

CHAPTER 7

In the Company of Wolves: compensatory attachments and the human-dog bond

Abstract

Why are we able to form such an intense emotional bond with other animals, such as dogs, despite them being so different from ourselves in so many ways? In this chapter, we consider the human emotional vulnerabilities that drove our close relationships with canids. We explore how an understanding of compensatory attachments can provide a new perspective on the inclusion of wolves into human societies, and the significance of their dog descendants to our emotional wellbeing today.

We first explore the roles of dogs in present hunting and gathering societies, and the potential significance of bringing wolf companions into our emotional lives. We find that, whilst there are considerable cultural differences, dogs and people have a capacity to form remarkably strong bonds, and dogs can take up a sometimes uncomfortable position as *almost human*.

(Abstract continued on next page)

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We then ask whether the domestication of wolves may have been more influenced by human emotional needs than we may have currently assumed. Whilst we tend to view the domestication of wolves as a process engineered by humans, and indicative of our particular elevated capabilities or intelligence, our emotional vulnerability and capacity to make compensatory attachment may have had a key role to play.

A closer consideration of our shared evolutionary history reveals that wolves and humans share a deep past of becoming incrementally closer to each other in terms of social emotional motivations. As we have seen in Part 1, selection pressures over the last 2 million years moved human emotional motivations closer to those of highly collaborative social carnivores such as wolves, whilst, as we have seen in Chapters 4 and 5, the period 300,000 to 30,000 years ago brought new capacities to make novel relationships, and new emotional vulnerabilities. During this period, the emotional motivations of wolves seem to have moved closer to those of humans through living in close proximity.

Wolf domestication is, perhaps, best seen as a two-way process in which each species moved to fill an emotional gap in each other's lives.



Figure 7.1: Artwork: *Sympathy*, c. 1878, Briton Rivière. Photo: Tate. Used with permission.

Introduction

Why have we developed such close relationships with many species of animals, and with dogs in particular?

Across human cultures and historical periods, there is often a recognition that animals can play an important emotional role in our lives. Dogs and humans can share a remarkably close emotional bond, as shown in this late 19th-century painting by Briton Riviere entitled *Sympathy*, c. 1878 (Figure 7.1). Despite our evolutionary separation, we seem to understand each other.

We find dogs almost everywhere that there are people. As early explorers came across indigenous peoples on almost every continent, they also encountered their dogs (Figure 7.2). The explorers themselves were all too familiar with dogs as hunting aids, working animals or companions, and the presence of dogs in people's lives, even in the farthest reaches of the world, went largely unnoticed. Yet here is an entirely different species, living alongside and in close relationships with people. That we would develop such a close relationship with a descendant of wolves is truly remarkable, and not necessarily easy to explain.



Figure 7.2: Dogs were almost ubiquitous wherever colonists met indigenous hunting and gathering populations. This late 19th-century drawing of an indigenous Australian ‘native encampment’ shows a dog asleep in the foreground. *Native Encampment* (detail). Edwin Carton Booth, 1876. Image: Skinner Prout, Public domain, via Wikimedia Commons: [https://commons.wikimedia.org/wiki/File:Native_Encampment_by_Skinner_Prout,_from_Australia_\(1876,_vol_II\).jpg](https://commons.wikimedia.org/wiki/File:Native_Encampment_by_Skinner_Prout,_from_Australia_(1876,_vol_II).jpg).

Not only did almost all the hunter-gatherer societies that explorers encountered share their lives with dogs but occasional accounts also demonstrated perhaps surprising levels of affection for them. This indicates that these dogs often played an emotional, rather than simply functional, role in the people's lives. The Swedish explorer Lumholtz, cited in Serpell (2016b), for example, recorded the remarkable level of affection that indigenous hunter-gatherers in Australia gave to their dogs (dingoes). He notes that the people he met treated their dogs:

With greater care than they bestow on their own children. The dingo is an important member of the family; it sleeps in the huts and gets plenty to eat, not only of meat but also with fruit. Its master never strikes, but merely threatens it. He caresses it like a child, eats the fleas off it, and then kisses it on the snout. ... When hunting, sometimes it refuses to go any further, and its owner has then to carry it on his shoulders, a luxury of which it is very fond. (Serpell 2016b: 302)

The anthropologist Betty Meehan later added support to this picture, commenting:

It is clear that for some members of the Anbarra community, dogs and especially pups fulfilled an important emotional role. Every Anbarra person loved 'puppies', and, as far as we could interpret, treated them tenderly as if they were human babies. They forced food upon them, cuddled and talked to them, slept with them and carried them around. (Meehan, Jones, and Vincent 1999: 100)

Perhaps most tellingly, such accounts demonstrate that dogs could move into people's emotional lives where human social connections were sometimes not enough. Meehan continues to describe, for example, the case of a woman who was an older and less favoured wife who fought with her husband and sister and saw little of her son. She had an unusually large number of dogs (about 10), with whom she slept at night, often engaging in animated conversations with them. Her dogs were devoted to her and she, in turn, carefully fed and cared for them. She even made a small cloth shelter similar to those made when women were giving birth for one of the female dogs when she had a litter of puppies (Meehan, Jones, and Vincent 1999).

Stories of dogs transforming people's lives by being loyal companions and sources of emotional support are even more common in modern societies. Dogs are awarded medals for bravery in combat and for risking their lives to save their owners, and we even build statues to dogs who have shown

extraordinary loyalty. They often take up a role as an ever-present source of affection and loyalty, and are seen as our 'best friend', with us through all adversity. Dogs traditionally play a role as the willing companions and source of emotional support for children (Figure 7.1) and, as adults, research has even shown that, in modern Western societies, only romantic partners are preferred above our pet dogs as a source of emotional support in times of stress (Hart and Yamamoto 2016; Meehan, Massavelli, and Pachana 2017). There are numerous accounts of how dogs have saved people from depression and loneliness, or isolation, or have transformed their lives in other ways. Most of us will have experienced some kind of close interaction with the descendants of tame wolves who now share our lives. Dogs play a significant role in people's lives across the world, whether living as close companions, as is typical in many modern industrial societies, as working dogs, or as free-ranging dogs associated with human settlements.

What can an understanding of the evolutionary background to human evolved emotional dispositions contribute to our understanding of how dogs came to take up such an important role in many of our lives? Might the emotional sensitivities and vulnerabilities we have discussed in Chapters 4 and 5 play a more important role in the emerging relationship between people and wolves during the Upper Palaeolithic than has previously been assumed?

Here, we first consider insights from ethnographic contexts before considering what we can learn from dogs in modern contexts. We reappraise the archaeological evidence for the 'domestication' of wolves to consider if human emotional vulnerabilities may have played a more significant role in bringing dogs into human lives than we generally appreciate.

