Bojs, Karin. "Iron and the Plague." *My European Family: The FIRST 54,000 years*. London: Bloomsbury Sigma, 2017. 301–306. *Bloomsbury Collections*. Web. 26 Apr. 2023. <<http://dx.doi.org/10.5040/9781472941480.0039>>.

Downloaded from Bloomsbury Collections, www.bloomsburycollections.com, 26 April 2023, 12:04 UTC.

Copyright © Karin Bojs 2017. You may share this work for non-commercial purposes only, provided you give attribution to the copyright holder and the publisher, and provide a link to the Creative Commons licence.

Iron and the Plague

The arrival of iron was a serious blow to the networks of the Bronze Age. Conditions changed. Control over rare copper and tin mines no longer conferred the major advantage that it once had.

The raw materials for producing iron were available in many places. The nearest lake often yielded bog ore. Iron has a higher melting point than bronze. But people were quick to learn how to use bellows to pump in air during the smelting process. After that, bronze no longer had the same importance. Although iron was perhaps less attractive than golden-yellow bronze, it could be forged more easily and was more useful for tools and weapons alike.

In the Mediterranean region, the Iron Age culture emerged during the Roman era. Roman rule was to expand, taking over much of Europe and becoming one of the most powerful and influential cultures the world has ever seen. Of course, the Roman Empire and iron also affected the Nordic peoples. However, in many ways life there continued much as before, at least in southern Scandinavia.

The fall of the Western Roman Empire about 1,600 years ago ushered in that part of the Iron Age we know as the time of the great migrations or *Völkerwanderung*. The groups concerned migrated in different directions, and traces of their migrations can often be detected in the DNA of modern populations. This is particularly marked in certain regions, notably Great Britain and eastern Europe. Germanic tribes migrated from Denmark and north-west Germany to England. They came to be so dominant that the Anglo-Saxon dialects they spoke displaced longer-established Celtic languages, forming the basis for English. Groups speaking Slavic languages dispersed in all directions from their heartland between the Dnieper and the Dniester. The Sami languages probably came

from the east to the areas where they are now spoken, and this was probably linked with the use of iron.

However, as I have tried to explain in this book, migrations of ethnic groups are not a phenomenon confined to that specific period. Such migrations have occurred ever since we anatomically modern people first arrived in Europe, over 40,000 years ago.

According to the latest DNA research, the population of today's Europe bears the stamp of three great waves of migration, above all: hunters who came here during the Ice Age, farmers who came from the Middle East bringing the earliest agriculture, and a third wave from the steppes in the east, who brought Indo-European languages with them.

During the Iron Age, the climate became somewhat cooler than it had been during the Bronze Age. A number of historical sources speak of the 'Fimbulwinter', which seems to have arrived around AD 536. This was a period without summers, during which the harvests failed for several consecutive years. Texts such as Snorri Sturluson's *Edda* from Iceland and the Finnish *Kalevala* describe how the sun could barely be glimpsed behind the clouds. And there is scientific evidence of several unusually cold years around AD 536 – in fact, it was the most severe period of cold for several thousand years. Tree rings show a virtual hiatus in growth for several seasons around that time. Greenland ice cores reveal traces of particularly high sulphuric acid levels, pointing to a volcanic eruption.

As luck would have it, I chanced to meet Michael Baillie, the retired professor of geology who shares a small study at Queen's University, Belfast, with James Mallory, the expert in the origins of the Indo-European languages. Baillie told me it was he who first noticed that annual growth rings provided evidence of a period of extreme cold around AD 536. He published articles on this back in the 1980s and still has a strong interest in the subject.

The dominant theory is that the Fimbulwinter was caused by a huge volcanic eruption that may have taken place in today's El Salvador. Baillie believes that several discrete events took place more or less simultaneously, at least one of them probably being the impact of a comet. The details are somewhat vague, but scientists are beginning to fill out the ancient tales with facts, revealing what actually happened to the summers after AD 536. What is clear is that they were far colder than usual for a number of years.

More data is also emerging about a great epidemic that raged immediately after the Fimbulwinter and had a radical impact on our history – an early outbreak of the plague.

The plague used to be regarded more as a mediaeval scourge that struck hardest in the fourteenth century. The plague epidemics that ravaged Europe in the Middle Ages are described in detail in a number of historical sources. The first wave is usually known as the Great Mortality, the Great Plague or the Black Death. It reached the Crimea in 1346 and spread through Europe in the years that followed, killing about one person in every two. The disease ran its course rapidly; most of those infected were dead within a matter of days. They suffered from headaches and high fever, and their lymph nodes swelled up into great boils or buboes, hence the name 'bubonic plague'. In many cases this was accompanied by subcutaneous haemorrhages that turned the skin dark blue. Sometimes the bacteria affected the lungs, causing pneumonic plague. This variant has a mortality rate of nearly 100% and is highly infectious.

