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The First Dog

Some of my relatives remained in the region around Spain and south-western France, while others with our shared maternal lineage migrated southwards. They crossed the Strait of Gibraltar into North Africa, moving along the coastline, into the mountains of Kabylia and as far southward as Senegal. Their descendants can be found there to this day. We know this thanks to the presence of mitochondria belonging to the U5b1 haplogroup in these regions. They are rare, admittedly, but they do exist.

Others began to migrate northwards when the worst of the cold was over. They followed the reindeer that were their main prey. Some of them went directly northwards along the river that we today know as the Rhine.

About 14,700 years ago, the climate in northern Europe began to grow a great deal warmer. The steppe filled with trees such as birch, willow and aspen. Deciduous woodland of this kind is not a suitable habitat for reindeer, as it provides nothing for them to eat in winter. My forebears in the Rhine Valley had to adjust rapidly to hunting other animals, such as elk (moose), deer and beaver – a major change.

Two of my relatives died near today's Bonn: a man in his fifties and a woman of about 20. Their companions dug a grave, laid them in it side by side and scattered copious amounts of red pigment over them. As grave goods, the dead were given a fine hairpin made of bone, a patterned piece of antler and a deer's tooth painted red. And they were accompanied to the realm of the dead by a dog. This must have represented a major offering, the greatest gift they could have been given.

The burial find, known as Bonn-Oberkassel, has been dated as being about 14,500 years old, from just after the end of the Ice Age Magdalenian culture. DNA analysis of

the man's and the woman's mitochondria shows that both belonged to the U5b1 haplogroup through their maternal lines. That is the group I belong to, which means that the two people in the grave and I had a common foremother who lived a few thousand years earlier. They were the children and grandchildren of 'Ursula', just as I am.

But the really significant point about the Bonn–Oberkassel grave is not that my distant relatives lie buried there. The most important find is the dog's skull. This is the most ancient dog on which there is a scientific consensus. It meets all the possible criteria that anyone can establish for an early dog. Its appearance is right, the time is right, the place is right and the dog's DNA set is right.

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The question of when wolves became dogs has been the subject of heated debate for many decades. There is a great deal of prestige at stake. Dogs were our very first domesticated animals and are still known as 'man's best friend'.

In the past, archaeologists tried to distinguish dogs from wolves solely according to the appearance of their fossilised bones. Their main assumption was that dogs which had benefited from the care of humans for many generations could be expected to become smaller and slighter than wolves, and to look different in some way.

On the basis of these definitions, there are many possible early dogs, the oldest of which is over 30,000 years old. There are fossil remains from Russia, Ukraine, the Czech Republic, Switzerland and Belgium. Some of the finds that are claimed to be early dogs come from the excavations at Dolní Věstonice in the Czech Republic, described in Chapter 5.

Over the last 20 years, geneticists have joined the discussion, basing their arguments on DNA analyses of varying degrees of exhaustiveness and calculations that vary in sophistication. They have still not reached a consensus, to put it mildly. However, the current state of knowledge can be summarised as follows.

The ancestor of today's dogs appears to have been domesticated at least 15,000 years ago, and possibly much earlier. The place of birth of the first dog was probably somewhere in Europe or Siberia, though China cannot be ruled out.

People may well have tried to tame wolves even earlier. There are 30,000-year-old fossils from the Altai Mountains of Siberia and Belgium's Goyet cave that resemble dogs, which may well indicate that such attempts were made. However, they do not appear to be the forerunners of modern dogs, but genetic dead ends.

All of today's dogs – African basenji, the wild dingoes of Australia, blue-eyed Siberian huskies, neatly blow-dried miniature poodles and playful Labradors – seem to have a common origin in one specific group of wolves from Europe or Asia. These wolves are probably long extinct, which makes it more difficult to establish kinship. But when researchers compare DNA from fossil wolves tens of thousands of years old with both fossil dogs and contemporary specimens, the pattern emerges more clearly.