Dogs in recent ethnographic contexts

As we have seen in Chapter 1, many hunter-gatherer groups keep a range of different animals as pets, including birds and monkeys, and it seems that these animals play a certain emotional role (Bradshaw 2017). They seem to stimulate similar types of reactions to those we have to our own infants, and some of our tendencies to care for animals may stem from the selective value of demonstrating a reputation as someone sensitive to the needs of the vulnerable (Bradshaw 2017) (see Chapter 4). However, dogs are unique in certain ways in the level of intimacy that they have with human lives (MacLean et al. 2017). It has been dogs who most clearly adapted themselves to suit life

with humans, as well as humans who adapted ourselves to suit life with dogs. They are found sharing their lives with hunting and gathering peoples from Australia (Figure 7.2) to Tierra del Fuego (Figure 7.3), to East Africa (Figure 7.4).

Dogs as a form of technology

At first sight, the presence of dogs in ethnographically documented societies seems to be explained through their usefulness in various tasks. Certainly, we often see cases in which dogs perform some kind of useful function (Brougham 2018). Arctic hunter-gatherers depended on teams of dogs to get around their landscape, and to carry the tools they needed to hunt and the meat from animals they hunted, for example (Figure 7.5). Further to the south, in less extreme conditions, North American societies also used dogs as pack animals using travois (a type of sled using two poles; see Figure 7.6). Dogs can also help in hunting, in effect making up for the relatively ineffective senses we inherit as primates. They have a remarkable ability to track prey and are also adept at killing small animals. Women in Central Australian groups commonly used dogs to flush out small game,



Figure 7.3: This photograph, taken around 1930, shows dogs accompanying Selk'nam hunters in Tierra del Fuego. Unknown author. Public domain, via Wikimedia Commons: https://commons.wikimedia.org/wiki/File:Selknam_cazando.jpg.



Figure 7.4: Modern Hadzabe of East Africa returning from a hunt with their dogs. *Hadazbe Returning from Hunt*. Andreas Lederer, CC BY 2.0, via Wikimedia Commons: https://commons.wikimedia.org/wiki/File:Hadazbe_returning_from_hunt.jpg.



Figure 7.5: Inuit coming down Tree River by sled. J. J. O'Neill, CC BY-SA 4.0, via Wikimedia Commons: [https://commons.wikimedia.org/wiki/File:Inuit_coming_down_Tree_River_by_sled_\(38571\).jpg](https://commons.wikimedia.org/wiki/File:Inuit_coming_down_Tree_River_by_sled_(38571).jpg).

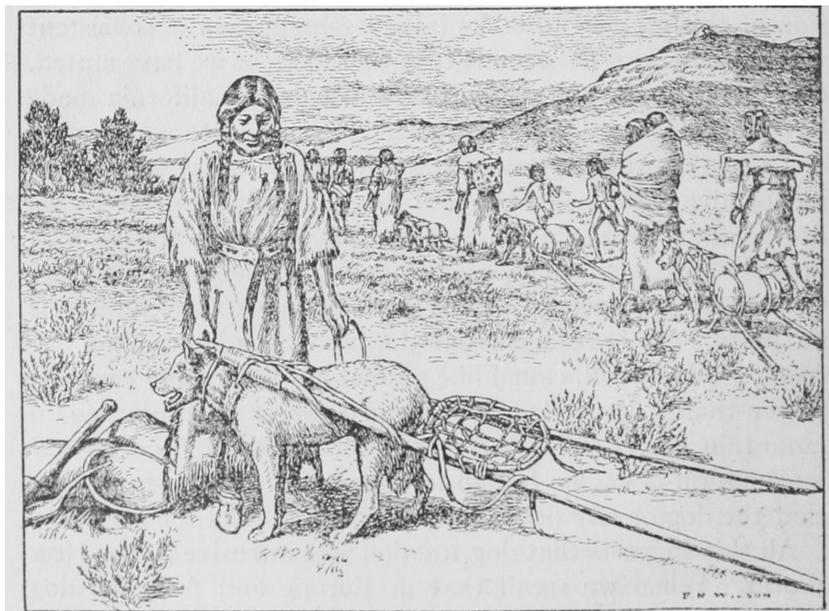


Figure 7.6: This depiction, published in 1917, shows indigenous North American hunter-gatherers of the Bison area travelling between encampments using dogs with travois to carry their loads. Clark Wissler, Public domain, via Wikimedia Commons: https://commons.wikimedia.org/wiki/File:The_American_Indian_Fig_11.jpg.

for example (Balme and O'Connor 2016). Hunters in lowland neotropics of South America increase their hunting efficiency when hunting medium or large rodents, such as agoutis or pacas, by using dogs to find and corner, or flush out, these animals (Koster 2008; Koster 2009). Moreover, dogs' highly attuned senses can be important in defence, such as acting as watchdogs in the event of intergroup feuding (Koster 2009). Many speculate that, in the Palaeolithic, dogs may have played a role in defence against the dangerous predators such as cave lions or hyenas that were common at the time (Germonpré, Fedorov, et al. 2017). Dogs are even used in some societies as a source of wool or furs (Germonpré et al. 2020). Some authors have even argued that domesticated wolves or proto-dogs played a key role in the decline of large carnivores during the Ice Age, as well as in the overhunting of large game, particularly mammoths (Germonpré, Fedorov, et al. 2017; Shipman 2015a; Shipman 2015b).

However, there is another side to the story.

Dogs as playing a role in emotional wellbeing

Ancient dogs may not have been as useful as we might imagine, nonetheless. The range of uses of dogs in recent ethnographic contexts may be a little misleading as these functions often depend on particular morphologies or traits that developed well after domestication and are specific to certain tasks, such as large robust physiques suited to carrying loads. Despite what we might imagine, unspecialised dogs are not always useful hunting aids. Dogs that live amongst forest-living hunter-gatherers in Central Africa, for example, only appreciably increase yields when hunting small animals such as pouched rats. They can actively interfere with more collaborative hunts of large game (Lupo 2017). Meehan, considering the use of dogs amongst the Ambarra of Australia, for example, concludes that most camp dogs were ‘absolutely hopeless at hunting’ (Meehan, Jones, and Vincent 1999: 102). This is an observation mirrored in other studies (Balme and O’Connor 2016; Smith and Litchfield 2009), though some argue that dogs may have been useful in hunting in some contexts (Koungoulos and Fillios 2020). It has been argued that the efficient hunting of large animals such as kangaroos would only have been possible in Australia through the introduction of highly bred and trained European dogs (Meehan, Jones, and Vincent 1999). Dogs may be useful when tracking and flushing out small game, but seem likely to have been a hindrance in hunting large game, which they may well have tended to scare away. Much of the usefulness of dogs for carrying loads may also be a result of later morphological changes following domestication. Wolves themselves are agile and nimble, rather than robust, with only distinctive stocky breeds used in carrying loads in North American contexts (Brougham 2018). Even some of the potential usefulness of dogs to alert us to dangers may have developed well after proto-dogs began to share their lives with humans. Though modern dogs bark frequently, for example, barking is very rare in wolves (Bradshaw 2017). Many societies, such as the Martu of Australia, have many dogs but make no use of them to hunt or for any other economic function (Lupo 2017).

