

18. Neanderthal man

Neanderthals were the most important hominins prior to the arrival of *Homo sapiens* because they left an excellent record of themselves. We have many fossils of Neanderthal man and there is a significant amount of information not only about his body but about his lifestyle as well. Neanderthals lived across Europe and Asia up to the Altai Mountains from about 400,000 years ago. The latest Neanderthal fossils found in Gibraltar are about 28,000 years old. This means Neanderthals overlapped with man in Europe for several thousand years.

Neanderthals' appearance was similar to ours, though they were shorter and stockier with angled cheekbones. They had prominent brow ridges, shorter limbs, a wider, barrel-shaped rib cage and a smaller chin. Their average cranial capacity of 1,600 cubic centimeters was larger than the average for modern humans which is about 1300 cc. Neanderthals were more advanced tool users than other earlier hominin groups. They had many highly developed tools and weapons.

In spite of discovering many Neanderthal fossils and dwelling places there is still a raging controversy concerning his intellectual and cultural capacities. Early researchers presented Neanderthals as very primitive, brutal, grunting carnivores living in caves. Later researchers claim that they could speak, buried their dead and cared for the sick.

The key question is how Neanderthals differed genetically from modern man. The results of an extensive DNA analysis of a 50,000 year old toe bone belonging to a Neanderthal girl, provided very important information. Results of the analysis show that 87 genes responsible for making proteins in cells are different between modern humans and Neanderthals. Some of the gene differences are ones involved in both immune responses and the development of brain cells in people. Genetic studies discovered that vast numbers of Neanderthal genes are not carried by modern man.

Genetic analysis of the Neanderthal genome shows that it was 99.86 percent similar to the human genome. How is it possible that such a small genetic difference between Neanderthals and humans could result in such a big difference in their living style? This was caused by the switching of genes in their genome. It has been discovered that about 2,200 genes which are active in humans were switched off in Neanderthals. Most of these genes are being active in the brain and the immune

system. Conclusion is that the most important genes for the functioning of the human brain were already present in Neanderthals but were not used.

In spite of so much evidence Neanderthals are still the subject of several controversies. One important question is where Neanderthals came from. Scientific opinion supports the view that Neanderthals came out of Africa. However, the facts do not confirm this hypothesis because no fossils of Neanderthals have been found in Africa.

Looking at the spread of Neanderthals across Eurasia it is possible that Neanderthals could have been linked to *Homo heidelbergensis* who left Africa about 600,000 years ago. Therefore, Neanderthals could have originated somewhere else, like the Middle East, and spread to Europe and Asia. It is estimated that early cousins of Neanderthals – Denisovans lived in the Altai Mountains as early as 400,000 years ago.

In spite of having such a large brain Neanderthals are not direct human ancestors. Therefore must existed a common ancestor of Neanderthals and *Homo sapiens* who lived about one million years ago. This ancestor has not been identified yet.