WHY HUMANS AND DOGS FIND SUCH COMFORT IN EACH OTHER: THE ORIGINS OF A SYMBIOTIC RELATIONSHIP

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Why are humans and dogs so closely bonded? Why do so many people find such comfort in having dogs around, and why do so many gain so much happiness and fulfillment from their pet dogs? From their part, why are dogs so loyal that they are commonly referred to as "man's best friend"? Why were dogs the first animal species to become associated with early humans, many thousands of years before any other animal was domesticated? And, why do dogs bark? It was in search of answers to the question of the exceptionally close relationships between humans and dogs that I began an investigation into the origins of this almost unique symbiotic relationship between two species of animals.

The oldest known human archaeological site which contains the bones of dogs in close association with humans is about 14,000 years old. However, the fact that domesticated dogs accompanied early humans into the Americas indicates that dogs and humans were associated for a much longer time before then. Linguists have discovered that the ancient Nostratic language, which arose in Southwest Asia about 14,000 years ago, had the same word for "dog" and "wolf". Dogs were, initially at least, simply wolves that were domesticated. The means by which these wolves and humans came together is not known precisely, but archaeologists have hypothesized that it had to do with the fact that both species were meat-eating carnivores.

Besides being efficient hunters, wolves are also flexible scavengers who will take whatever meat they can find. With their sharp sense of smell, a pack of wolves might have gathered around kill sites where human hunters were butchering game. What happened next depended on the circumstances. For example, if the hunters wounded an animal but it escaped and the wolves joined in to kill the prey, the humans might have responded by retaking the carcass but then throwing some of the meat for the wolves to eat. Or the wolves might simply have waited until the humans finished butchering the animal, and then come to the kill site to scavenge on what remained of the carcass. In this possible scenario, wolves and humans might gradually have learned that each species could help the other to kill more game. With the wolf's superior sense of smell to locate game, and the human's use of spears to kill more big game, both species could succeed in getting more meat by sharing than by hunting alone. In this scenario, the wolf gradually domesticated itself. Wolves and humans developed, in essence, a symbiotic relationship that benefited both species.

In another possible scenario, humans might have hunted wolves and killed the adult

wolves in their liar. But instead of killing the infant pups, the hunters might have taken them back to their camp. Perhaps they did not eat all of these pups, but allowed some to remain alive in the camp. Like Homo sapiens, wolves live in bands of related individuals, with an instinct to fit themselves into a hierarchy. If wolf pups are nursed and fed by humans, they gradually imprint the food-providing human as their mother-substitute, and react as subordinate band members in dealing with the larger human members of the band.

As such a pup matured, as evidenced by contemporary wolf pups that are raised by humans, it would have begun to interact comfortably with the humans as a loyal member of the band. Some early humans may have eventually recognized that the tamed wolf had a superior sense of smell, by which it could locate game. Taking a wolf along on the hunt could result in more kills. As soon as hunters realized this, they might have starting capturing more infant wolves to domesticate. Pups could later be used in the hunt, or used as an object of trade with neighboring peoples.

While both of these scenarios likely occurred in various areas of the world, neither of them address a major problem that early humans would have had in raising wolves. As they mature, male wolves especially seek to make a place for themselves in the hierarchy of the wolfpack. They typically do this by establishing dominance over smaller wolves, often by fighting. If a large growing wolf tried to establish dominance over a smaller human child, by attacking or biting the smaller individual, the horrified response of ancient humans would usually be to kill the wolf for food.

This process would mean that the wolves which were not killed tended to be smaller and have more submissive personalities. Wolves, like humans, exhibit varied personality traits. Those less aggressive female wolves and particularly subordinate smaller male wolves which were allowed to grow to maturity would be the only ones to reproduce, thus passing on their small size and less aggressive tendencies to their offspring. Over many generations, these domesticated wolves evolved into tame dogs, both by genetic predispossession as well as by the example of the pups learning from their mother and other dogs that resided in the human camp. Dogs became the first example of human selective breeding of another animal species.

Another difference that emerged in this human selective breeding was the role of barking among dogs. Adolescent wolves bark, but adult wolves seldom bark. However, the selective breeding for tameness led to the evolution of dogs that were, in effect, perpetual adolescents. Thus, adult dogs display many traits that are typical of youthful wolves. A bark is halfway between an infantile attention-seeking whine and an adult wolf's hostile growl.

Dogs that barked a lot were a major advantage for early humans. First, with their superior senses of smell and hearing, dogs could bark to alert humans about potential danger, and could frighten off predators or enemies that might try to sneak up on a human campsite at night. Dogs became loyal protectors of Homo sapiens, and many human lives have been saved over the years by dedicated dogs.

Second, barking is valuable in the hunt. A dog can run faster and farther than a human in keeping up with fleeing game, and by barking can alert the hunter where to follow. The human hunter can go in for the kill, after the prey has become tired from being chased by the dogs. Those dogs that were the most valuable in the hunt, including by their barking, were the ones less likely to be eaten by early humans. Thus, they would live longer and be able to pass on their genes by breeding with other good hunting dogs who barked.

By this process, genes favoring both barking and subordinate personalities were selectively bred into dogs. Within the last few thousand years, numerous species of dogs have been bred by humans, with the resulting differences becoming so vast that these species can hardly be believed to be descended from wolves. Dogs are a case study in the rapid evolution of species. Even today, when we are no longer hunters, many humans consider dogs to be "man's best friend." Numerous people feel a strong emotional connection to dogs even when there is no tangible subsistence advantage in having a dog. This fact suggests that humans have likewise evolved a predispossession for a close symbiotic relationship with dogs. This relationship is one of the many parts of the human heritage that we owe to our hunting-gathering past.