Attitudes towards dogs in small-scale societies can reveal interesting insights into their potential relationship to humans in the distant past. However, the picture of human relationships to dogs in such contexts is complicated.

There are certainly examples of contexts in which dogs are treated with disdain and even abuse. Amongst many Central African populations, such as

the Aka, dogs are often treated harshly (Lupo 2011). Even when considered useful in hunting, dogs may nonetheless not necessarily be treated with much respect (Serpell 2016). Many of the ways in which dogs are treated can also seem alien to our cultural perspective. Dogs may be a source of food, with the consumption of dogs recorded in both ethnographic and archaeological contexts, for example (Clutton-Brock 1995; Germonpré, Lázníčková-Galetová, et al. 2017; Serpell 2016a). However, when we look more deeply, we can see that cultural beliefs about dogs can play a major role in our attitudes towards them. The Aka, for example, treat dogs harshly as they are seen as reincarnations of witches or sorcerers, and so dangerous (Lupo 2011). These reactions are not, therefore, particularly surprising. Believing dogs to be dangerous also leads to an equal lack of empathy in modern contexts (Jordan 1975; Serpell 2016a). As we have seen in Chapter 1, our tendency to empathise with anybody or any being is much influenced by our beliefs about them, and dogs are no different. Our modern Western sensibilities can also affect our understanding of what it might mean in emotional terms for dogs to be seen as food. Eating dogs can be a very practical response. That there were dogs that were eaten does not necessarily mean that there were not also dogs that were much loved, or even that dogs that were eaten were not mourned. In some cultures in which dogs are killed and eaten, this often happens in a ritual context as sacrifices who are mourned (Clutton-Brock 1995). Moreover, even where dogs are seen as simply a source of food, there are often certain dogs that are seen as being appropriate for being companions, whilst others are destined to be eaten (Serpell 2016).

Almost everywhere, dogs are recognised as sharing an intelligence and emotional capacities not unlike our own (Serpell 2016a).

Rather than their differences, it is their very similarity to humans that tends to be the root cause of some of the least empathetic treatment of dogs. Whilst dogs might seem similar to us in many emotional ways, they cannot behave according to human social rules or understandings. They lack any understanding of past or future, understand our language in only the very crudest of ways, and often behave in ways that are seen by human standards as immoral or disgusting (Serpell 2016b). They are, thus, often punished for behaviour that is simply following their instincts because of our own gut feelings that they *should have known better*. Being rather too much like humans also makes them easy scapegoats for displaced aggression (Singer

1978), and it is dogs that are the animals most frequently abused cross-culturally (Gray and Young 2011). For example, amongst the Matinen of Indonesia, whilst men form close relationships with their hunting dogs, carrying them around and even taking them to bed with them at night, women tend to treat them aggressively. This is interpreted as a displacement of their frustrations at gender inequalities that it is difficult to express overtly (Broch 2008). Dogs found in many archaeological contexts have been subject to aggression, as demonstrated from tooth loss and tooth fractures (Losey et al. 2014). Rather than not being similar enough to fit into human society, dogs can be *too close for comfort*.

For better or worse, dogs often occupy a liminal zone, in some respects animal but often seen as human-like. If they do not quite fit human ideals of how they ought to behave, or if cultural beliefs impose misplaced motivations on them, they can be subject to abuse.

The very humanness that can cause aggression towards them also makes them a frequent source of emotional support, however.

There are several ways in which dogs often play an important emotional role in recent hunter-gatherer contexts. Dogs are occasionally kept explicitly as companions, such as is recorded amongst the Inupiaq (Germonpré et al. 2020). More commonly, however, dogs are frequent playthings and companions for children in almost all foraging contexts (Gray and Young 2011); see Figure 7.7. They are also often treated as infants, and, perhaps rather surprisingly from our cultural sensitivities, breastfeeding of puppies is common (Simoons and Baldwin 1982). These puppies, even as adult dogs, will be seen as sufficiently human-like, as having somehow taken on something important from a person, that the thought of eating them would be repugnant (Bradshaw 2017; Serpell 1987). Adult dogs can fill the place of close kin for whom one would have intense loyalties and go to great lengths to look after and protect, and who provide an important source of reassurance and emotional support. It is not unusual for dogs to be present and much cared for without seeming to perform any useful function. They may be cared for when ill or injured, provoke a distinct sense of grief at their passing, and are sometimes buried with their owners, or even individually (Serpell 2016b).

Amongst northern-latitude animistic traditions for which people, animals and objects all have a distinct spiritual essence, dogs can have a particular



Figure 7.7: Children, in particular in hunting and gathering contexts, often develop a close relationship with dogs, especially puppies. This photograph from the American Museum of Natural History shows Inuit children playing with their pet dogs, c. 1900. Internet Archive Book Images, no restrictions, via Wikimedia Commons: [https://commons.wikimedia.org/wiki/File:The_American_Museum_journal_\(c1900-\(1918\)\)_\(18162508871\).jpg](https://commons.wikimedia.org/wiki/File:The_American_Museum_journal_(c1900-(1918))_(18162508871).jpg).

position within human social relationships. Individual animals of other species, such as reindeer, are seen as more of a collective spirit, whilst dogs may reveal their individual soul (Losey et al. 2011). Rather than all dogs being almost human, however, it is rather more the case that *some dogs* reveal themselves to be human-like. Much like we may view other people with little regard, yet others as a means of achieving our own ends, and others we may care deeply for, dogs can occupy very different roles in the lives of humans. Those who were not seen to display a particularly human spirit may be discarded at death; others may be afforded a human-like burial in keeping with the human-like soul (Losey et al. 2011). Each dog, like each human, has their own individual identity.

Sometimes, dogs in ethnographically documented contexts are treated with what we might view as too much, rather than too little, affection, or at

least with too great a leniency, being permitted to behave freely with few constraints despite the consequences. Perhaps surprisingly, dogs are almost never trained in the sense we might understand the word of being subject to positive or negative reinforcement, but rather they are expected to learn from imitation (Koster 2009), much as is typical of childhood social learning (Hewlett, Lamb, and Leyendecker 2000). This extreme level of tolerance towards dogs can be the cause of problems. Serpell describes, for example, how the Onges from the Andaman Islands are so loving towards their dogs that they have become a pest, far outnumbering the human population, creating constant flea infestations and common bites and keeping people awake at night with continuous barking and howling (Serpell 2016b, after Cipriani 1966).

The relationship between indigenous Australian hunter-gatherers and dingoes, an ancient lineage of dog unique to the region, is perhaps one of the most enlightening.

