeared. Such was life during the first two millennia of farming: there were some harsh reversals of fate, and some successes. I could use the expression ‘two steps forward and one step back’ – but what do we mean by ‘forward’ and ‘back’?

It is important to understand that people never had any long-term plan of ‘inventing agriculture’. Rather, they solved problems that occurred in everyday life. They tried things out and found methods that worked. Agriculture – the most revolutionary development in the whole of human history – just happened along the way.

On our way back to the valley, we pass by the little café in Sotira again. The chairs are empty now. The old men who invited me for coffee seem to have gone home for lunch. I reflect that they, and other people living on Cyprus today, are descended in part from the very settlers who came here by boat several thousand years ago. They may even be related to the people who lived in the little hilltop village – Sotira’s first inhabitants, who came by boat, produced ceramics patterned in red, built square houses with slightly rounded corners and buried their dead with large stones on their chests.

There is much evidence to suggest that the first farmers who produced pottery actually survived and stayed on Cyprus, and that an unbroken line links the Sotira culture to today’s Cypriot people. However, the Stone Age settlers have, of course, intermingled with others over the millennia.

New waves of people have come to Cyprus one after the other: the first coppersmiths, the ancient Greeks, the Romans, Byzantines, Crusaders, Arabs, Persians, Ottomans, British, Turks, and so on.

Each era and wave of immigration has left its mark. This is manifest in the island's culture, which can be seen both in the facades of houses and in Cyprus's many museums. And today researchers can even detect the patterns revealed by the DNA of the current Cypriot population. Nearly a quarter of the people living on Cyprus have mitochondria from the H haplogroup – one of the groups typical of early farmers, and the group to which my paternal grandmother Hilda belonged.

What is more important, and scientifically more significant, are the recent more detailed analyses of nuclear DNA. These studies confirm that even today the population of Cyprus has an unusually large share of DNA from Europe's first farmers. However, the DNA signal from Europe's first wave of farmers is even clearer in a number of other places around the Mediterranean.

For nearly two millennia, Cyprus was the westernmost outpost of the first farmers. However, some 9,000 years ago seafaring farmers began to travel westward across the Mediterranean, in boats loaded with seed and domestic animals. Traces of farming from that time can be found along the coast of Turkey, on Crete and other islands belonging to modern-day Greece, and in mainland Greece.

A few thousand years later, the farmers had reached the east coast of Italy, after which they continued to travel westward along the Mediterranean seaboard at an ever faster rate. By 7,400 years ago, they had reached the Atlantic coast of Spain and Portugal.

Researchers have made some calculations and attempted to reconstruct these boats and their voyages. They conclude that a group of about 40 people would have needed 5 to 10 male sheep, goats, cattle and pigs and the same number of females (about seven of each, that is, just as in the biblical story of Noah's ark). A new settlement would also have needed about

250 kilos (550 pounds) of seed. About 10 boats would have been needed for transport, or, alternatively, fewer boats making return trips.

These voyages are likely to have taken place in late summer, allowing the settlers time for sowing before the winter rains set in. The first half year must have been critical. Probably it was only milk from cows, sheep or goats that enabled them to survive at the beginning; otherwise, it is hard to explain how they coped initially.

The DNA evidence of these early voyages is clearly observable on the Italian island of Sardinia, the main reason for this presumably being its mountainous relief and relative inaccessibility. The first wave of farmers could labour and toil here relatively undisturbed for millennia. For cultural reasons, many of them married within their own group. As a result, the genetic material of the first colonists has not mixed with that of other groups to the same extent as elsewhere.

The Basques, too, lived in relative isolation in the mountainous areas on the borders of Spain and France. They have even managed to keep their mysterious language, which has long baffled researchers.

Basque is in a language group of its very own. It is not one of the Indo-European languages, such as Spanish, French, Swedish and most other European languages. Nor is it Finno-Ugric, like Finnish, Sami, Estonian and Hungarian. And it is not a Turkic or Semitic language either. It may conceivably be related to some extent to certain isolated languages in the northern Caucasus, and to the language once spoken on Sardinia. This, at any rate, is what some linguists have claimed, although they have met with a good deal of opposition.

Many older linguists suggested that Basque was the last remnant of an early European language spoken by hunters before the farming population started to expand. This theory appeared to accord well with the very first attempts to identify the history of populations on the basis of genetic

markers. The Basques have a particularly high proportion of rhesus-negative blood cells. In the 1980s, this fact caused geneticists to suspect that the Basques were a remnant of Europe's original population of hunters.

However, whether an individual has rhesus-negative or rhesus-positive blood cells depends on a single gene. Today, researchers examine hundreds of thousands of genetic markers when comparing nuclear DNA. For instance, they can see that a large proportion of Basque adults have the capacity to break down lactose, which means they can drink fresh milk. This is a hereditary trait that indicates long coexistence with dairy cattle, sheep or goats. It is clearly not a trait typical of an ancient hunting people.

Moreover, linguists studying Basque have not identified any particular words that might suggest an ancient language spoken by hunters. What they have found is a wealth of old Basque words for phenomena typically associated with farming, such as cow, bull, sheep, goat, herd, milk, butter, milking, wheat, rye, threshing, milling, pitchfork, bean, pea, and so on.

The most detailed analyses today show that Basques are genetically similar to contemporary Spanish and French people. However, the DNA of the Basque population as a whole is actually slightly closer to that of early farmers excavated by archaeologists. In particular, the Basques show a resemblance to 5,000-year-old farmers from an archaeological site at Portalón in northern Spain. These farmers, in their turn, were a mix of an earlier hunting people living on the Iberian Peninsula and farmers who had come from the Middle East.

Modern Basques would appear to be the direct descendants of the farmers of Portalón. This implies that they have many of the traits of the original hunting population, just as geneticists believed in the 1980s, but also an unusually high proportion of the traits of early farmers. By contrast, they exhibit a lower proportion of the traits characteristic of subsequent waves of immigration, which have had more impact on the rest of France and Spain.

The previously controversial theory that the Basque language was a remnant of the languages spoken by early farmers has thus received fresh impetus. Linguists have good reason to examine the suggested similarities between Basque and languages from the northern Caucasus. The Basque Country and the Caucasus are mountainous regions on opposite sides of Europe. The ancient languages spoken by farmers may have been preserved in these areas, although subsequent waves of new languages have taken over almost everywhere else.

The seafaring farmers who spread out over the Mediterranean produced a special kind of ceramic vessel. Its distinctive feature is that the potters pressed cockleshells into the clay to make an attractive pattern. Cockles were formerly classified as *Cardium edulis*, and this culture is therefore sometimes referred to as the Cardium culture.

Some farmers, however, made pottery of different kinds. Nor did all the farmers take to their boats. Some of them made their way westward on foot.