

THE HUMANS WHO WENT EXTINCT

Why Neanderthals died out and we survived

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Recently I read the book "Sixth Extinction" by Elizabeth Kolbert. The last chapter of this book is dedicated to the disappearance of the Neanderthal. The reading suggests that along with the disappearance of countless animals and ecosystems, humans might be responsible for the disappearance of their close relative the Neanderthal. The slight difference in DNA between the Neanderthal and us led to the hypothesis of what is called "the madness gene". This reading left me wondering about the Neanderthal. I remembered that somewhere on my bookshelves there was a book that I had taken with me when working abroad in 2012. However the workload had not allowed me to do much reading. I brought it back home unread where it found a place on the shelves. Indeed it was there waiting its turn to be read.

Clive Finlayson, the author of the book "The humans who went extinct" is an ornithologist. He is British by passport, but born and living in Gibraltar - the British Iberian strategic location at the entrance of the Mediterranean - where his family has lived for several generations. Together with his wife he not only studies birds, but more specifically animals in their ecosystem: the shrubs, trees, and weeds which make up a habitat, together with the various bugs and animals that live in the habitat, all along with the climatic conditions under which the habitat develops. It happens that at Gorham's cave in Gibraltar a significant number of Neanderthal remains have been found as well as remains of our ancestor humans.

Clive Finlayson has conducted a lot of research and published many scientific articles, but his book "The humans who went extinct" is for a broader public. The first chapter of this book gives a general overview of the humans and their ancestors as far back as when the first primates appeared somewhere in the Palaeocene, this is just after the dinosaurs disappeared. In the first chapter he gives the scientific names, but in the further chapters he prefers to convey the content and not to confuse the novice reader with complicated scientific names. He speaks of Neanderthal and ancestors, meaning our ancestors. Throughout his book Finlayson sets all his topics in their respective ecosystem. For this he bases himself on the paleontological findings on animal and plant remains, as well as pollen, soil and ancient landscapes. In the following paragraphs are a few things I picked up from this book among the many things which were new to me.

While today primates have curved limbs and we have straight legs and arms, it is often thought that when humans left the forest and started to walk upright our limbs straightened. Well, as described in this book, this seems not so evident. Today's Indonesian Orangutan has straight limbs. They migrate across the forest canopy from tree to tree, and stretch their arms to catch fruit while standing tip toe on thin branches and twigs. It is thought that all early primates and our ancestors were like this. When at some certain time back in history, the climate changed in Africa, the woods thinned and the primates could no longer move from tree to tree along the canopy. Instead they had to climb down from one tree, get to the next one and climb up again. It is thought that this climbing up and down the trunks led to the bent limbs of today's African primates. So in that sense, our human way of upright walking is maybe nothing special or typically human.

Other interesting chapters describe the ecosystems of Neanderthal and of the ancestors of the humans. Apparently while they lived contemporaneously, they did not exactly live in the same ecosystems. It seems that the Neanderthal lived in the best and most favourable ecosystem (wooded with slopes and along riverbanks or lakes), while the ancestors of the humans were more or less pushed to the border of these habitats (sparse trees, open expanses, and later along steppe). It is maybe a little bit like situations today where most people live comfortably in cities or towns with water, electricity and other

facilities; while other people live a less comfortable life in slums, war zones or resource depleted famine zones. Finlayson suggests that while both populations lived their respective lives with their respective modes of living adapted to the situation, when a significant climate change took place, it was probably the outcast population which was better adjusted to adapt to change.

The different tools used by Neanderthal on one side and the human ancestors on the other side, is often an argument for the different degree of evolution. However Finlayson is of the opinion that each of the tools was best adapted to each of the respective ecosystems. Hunting in a wood does not allow for long distance targets. The trees would hinder the spears in their flight. Instead heavy weapons for stabbing a nearby prey would be better adapted. On the other hand, hunting for animals in the steppe where the prey would be able to detect hunters at long distances would require lighter spears which could be thrown over longer distances.

While it is often assumed that human culture probably started when people settled, abandoning nomadic life for agriculture (some 10 000 year ago if I remember well), Finlayson wonders if there might not have been an earlier event which led to job specification. He explains that initially the primates lived like any other animal on a day to day existence based on the fruit they collected or the prey they caught. When the ancestors were living in the steppe, and when the climate changed to the colder ice ages, the surplus food could be kept and stored, initially at the surface, later by digging and burying in the permafrost. In this way, reserves could be built up. Division of tasks may have followed: on one hand the hunters, on the other the people who stayed in the camp to protect and manage the reserves. Furthermore, instead of living a day to day existence, a different mode of life became possible. Indeed, living with surplus and reserves is much more comfortable than living from day to day. Surplus and abundance leaves room for social and cultural life to develop. Finlayson sets this event about 25 000 to 30 000 years ago: meat conservation became only possible with the ice ages and was never a possibility for the populations living in the tropics.

Further, Finlayson develops on the topic of living in the steppe, where no trees or major topographic feature allows for easy identification. Possibly, navigating in these broad expanses is like navigating on the open ocean: it requires excellent skills for orientation. Possibly, brain size had to develop to allow for accommodating the spatial information required to find one's way back to the tribe. A diet based on meat is thought to allow for more advanced brain development than an exclusively vegetarian diet. However, the digestion of meat requires more water and the need of finding oneself close to water resources.

All in all, Clive Finlayson does not think that there has been much interaction or interbreeding between the Neanderthal and the ancestors of the humans. Of course, it might have happened occasionally. And what about the 4% of genetic structure we have in common with Neanderthal? Well, yes, way back in history we have common ancestors, so it is not so surprising to have DNA in common.