Dingoes are particularly significant because their evolutionary history and behaviours lie somewhere between wolves and modern free-ranging dogs (Crowther et al. 2014; Miklosi 2014), discussed in more detail in Chapter 8. Dingoes can hunt, parent and share food collaboratively, much as wolves do, yet are more tolerant of humans (Miklosi 2014). Dingoes are somewhat more like wolves in social terms than our other modern dogs, making them perhaps our best analogy for early proto-dogs. Their abilities to hold human gaze, important in bonding, lies for example between that of wolves and dogs (Johnston et al. 2017).

Given that their abilities to share goals and understand human emotional responses are somewhat reduced compared to 'domestic' dogs, that some of the closest relationships between humans and dogs are between indigenous Australian populations and dingoes is perhaps surprising. It is almost as if, by being less useful, they become more significant emotionally.

Perhaps more than any other dogs seen in ethnographic contexts, it is dingoes that were most clearly filling an emotional gap in people's lives. Whilst there is some evidence that, after European colonisation, imported domesticated dogs may have been useful hunting aids (Koungoulos and Fillios 2020), possibly even for large game such as kangaroos, the usefulness of dingoes in

hunting is much less evident. Their use as a type of technology was limited. Dingoes mostly served a function as hunting aids for women hunting small game, and as 'blankets', and did not hunt large game or carry loads (Balme and O'Connor 2016; Smith and Litchfield 2009). In contrast, it is their role as companions and as a source of emotional support that is the most evident (Meehan, Jones, and Vincent 1999). Dingo puppies would commonly be breastfed and be companions and playthings for children, and treated with a great deal of affection (Balme and O'Connor 2016). Dingoes in Anbarra society in Arnhem Land provided a psychological defence against malevolent spirits, and played a particularly important role as companions for children and the elderly (Meehan, Jones, and Vincent 1999). Dingoes appear to have been treated 'almost as members of the family rather than as personal property' (Gunn, Whear, and Douglas 2010, after Berndt and Berndt 1988).

Despite their intimate relationship with people, dingoes were far from domesticated as we might understand the term. Adults were usually not deliberately fed but would scavenge for food, could suffer from diseases and could often be undernourished (Smith and Lichfield 2009). Their affiliation with people would often loosen as they became adult dogs, when they became less appealing to humans. Except in the case of a few favoured animals, adult dogs would usually return to free-ranging communities, which lived in more distant association with human groups (Gunn, Whear, and Douglas 2010). Only in a few rare circumstances were breeding adult populations integrated into indigenous communities (Smith and Lichfield 2009). This relationship with dingoes demonstrates how emotionally close people can come to animals that are effectively 'wild' without these groups being significantly dependent on each other, economically or practically.

Overall, it is clear that in hunting and gathering contexts, as in modern Western industrialised societies, dogs can play an important role in making the emotional context of childhood feel more supportive and in being a friend to adults when they feel they need one. Moreover, where there is a lack of connection or a sense of loneliness in human relationships, dogs can provide the emotional support to fill the gap. As we have seen in Chapter 5, this is not just important for individuals but for societies as a whole. Bolstering our sense of being socially safe through attachments to dogs makes individuals both more resilient, and better able to develop relationships based on trust and generosity, and also fosters more social collaboration at a community level.

Studies of the psychological significance of dogs in modern contexts can help us to understand the emotional role that they can play.

Dogs as sources of emotional support in modern industrialised contexts

What drives the remarkable intimacy between humans and dogs? Recent research in modern industrialised contexts has given us some important insights. We have discovered that dogs share many of our most critical emotional capacities. They are emotionally capable of forming strong bonds of love and affection, and can understand and empathise with many of our feelings (Albuquerque et al. 2016; Kis et al. 2017; Nagasawa et al. 2015; Turcsán et al. 2015). Dogs synchronise their stress levels with ours (Sundman et al. 2019), and even share a similar physiological reaction to crying babies (Yong and Ruffman 2014). A study of children in Spain, aged between six and 13, showed that they rated dogs as similar to humans on scores of cognitive and emotional capacities, such as intelligence and abilities to feel pain or happiness, for example (Menor-Campos, Hawkins, and Williams 2018). To them, dogs did not seem to be so different to humans.

Dogs can act in lieu of people as a source of emotional support in adults (as discussed in Chapter 5). They can even act in a way that is psychologically a little like parents as *attachment figures*. This means that, when we are with a dog with which we are emotionally attached, the release of opiates like oxytocin and beta endorphin make us feel safe and calm (Beetz et al. 2012; Kis, Ciobica, and Topál 2017; Kis et al. 2017). They make us feel loved and cared for, provide a 'safe haven' and give us the confidence and self-esteem to approach any difficulties we face (Kurdek 2008; MacLean and Hare 2015). Dogs can have a significant impact on improving emotional wellbeing (Brooks et al. 2018). As we have seen in Chapter 5, this is important not just for individuals but for societies as a whole, as bolstering our sense of social safety through the emotional support of dogs both makes individuals more resilient and fosters more social collaboration within communities. In Chapter 6, we discussed how a closer attachment to cherished objects seemed to have developed during the COVID-19 lockdown in the UK. Alongside many other pets, pet dogs were even more important, maintaining emotional wellbeing for many people (Ratschen et al. 2020; Shoesmith et al. 2021).

The support provided by dogs not only compensates for where social relationships may be deficient but also complements the support of people around us, even when supportive relationships are abundant. That dogs are not judgemental can sometimes mean that they are more effective means of emotional support in certain situations, for example. When having to complete a stressful or demanding task, it is often the company of a dog that is even more beneficial than that of a friend (Allen et al. 1991). That dogs share with us a beating heart and a capacity to care about us, to express affection and to show a certain level of empathy, can have a profound effect. Far from being a passive part of our lives or an object of functional use, dogs in modern societies certainly seem to be playing an important emotional role, and providing a means by which we are better able to cope with our own emotional vulnerabilities. They may fill a specific emotional void at the particular point it appears, but dogs also fulfil many of our basic emotional needs and respond to vulnerabilities that are part of our everyday lives. As we have seen in Chapter 5, dogs, or other sources of feelings of warmth, security and social safeness, do not just make us individually healthier but also make societies more collaborative and resilient. Much like comforting objects, discussed in Chapter 6, our close relationships with dogs in modern industrialised contexts tells us about a remarkable human capacity to find comfort, warmth and emotional safety outside of close human bonds. Much like our dependence on comforting objects today, our relationships with pet dogs also illustrates the additional needs for comfort and social support that our rather disconnected and isolated modern societies impose.

The process by which wolves came to be 'tame' is often seen as one that demonstrates the elevated intelligence of modern humans, and a new drive and capacity to control the environment, including animals, to our own ends. Could tame wolves or early dogs have, instead, been incorporated into human societies as a response to new emotional vulnerabilities?