One of the problems facing researchers is that domesticated dogs have sometimes interbred with wild wolves, as shown by the DNA of hunting dogs in Scandinavia and half-wild dogs in China, for example. This interbreeding makes the picture fuzzier. However, the basic pattern remains. When we left Africa, we had no dogs with us. It was not until we reached Europe and Asia that we came across wolves. We tamed them at some point during the Ice Age, during a period when we were still hunter-gatherers, and before some of us crossed Beringia and made our way down into the Americas.

The question is why. What use were dogs to us?

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Over the years, I have interviewed nearly a dozen of the world's leading dog researchers, and have been given nearly as many diverging explanations for why dogs and people started to live together.

Many researchers believe that it was not people that domesticated dogs, at least not initially – it was dogs that domesticated us. Ice Age people hunted wolves for their pelts, and wolves must have regarded us as dangerous. But they also saw the advantages that humans offered. We left large piles of food behind us, the remnants of our prey that we were unable to use ourselves. We dumped the carrion left over from our hunting on the edge of our temporary settlements, as it stank and attracted predators.

Wolves would go in search of these leftovers at night, when people had gathered round their fires or were asleep. Sometimes, especially at dawn and dusk, humans and wolves might encounter one another. That could end with the human killing the wolf. But on one occasion the wolf was simply too appealing. Maybe it was a little cub, a good-natured trusting little pup that no one with a heart could bring themselves to kill. So instead, the little wolf cub was allowed to sit at the fire among the humans, and to play with the children. Anyone who has ever seen a young child and a puppy playing together will know just what I mean.

The millennia passed, and wolves that were able to control their aggression and endear themselves to people had found a new niche enabling them to survive. This was a case of what biologists call ‘artificial selection’; traits valued by humans were more likely to be passed on to the next generation.

Many scientists have examined which genes differentiate wolves from dogs. A large proportion of these genes affect the brain first and foremost. The US researcher Robert Wayne, for example, has detected a particular genetic mutation that seems to be present in all dogs, but not in wolves. A similar mutation can be found in people with the congenital condition known as Williams–Beuren syndrome. Such people generally have slight learning difficulties. But the most striking feature of people with Williams–Beuren syndrome is their friendly, outgoing and trusting nature.

Many other features that differentiate dogs from wolves – in terms of both character traits and appearance – have to do with the more childlike nature of dogs. They resemble wolf

cubs more than adult wolves; they are playful and good-natured rather than serious and intense. In many cases, dogs also have more stubby noses and shorter legs than adult wolves, just like wolf cubs.

Moreover, dogs also have an exceptional ability to read people's thoughts. Many experiments have shown how they can understand what we want. They can follow our gaze and look at the things we point out. Other animals, such as chimpanzees, wolves and cats, can be at least as intelligent in many other respects. Yet they cannot compete with dogs in tests based on understanding human behaviour.

The nights were cold during the Ice Age, and people may have used their first dogs as cushions, to keep warm. The archaeologist Lars Larsson told me that even today Australian aboriginals speak of 'one-dog', 'two-dog' and 'three-dog nights', the 'three-dog night' being the coldest of all.

Others believe that people first benefited from wolves' function as guard dogs. They would lie at the edge of the camp, feasting on leftover meat. Little by little they began to spend the night there. Wolves and dogs sleep far more lightly than humans. If another, more dangerous predator approached – a lion, for instance – they would begin to howl loudly. This would wake the humans, who could then defend themselves.

Helping humans to hunt must have been one of the functions dogs fulfilled from an early stage. One of wolves' inherited behavioural characteristics is the propensity to hunt in packs. Much has been written about how hunting dogs may have enabled humans to hunt more effectively, especially the big game of the Ice Age, such as mammoths and woolly rhinoceroses. According to some theories, the large animals in Europe, Asia and the Americas faced rapid extinction once humans and dogs began to hunt together. But there is no consensus on this. Some new findings indicate that dogs and humans are blameless in this regard; mammoths and woolly rhinos are more likely to have died out because the climate became warmer, bringing changes in vegetation.