The epidemic continued to break out in waves over several centuries, during which it gradually became less deadly. Over time, people's ability to withstand the plague grew. They learned how to deal with infection by such means as quarantine. This was also a biological process; over many generations, those whose immune system was least well adapted to combating plague microbes died, while those whose immune system happened to be specifically resistant to them survived and had children. This adaptation has left lasting traces in Europeans' genetic material.

In the past, researchers questioned whether the Black Death really hit Sweden as hard as the plague-ridden countries of southern Europe. But historians have now been able to confirm that it did. Janken Myrdal, for instance, an expert in agrarian history, has compiled an extensive range of evidence including letters, invoices and wills, abandoned farms and newly built houses. One particularly striking piece of evidence is a report from an area of Skåne where virtually all ecclesiastical art ceased for nearly a century. That is testament to how the Black Death scourged society at many different levels.

Some researchers have questioned whether the Black Death of the fourteenth century was really caused by the plague bacterium, *Yersinia pestis*, which was described in the nineteenth century and continues to cause outbreaks in Asia and Africa. They have suggested all kinds of alternatives, including various viral diseases. However, in recent years DNA researchers have been able to show clearly that the plague microbe was the cause of the Black Death. Two research teams have examined victims found in mass graves dating from the years around 1350. They have exhumed remains in churchyards in Italy, France, Germany, the Netherlands and England. Both competing research teams have succeeded in isolating traces of the plague bacterium. Thanks to DNA analysis, they have also been able to reconstruct a genealogical tree with different strains of the plague microbe, enabling them to confirm that the disease originated in Asia, as reported in a number of historical sources.

No one can now deny that the plague bacterium really was a terrible scourge in mediaeval Europe. And it looks as if similar outbreaks of disease struck Europe far earlier, way back in the Iron Age.

Around AD 540 – just a few years after the long Fimbulwinter – the historian Procopius described a major outbreak of the plague in Constantinople. This outbreak is usually referred to as the Justinian plague after Justinian I, the emperor of the eastern Roman Empire at that time. There are

far fewer written sources from the sixth century than from the Middle Ages, and historians have been even more divided on the subject of this epidemic. There has been controversy over both the nature of the Justinian plague and whether it reached the lands north of the Alps. For a long time, it was conventional wisdom among Swedish researchers that the plague had not had any noticeable impact on Sweden during the Iron Age. But Per Lagerås, an archaeologist from Lund, has dated clearance cairns, the heaps of stones that farmers gathered together when breaking new ground in preparation for cultivation. He has also drilled down into the soil and carried out pollen analyses. This has enabled him to show that many farms in the uplands of Småland were abandoned at the time of the Fimbulwinter and the Justinian plague. His findings suggest a rapid decline in population.

And a few separate research teams have now been able to demonstrate that the Justinian plague really was *the* plague, caused by the plague bacterium *Yersinia pestis*, just as in the Middle Ages. However, the Justinian plague represented a separate branch on the bacterium's genealogical tree. DNA mapping shows that the disease jumped from animals to people on at least two separate occasions. One such transfer caused the Justinian plague in the sixth century, while the Black Death of the fourteenth century was caused by another transition from animals to humans.

One of the carriers was the black rat. This animal probably came to Europe from Asia at the time of the Romans and thrived in our granaries, which were often in lofts in family homes. The black rat's fur harboured fleas that passed the germs on from animals to people.

But black rats and their fleas are not the whole explanation. Other rodents can also act as hosts, and plague germs can also spread from one person to another. The strain known as pneumonic plague, in particular, is an airborne disease, which can easily be spread without any animal involvement.

The churchyard where researchers can now identify victims of the sixth-century Justinian plague is in Germany. This means no one can now claim that that outbreak was

confined to the lands south of the Alps. Just like the Black Death, the Justinian plague had a major impact on Europe's development. It probably killed a large proportion of the population, especially as people's immune systems were completely unprepared and the societies in which they lived were already vulnerable, owing to the failed harvests of the Fimbulwinter.

Clearly, the population gradually recovered from the Black Death of the fourteenth century. Per Lagerås's view is that these outbreaks of disease, seen with the benefit of hindsight, were not an unmitigated disaster in every respect. He describes them as dealing 'the coup de grâce to feudalism', the social system under which the poor worked like slaves, under slave-like conditions, for richer farmers and landowners. According to Lagerås, outbreaks of plague were followed by labour shortages, obliging landowners to pay better wages and provide improved working conditions.

Just a few decades after the Fimbulwinter that began in 536 and the Justinian plague of 540 the population began to recover. A few centuries later came the last stage of the Iron Age in Scandinavia, which we know as the Viking Age. In many respects, the mores of this time were reminiscent of the Indo-European lifestyle that had already arrived in Sweden by Bronze Age times.