Reappraising the domestication of wolves from the perspective of emotional vulnerabilities

Interpretation of the mechanisms underlying wolf domestication to date have tended to emphasise the practical or economic usefulness of either side of the wolf-human relationship. Wolves are seen as domesticated

through being functionally useful for people (as described above) whose new elevated cognitive abilities paved the way for domestication, and people are seen as serving as a source of scraps of food to scavenge (Jung and Pörtl 2018).

A reappraisal of the archaeological evidence, in the context of our understanding of the evolution of our increasingly socially attuned and yet emotionally vulnerable minds, allows us to cast a new perspective on the so-called 'domestication' of wolves. Rather than elevated cognitive capacities, and economic drivers, it may have been human emotional vulnerabilities, alongside similar sensitivities in wolves themselves, that drove strong bonds between humans and wolves.

Archaeological evidence

Research into wolf domestication has tended to first focus on the *timing* of wolf domestication as the primary means of understanding how it occurred. The exact timing of the sustained domestication of wolves remains in debate, and the process almost certainly took many thousands of years. Genetic evidence, for example, suggests that there were very probably multiple points of domestication across Europe and Asia, as well as many instances of continued interbreeding between proto-dogs and wolves (Caspermeyer 2017; Godinho et al. 2011; Skoglund et al. 2015). In North America, for example, around half of grey wolves have a black coat coloration that came from interbreeding with populations of dogs arriving with humans into the continent (Bradshaw 2017). The earliest traceable *genetic ancestor* of modern dogs lived around 15,000 to 20,000 years ago (Cagan and Blass 2016; Druzhkova et al. 2013; Skoglund et al. 2015). However, the complexity of intermixing within the genetic record means that the first wolves came to live in close proximity to humans many thousands of years prior to this point (Freedman and Wayne 2017). Either earlier proto-dogs living in close proximity to humans left no direct descendants or the confusion created by high degrees of interbreeding with wolf populations makes their existence almost impossible to identify (Larson et al. 2012; Skoglund et al. 2015).

Potential evidence exists of morphological changes, typical of domestication (or, as we have seen in Chapter 4, something best described as

increasing tolerance or tameness) occurring in wolves not long after modern humans entered Europe. Wolves, or perhaps even proto-dogs, dating to around 30,000 years ago in Europe, show a reduction in size and in snout length, for example (Germonpré, Lázničková-Galetová, and Sablin 2012). However, these interpretations remain somewhat contentious, as it may be difficult to differentiate such changes from morphologies that may have existed in contemporary wolf populations (Boudadi-Maligne and Escarguel 2014; Germonpré et al. 2015; Morey 2014). Nonetheless, a proto-dog from Razboinichya cave in Siberia, dated to 33,000 years ago and similar to those in Europe, also shares many features with modern dogs, rather than wolves (Druzhkova et al. 2013; Ovodov et al. 2011). Entirely conclusive evidence may be difficult to find, but there is certainly suggestive evidence that wolves took up close relationships with humans not long after modern humans arrived in Europe.

It is what archaeological evidence can tell us about the nature of the relationship between humans and dogs that is perhaps the most interesting.

Perhaps surprisingly, there seems to be limited evidence that dogs perform a functional role, though this evidence might, of course, be rather difficult to find. Neolithic dogs from Siberia may show certain signs of being used as load animals through osteoarthritic changes in the limbs (Losey et al. 2011). However, these results remain speculative. Equally, these are late examples and, as we have seen, load animals tend to be a rather specialised breed. Specialised forms of dog do not seem to appear until late in the archaeological record. The earliest possible example of a specific form of dog is that of Late Glacial small dogs found the south-west (Pont d'Ambon and Montspan) and north of France (Le Closeau), of which 49 examples date from 15,000 years ago onwards (Pionnier-Capitan et al. 2011). However, whether these dogs are notably smaller than wolves as a side effect of domestication or through some functional advantage of a smaller size that made life alongside humans more successful, such as for catching rodents or being less costly to feed, is difficult to determine.

Evidence for how people treated their dogs is more revealing. That the deaths of dogs or proto-dogs prompted certain rituals or practices gives us some indication of, at least, intense conflicting feelings towards dogs and, in many cases, what was likely to have been a sense of grief at their passing.

The act of burying a dog at death, or carrying out a particular ritual, much as we might for a human, almost certainly indicates an appreciation of the unique identity of dogs within human lives. Early proto-dogs or wolves, dating to around 30,000 years ago, found at Předmostí in the Czech Republic, for example, include one individual found with a large bone inserted between its jaws after death (Germonpré, Lázničková-Galetová, and Sablin 2012), potential evidence of a certain human drive to nurture this animal with food. Several contemporary proto-dogs also have holes that have been incised into the crania, which have been interpreted as a potential intention to allow their souls to be released into an afterlife (Germonpré, Lázničková-Galetová, and Sablin 2012).

Somewhat later in time, we see the appearance of dog burials. Dogs may have been buried as spiritual protectors or as beings with a human-like soul, and we may never entirely understand the motivations for interring dogs as if they were humans. It is not uncommon for certain groups, such as the Aka, who usually accord little respect or dignity to dogs, to nonetheless sometimes bury a particularly good hunting dog as a sign of respect for their contribution (Serpell 2016b). Nonetheless, many burials do appear to demonstrate the particularly significant role of dogs in people's lives, a little like that of a family member (Morey 2006).

Probably the earliest accepted dog burial is that of a dog buried within a double grave of a 50-year-old man, a 20- to 25-year-old woman, and another dog, at Bonn-Oberkassel in Germany around 14,000 years ago (Janssens et al. 2018; Morey 2010). The site was excavated over a hundred years ago, making the precise dating of this burial, and the details of placement of the people and the dog, rather uncertain. However, it is not details of stratigraphy or orientation of remains that are the most significant element of this burial. Instead, it is that the remains document probably one of the earliest cases of apparent care that seems to have been given to a dog during a lengthy period of illness. The dog, a juvenile who died at about 27 to 28 weeks, suffered from canine distemper, as well as periodontal disease (probably related to associated immune deficiency). It was severely ill from 19 weeks onwards, and would have been unlikely to survive without considerable care, which has been interpreted as an indication of a close emotional bond with the people who must have looked after it (Janssens et al. 2018).

Dog burials become more common from the end of the glacial period. More securely dated dog burials have been recovered at the North American sites of Koster and Stillwell II in Illinois dating from around 10,000 years ago (Perri et al. 2019). Here, three dogs were buried in clearly demarcated pits, with a certain level of care. Dogs must have accompanied some of the earliest colonists into the Americas (Perri et al. 2021).

The practice of burying certain dogs at death is seen in many contexts (Morey 2006). Some of the most famous dog burials date to the Holocene. Perhaps the most well known are those from the Late Mesolithic site of Skateholm in Sweden, dating to about 6,500 to 5,500bp. These burials seem to fit with the perception of dogs as remarkably human-like seen in animistic contexts (Larsson 1990). Within the large hunter-gatherer cemetery at Skateholm, there are 14 dog burials, each of which seems to indicate a dog with a certain status or personality who may have been significant at the time. In one case, a woman and dog were buried together, with the body of the dog situated above the women's legs. In another case, a single dog was buried alone, and was interred with more grave goods than other human burials, including flint flakes, red deer antler and a stone hammer. Red ochre was also often scattered over the dogs' corpses (Larsson 1990; Morey 2010).

