Bojs, Karin. "The Farmers Arrive." *My European Family: The FIRST 54,000 years*. London: Bloomsbury Sigma, 2017. 139–142. *Bloomsbury Collections*. Web. 26 Apr. 2023. <<http://dx.doi.org/10.5040/9781472941480.0019>>.

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The Farmers Arrive

Just a few centuries after the earliest pottery found in southern Sweden and Denmark, traces of agriculture also appear.

The question of how that came about has been the most toxic issue ever to dog archaeology in Sweden. In fact, that applies not just to Sweden, but to Europe as a whole. I have been a science journalist for several decades, and in virtually no other area have I heard researchers express such virulent views of intellectual opponents and new findings.

According to the conventional wisdom, which has prevailed since at least the 1970s, hunters reinvented themselves as farmers. The hunters who already peopled southern Sweden gradually began to acquire the various components of agriculture, such as the practice of keeping cattle, sheep and pigs, and the cultivation of wheat and barley. After a while, growing crops and raising livestock became their main means of subsistence. There were no immigrants in the picture – or, if immigration had any bearing on the arrival of agriculture, it was of very marginal significance.

This, for example, is the picture given by the standard work that has dominated Swedish academia for decades, *Arkeologi i Norden* ('Archaeology in the Nordic Region'). The section of this work that covers early agriculture is heavily based on a doctoral thesis from 1984 referring to cattle bones and traces of grain that, it is claimed, can be linked to the older hunting culture and date back approximately 6,200 years.

However, the remains in question were dated solely by the order of the layers in which they were found; that is, by their stratification. This is an extremely unreliable method of dating, as objects can easily shift up or down in the soil. Radiocarbon dating is much simpler and cheaper now than it

was in the early 1980s. New measurements show that objects described in the doctoral thesis are considerably more recent than has been claimed. The few pieces of evidence that have played so decisive a role in the writing of Swedish history over the last 30 years are simply not up to standard.

Moreover, the Danish archaeologist Lasse Sørensen has gone through data on early farming in Sweden and Denmark with a fine-tooth comb. He shows clearly that the older view – that hunters learned how to farm on their own – cannot be correct. It is based on misunderstandings and errors. Potsherds bearing impressions of grains have been ascribed to the wrong culture and period, while wild aurochs have been classed as domestic cattle.

In the spring of 2012, a study was published that can be seen as a turning point in an archaeological debate that has persisted for nearly a century – not just in Sweden, but worldwide. A team of Swedish archaeologists and geneticists published detailed DNA analyses of four skeletons, all of which are about 5,000 years old.

Their article appeared in *Science*, one of the world's foremost scientific journals. *Science*'s editorial team considered the news so important that they held a press conference in Uppsala. *Science* staff actually came over from the United States.

During my career in science journalism up to that point, *Science* had only held one other press conference in Sweden. Naturally, I went to Uppsala to hear the researchers, Mattias Jakobsson, Anders Götherström, Jan Storå and Pontus Skoglund, give an account of their findings.

The big news was that they could demonstrate a clear difference between the genetic material of one of the skeletons – an individual from a farming community in Västergötland – and the other three, seal hunters from the island of Gotland. The farmer, who was known as Gök4 after the parish of Gökhem where he had been found, proved to be more closely related to Middle Eastern people than to contemporary hunters from Sweden. It was clear that his origins could largely be traced back to areas of Turkey, Syria and Jordan.

The results tallied exactly with what German researchers' more limited analyses of mitochondrial DNA from ancient skeletons had also shown in the last few years. The Swedish researchers had used the very latest technology to analyse nuclear DNA, which accounts for a far greater proportion of an individual's genetic material. The fact that they were able to demonstrate such a clear difference so far north in Sweden, on the northern periphery of Europe, was a clear indication that agriculture had come to the rest of Europe largely with people from the Middle East.

One of the grand old men of Swedish archaeology, Göran Burenhult, made an appearance at the Uppsala press conference, although he had not been personally involved in the study. He was the editor of the standard work *Arkeologi i Norden* referred to above. Now, after all these years, he was prepared to change his position, he announced to the assembled journalists. The DNA analyses had convinced him that agriculture had actually been introduced into Sweden by immigrants.

Personally speaking, I was especially pleased that the oldest farmer in Sweden to undergo DNA analysis came from Gökhem in the province of Västergötland, a strikingly beautiful area near Falköping where the rolling landscape is still as green and thickly wooded as ever. As it happens, my paternal grandmother's parents came from a village very close by.

I already knew that my maternal grandmother, Berta, was descended in the direct maternal line from Europe's earliest hunters. Her – and my – mitochondria belong to group U5. So far, this book has dealt with our foremothers' travels in Europe. Most of the individuals from Europe's earliest hunting population that have been tested have mitochondria belonging to group U. The 9,500-year-old individuals from Søgne in Norway belonged to groups U5 and U4. The 9,200-year-old individual from the island of Stora Karlsö had

U4 mitochondria. All the approximately 8,000-year-old individuals from Motala belonged to groups U5 or U2.

However, the average modern Swede bears hereditary traits inherited from both ancient hunters and ancient farmers – about half from each. Could my paternal grandmother, Hilda, be a descendant of Europe's first farmers?

I decided to have her mitochondria tested. Hilda is no longer alive, and neither is my father. However, Hilda's mitochondria live on in my four cousins, my two female cousins' children, and my father's brother, Anders.

My uncle agrees to have his DNA analysed. He sends off a sample, and a few weeks later the results arrive. As expected, Hilda's mitochondria belong to group H, one of the haplogroups most typical of Europe's first farming people. The farmer from Gökhem, Gök4, belonged to the same group.

To be more precise, my paternal grandmother's mitochondria belong to a subgroup called H1g1. On a map, I can clearly see how contemporary members of the group form a broad band stretching diagonally across Europe from the Greek islands in the south-east to Britain in the north-west. 'Very probably that reflects the spread of farming,' comments the German DNA researcher Wolfgang Haak, currently working in Australia, when he helps me interpret the results.

It strikes me that the time has come to pay a visit to my grandmother Hilda's ancient forebears. I plan a journey to the home of some of Europe's very first farmers.