Martin Street is the archaeologist who has done most work in recent years on the dog from Bonn-Oberkassel. His theory is that what is known as 'putting the game at bay' was one of the first important tasks performed by dogs. This is a method of hunting still used today in many places, including the forests of Sweden. The dog runs around in the woods on its own to track game, while the hunter tries to stay near it. Once the dog locates its quarry, it starts to bark, forcing the animal to stop moving and focus on the dog's irritating barking. The dog has put its quarry at bay. In the meantime, the hunter creeps nearer and shoots the animal.

This type of hunting emerged when woods started to grow on the tundra, blocking the view. Before that time it was easier for hunters to scan the landscape for their prey from an elevated point. This is what makes it so interesting that the first dog universally recognised as such, the one from Bonn-Oberkassel, lived 14,500 years ago, at precisely the time when the tundra of the Ice Age was beginning to give way to woodland. That circumstance, in my view, is rather too striking to be a mere coincidence.

If we began to use dogs even earlier, during the colder periods of the Ice Age, I believe transport must have been one of their major functions. Dogs may have been used as pack animals and may also have pulled sleds and people on skis. They may have enabled us to move around and maintain networks over very considerable distances. Admittedly, no devices that would have enabled dogs to carry a load or pull sleds or skis have been preserved. However, such artefacts would have been made of wood and other organic material, and the chance of such substances surviving tens of thousands of years is minimal.

Conceivably, the first function dogs fulfilled for people may have been to provide a source of food. If this was the case, keeping domesticated dogs would have been a way of ensuring access to meat in hard times. The researcher who mentioned this possibility to me was Peter Savolainen, one of the foremost advocates of the theory that dogs originated in China.

Savolainen, who works at Stockholm's Royal Institute of Technology, was among the first researchers to conduct a large-scale comparison of dogs' mitochondrial DNA; I reported on his study in *Dagens Nyheter* back in 1997. He and his collaborators attended dog shows and collected hair from several hundred dogs, which they then compared with wolves from different parts of the world. The original purpose of the research was to enable forensic technicians to use DNA profiles to identify the breed of a dog that had left traces at a crime scene. However, the researchers soon realised that their work could also be used to identify dogs' place of origin. Their results suggested that wolves first became dogs in South-east Asia, which happens to be a region where people eat dog meat to this day.

When in Hanoi, northern Vietnam, which lies within the region identified by Savolainen, I once visited a curious street full of specialist restaurants – all cheek by jowl – whose menus featured dog meat. Some Vietnamese people like taking Europeans there to tease them about the habit of eating dog meat, as they know full well that we generally regard it as totally taboo. The Vietnamese journalist who accompanied me in Hanoi explained that he and the people he knew kept dogs as pets, just as Europeans do, and developed strong emotional ties with them. Yet they may also eat dog meat on occasion. There are, quite simply, two contrasting attitudes.

A similar pattern is also discernable in excavations from the European Stone Age. Some dogs were clearly highly respected family members honoured by distinguished burials. Other dog bones bear scratch marks from tools – which may well indicate that people ate their flesh. Both types of remains have been found at Lake Hornborga in Sweden, the oldest being about 10,000 years old.

Peter Savolainen's early conclusion that dogs originated in South-east Asia is strongly contested today, particularly since other researchers have begun to analyse DNA from ancient fossils of dogs and wolves. Today there is at least as much evidence to suggest that dogs originated in Europe.

Savolainen may, of course, be correct in his theory that dogs' first role in relation to humans was to provide a reserve of food. But they may also have been companions and playmates, warm cushions, a means of transport, guard dogs and hunting dogs. One possibility need not exclude the other. Beyond a doubt, our first function as far as dogs were concerned was to keep them fed.

Nor should we underestimate the importance of affection. Surely the feelings that today's dog owners have towards their animals also existed during the Ice Age. After all, those of my kinsfolk who lived in the Bonn-Oberkassel region 14,500 years ago – the man and woman from the U5b1 haplogroup – were accompanied by a dog on their way to the happy hunting grounds.