Robert Losey has interpreted dog burials by Holocene foragers societies in the Cis-Baikal as signs of dogs that were seen as having human-like souls (Losey et al. 2011). Further potential evidence for care of an injured dog comes from this region, where a dog (or proto-dog/wolf) found at Ust'-Khaita and dated to around 12,000 years ago had suffered a puncture wound to the crania and scapula that had healed, possibly suggesting care from humans (Losey et al. 2013). In an animistic understanding of the world, typical of many hunting and gathering societies, certain dogs may have shown themselves to be human-like and, thus, a human-like treatment at death may also have seemed most appropriate. Perhaps for this reason, dog burials seem to be particularly associated with forager societies in the Cis-Baikal, rather than later pastoralists whose worldviews may have been less in keeping with attributing a human agency to animals (Losey et al. 2013). A dog at Pad'-Kalashnikova, dating to around 6,900 years ago, was individually buried in a sitting or crouched position, for example (Figure 7.8). Another, buried at Ust'-Belaia around 6,800 years ago, was buried wearing a



Figure 7.8: Prehistoric dog burial from Pad'-Kalashnikova. Image copyright Losey et al. (2013): <https://doi.org/10.1371/journal.pone.0063740.g006>. Shared under the Creative Commons Attribution Licence CC BY 4.0.

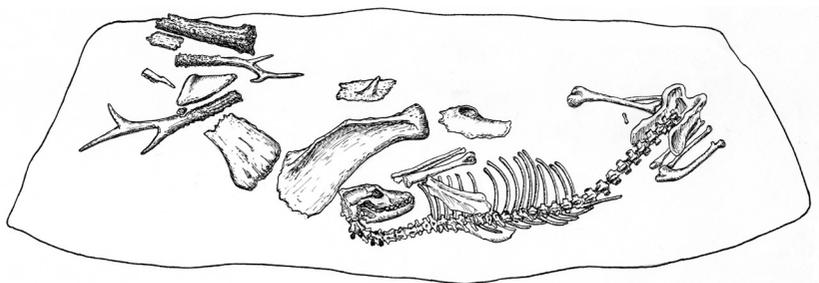


Figure 7.9: Prehistoric dog burial from Ust'-Belaia, Siberia. Image copyright Losey et al. (2013): <https://doi.org/10.1371/journal.pone.0063740.g007>. Shared under the Creative Commons Attribution Licence CC BY 4.0.

necklace of red deer teeth, as well as some antler and other faunal remains (Losey et al. 2013); see Figure 7.9.

Other burials apparently indicating much affection for dogs include that in a Natufian (pre- or early agricultural) context at Ein Mallaha, in Israel. Here, the 11,000- to 12,000-year-old burial of a puppy was associated with an elderly

individual whose left wrist was partially under the forehead of the puppy, interpreted as denoting an affectionate relationship (Morey 2010).

Other canids also played an apparently emotionally significant role in people's lives, even if this did not lead to full domestication. There are even cases where foxes have been buried in a human-like way. An extinct fox was found buried alongside humans in the 2,000- to 3,000-year-old hunter-gatherer cemetery of Loma de los Muertos in Patagonia, for example, interpreted as indicating some particular emotional relationship, or recognition of the fox as somehow human-like (Prates 2014). Similarly, a burial of a red fox, dated to 14,000 years ago, was also found alongside human graves in a pre-Neolithic context at 'Uyun al-Hammam in Israel (Maher et al. 2011). These foxes may have been, at least in some understanding of the term, *friendly* towards humans. Whilst it is dogs who have particularly taken up a widespread role in our lives, canids in general share many emotional similarities and needs to humans as close relationships with foxes, as well as their ready domestication (discussed in Chapters 4 and 5) illustrate. There are often cases of orphaned foxes in recent times that develop a close relationship with humans. Clarence Birdseye, writing in 1955, described adopting an orphan wild Peruvian fox when living near Lima, for example, which he described as being 'as tame as any dog or cat' (Birdseye 1956). The fox, named Susie, lived with Clarence and his wife for over 18 months and was affectionate with them, calling for them when needing assistance, though always remaining nervous of strangers. Other burial evidence suggests an even wider range of animals in close relationship with people. Most famously, cats develop close relationships without being 'domesticated'. At the pre-pottery Neolithic site of Shillourokambus in Cyprus, an eight-month-old cat was buried with its presumed human owner around 9,500 years ago (Vigne et al. 2004).

Artefacts can also provide important clues to human-wolf relationships. The depiction of dogs or wolves, or the use of their bones, in personal ornaments may also indicate a close relationship to humans. Wolf or dog teeth are commonly suspended as jewellery in the Upper Palaeolithic, far more frequently than those of food animals such as reindeer, or even of other carnivores (Germonpré, Lázníčková-Galetová, and Sablin 2012). Wolves often carry particular important meanings to people in North American mythology (Pierotti and Fogg 2017), and the teeth of dogs themselves might

potentially have been worn in reflection of their significance, much like human teeth were also suspended as jewellery during the same period.

Across the prehistoric world, dogs are also sometimes depicted within art. At the pre-Neolithic site of Shuwaymis in Saudi Arabia, for example, a rock art frieze depicts people hunting horses with several dogs, some of which are on leads (Guagnin, Perri, and Petraglia 2018). However, in Upper Palaeolithic Europe, in contrast, dogs are conspicuous by their near complete absence. Like humans, dogs are rarely, if ever, depicted and, if they are, it is rather schematically, in contrast to the careful and evocative images made of animals such as horse and bison (Montañés 2018). Within the hundreds of images of other animals in the corpus of European Upper Palaeolithic art, only a few depictions of wolves exist. These include a cave art depiction of a wolf with a reindeer, dated to 11,000bp, at Altxerri in northern Spain (Sieveking 1979) and one at Font de Gaume in south-west France, dated to 17,000 years ago, as well as occasional depictions on plaquettes. This unwillingness to depict wolves or dogs, seen also in Australian Aboriginal art (Gunn, Whear, and Douglas 2010), may reflect an ideological discomfort with the imposition of otherness that depiction imposes (Bird-David 2006).

The timing and location of some of the earliest evidence of a close relationship between humans and dogs may also be a telling indicator of their role. As we have seen in Chapter 6, survival in Ice Age Europe and Siberia placed not only economic but also emotional pressures on human populations, conditions that also fostered a closer relationship to wolves. Whilst these relationships with wolves may have brought functional advantages such as load-carrying or hunting in cold northern climates, these are only likely to have developed well after early domestication. Furthermore, it is in those contexts in which we see early evidence of potential inequalities. Early Upper Palaeolithic (Gravettian and Epigravettian) sites in Central and Eastern Europe, for example, demonstrate differential burial types, specialisation in production and/or remains of monumental architecture, which may indicate some level of ranking, even if seasonal or occasional (Wengrow and Graeber 2015). It is possible that dogs were some type of prestige possession (Germonpré et al. 2020), although elevated stresses imposed by ranked hierarchies (discussed in Chapter 5), on top of existing emotional vulnerabilities, may perhaps better explain their incorporation into human communities.

Archaeologists have tended to focus on the functional elements of the transformation of wolves into domestic dogs and on the precise timing of domestication. Much of the archaeological evidence tells a rather different and perhaps more important story, however, of the emerging and complex emotional bond between humans and increasingly tame wolves as each adapted to each other (Losey, Nomokonova, and Fleming 2018).

Similar evolutionary pathways in dogs and humans

It perhaps is not difficult to see, on reflection, that human emotional vulnerabilities and need for compensatory attachments (discussed in Chapters 4 and 5) may be an important part of the explanation for why people drew animals such as wolves more closely into their lives. As we have seen, compensatory attachment figures such as dogs can fill a gap in people's lives. The emotional support and companionship they provide can, in bolstering a sense of emotional security, boost confidence, an ability to be social, abilities to explore, and resilience to depression, as well as affecting immune systems and health in many ways. Even when there is no emotional 'gap' in people's lives, dogs can give us a sense of belonging, friendship and, even, community. They can make us better people.

The roots of our close relationships lie far back beyond the transition we know as domestication. Important similarities exist between wolves/dogs and humans, despite the evolutionary distance, which may explain what drew humans and wolves to each other. A closer consideration reveals that the stage was set for a particularly close relationship well before the start of the Upper Palaeolithic. As we have seen in Chapter 1, between around 3 million and 1 million years ago, early humans moved into a similar niche to that already occupied by social carnivores. This transition was made possible through emotional changes, not simply changes in analytical thinking, bringing human emotional motivations more into line with those of highly collaborative social carnivores. From here came the roots of our social similarities with wolves. Our shared heritage as collaborative hunters gives us a remarkable loyalty to group members, inhibitory control over emotions, the drives to share food and care for infants and the vulnerable, a sense of justice, creative play (even as adults), social understanding, and strong motivations to collaborate toward shared goals. Wolves, like humans, are highly sensitive to the emotions of individuals around them, and care deeply about the wellbeing of everyone in their living group (Table 7.1).

As a result of shared heritage as highly social and collaborative hunters, people and wolves (as well as dogs) share:

- motivations to take risk on behalf of others and loyalty to other members of the group
- motivations to share (wolves share food fairly, though this capacity is lost in dogs) (Marshall-Pescini et al. 2017)
- inhibitory control (Marshall-Pescini, Virányi, and Range 2015)
- motivations to care for vulnerable young, even if not direct offspring (seen most clearly in collaborative parenting in wolves; however, dogs can be caring and protective of other young including human young)
- motivations to collaborate in a shared goal (Range and Virányi 2014)
- sense of fairness and justice (Essler, Marshall-Pescini, and Range 2017; Palagi et al. 2016; Pierce and Bekoff 2012)
- social imaginative play, even as adults (Bekoff 2001)
- social intelligence, including at least some rudimentary understanding of others' perspectives (Heberlein et al. 2016)
- sensitivity to facial expressions as indicators of emotion (Hobkirk 2019)

Table 7.1: Ancient shared emotional capacities and drives between humans and wolves (as well as dogs).

Other transformations in emotional motivations and the nature of social connections occurred later, and at somewhat different periods for modern humans and wolves. For humans, it was changes in tolerance, and human emotional dispositions more broadly, beginning in Africa after 300,000 years ago and described in Chapter 5, which paved the way for new relationships. At this stage, people seem to have become more confident in new situations and less stressed by unfamiliarity, whilst at the same time being more socially and emotionally sensitive. For dogs, it was only once humans reached Europe and Asia, where they interacted with wolves, that we see the same types of changes taking place as they interacted more closely with humans. A cascade of changes resulting from alterations in key genes provoked changes in proto-dogs to also make them more friendly to people, more open to new experiences, more sensitive to their social environment and, in turn, more vulnerable to a lack of social connection and support; see Table 7.2.

Whilst, of course, there are profound differences, important social and emotional changes took place within both modern humans and proto-dogs. The

As a result of a shared transition to increased tolerance/friendliness, humans and dogs both show:

- tendencies to seek out novelty (Gácsi et al. 2005; Miklosi 2014)
- abilities to follow subtle gestural and emotional clues (Hare and Tomasello 2005)
- hypersociability, e.g. infants motivated to explore new relationships with strangers (Shuldiner et al. 2017; Feuerbacher and Wynne 2017), and there are similar genetic underpinnings to human and dog hypersociability (vonHoldt et al. 2017)
- a period of socialisation in infancy, which guides orientations and expectations towards others in adulthood (Miklosi 2014)
- sensitivity/vulnerability to a lack of social support and emotional connection (Miklosi 2014)
- a tendency to look for help from others to solve problems (Miklósi et al. 2003; Gácsi et al. 2005)
- abilities to have a dual identity – relating in one way to one species and in different ways to another (Bradshaw 2017), including abilities to relate to humans/dogs as alternative attachment figures (Kis et al. 2014; Nagasawa et al. 2015; Thielke and Udell 2017)
- tendencies to seek compensatory attachments in objects (dogs can also have attachment objects) (unpublished survey, University of Bristol Veterinary school)
- attention to eye gaze, and abilities to form attachments and oxytocin-related bonds with other species (Kis et al. 2014; Kis et al. 2017; Nagasawa et al. 2015; Topál et al. 2005). Alongside these changes we also see changes in facial musculature allowing expressions of vulnerability (Raghanti 2019)

Table 7.2: Recent shared emotional capacities and drives between humans and dogs.

same capacities for relatively rapid evolutionary changes in the hypothalamic–pituitary–adrenal (HPA) axis existed in both species (Jung and Pörtl 2018). Within the broad characteristics already associated with domestication/self-domestication (including decreased aggression, increased gregariousness, modified adrenal gland function, changes in neurotransmitter levels, a prolonged juvenile period), dogs and humans share specific genetic changes (discussed Chapter 7), such as changes associated with hypersociability (vonHoldt et al. 2017). Moreover, dogs and humans appear to share

two further evolutionary adaptations that facilitate their relationships with each other. Firstly, changes in particular parts of the brain affecting desires to please/conformity, focus on others versus self, and increased social sensitivity (the ventral striatum) seem to affect both species (Raghanti 2019). Secondly, changes in the eye muscles and expressivity around the eye (affecting abilities to show vulnerability or make ‘puppy dog eyes’) may also have affected both species (Godinho, Spikins, and O’Higgins 2018; Kaminski et al. 2019; Raghanti 2019).

Whilst so different in so many ways, some aspects of both human and dog emotional motivations and sensitivities have *converged* in evolutionary terms (Figure 7.10). Both at several million years ago, and more recently, both species have been those that took evolutionary pathways towards

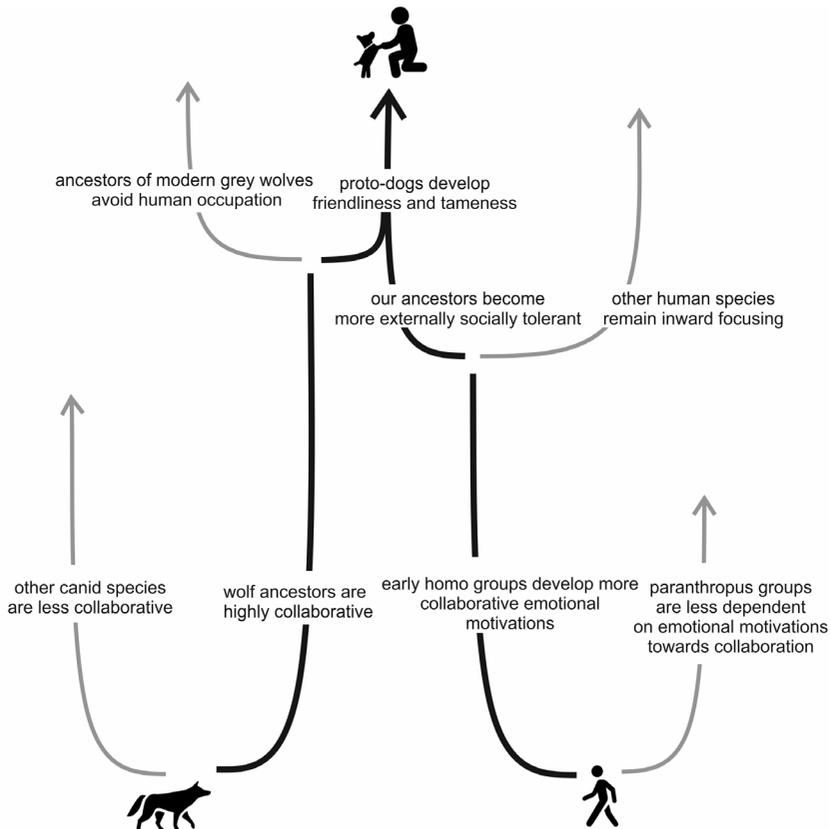


Figure 7.10: Illustration showing evolutionary convergence of elements of human and wolf–dog social emotional dispositions. Penny Spikins, CC BY-NC 4.0.

firstly increasing collaboration and secondly increased tolerance and approachability. Other species took different routes. Some hominin ancestors followed less-collaborative paths that were not dependent on collaborative hunting, whilst some canids became solitary hunters. Likewise, some archaic humans did not turn towards the external focus and emotional sensitivity of our own species but, rather, to an inward focus (discussed in Part 3), and some wolf ancestors became more avoidant of humans rather than tolerant of them. Our particular paths brought us together (discussed further in Chapter 8), whilst others led further apart.

Of course, it is not only dogs that have played an emotional role within human lives for a large part of our evolutionary past. Many people develop strong attachment and derive emotional support from many other animals, not only pets but also wild animals, which share our lives. Perhaps as far back as over a million years ago, animals came to mean something more to people than simply being a source of food. The creation of elephant bone handaxes, for example, suggests that some kind of meaning, or even symbolism, was attached to the use of elephant bones (Lev and Barkai 2015; Zutovski and Barkai 2015). The appearance and extinction of animals mattered to past humans in emotional terms (Halfon and Barkai 2020). By the time of archaic humans such as Neanderthals, some animals seem to hold important meanings. Neanderthals attached significance to certain birds, for example, probably using their feathers for adornment (Finlayson et al. 2012; Morin and Laroulandie 2012). People have interacted with many animals in different ways through our evolutionary past, and not simply as a source of food (Shipman 2010).

Dogs, however, share not only social similarities but also many of our emotional vulnerabilities. Like humans, they are highly sensitive to others' distress, affected themselves emotionally and driven to respond. They form strong attachments and, like humans, thrive in the context of loving and caring relationships, but are susceptible to a lack of closeness, affection and touch. They are susceptible to loneliness and sensitive to cruelty. Through our mutual demonstration and response to vulnerabilities, we develop relationships based on trust.

Why wolves, and later dogs, came to play such a key role in our lives makes sense within this larger evolutionary understanding of our shared emotional vulnerabilities.

How did wolves become close to humans?

When we discuss early wolves as 'hunting aids', almost like a new type of tool, we likely miss their significance in people's lives and, in turn, some of the key factors bringing wolves and people closer together.

The relationship between indigenous Australian groups and their dingoes may give us far more insights into the nature of early 'domestication' than when we look at modern, highly trainable dog breeds. Instead of economic benefits to either, there is evidence here of a genuine drawing together in emotional terms. Dingoes occupy a space that is neither 'tame' nor 'wild', frequently living outside of human settlements and not necessarily being fed by humans, perhaps not too different from the relationships early proto-dogs might have had with Upper Palaeolithic humans. Yet, at the same time, there is a remarkable intimacy to their relationships to people. Children play with puppies, and adult dingoes can form close relationships with certain people. It is certainly not too fanciful to imagine that the route to domestication lay with particularly sensitive people, perhaps isolated or hurt by trauma, who found friendship, companionship and emotional stability in similarly sensitive and emotionally vulnerable wolves.

What initially drew wolves closer to humans? Whilst there have been general assumptions that domestication began when more tolerant wolves learnt to scavenge from human settlements (Coppinger and Coppinger 2001), the observation that highly mobile foragers rarely produce anything like a waste dump calls this into question (Jung and Pörtl 2018). Instead, it seems most likely that the tamest of the wolves may have begged or scrounged for food, or lived independently, interacting with humans out of curiosity and companionship. Packs of Arctic wolves are tolerant of human proximity and interaction, for example (Smith and Litchfield 2009). As with dingoes, orphan wolf pups may have been the playthings of children, with some adult dogs then remaining attached to human groups. Wild wolves *can* form close relationships with people (see Figure 7.11), and can collaborate in shared goals. However, this relationship takes considerable time and effort, and shows little of the ease with which modern dogs integrate into human life. Wolves or early proto-dogs living within human groups probably became rather difficult to deal with, or even dangerous, as they got older. Most adult wolves may have entirely drifted away, or lived on



Figure 7.11: Wolves can be socialised to be friendly towards people. Photograph shows a socialised wolf enjoying affectionate contact. Vilmos Vincze from Hungary, CC BY 2.0, via Wikimedia Commons: [https://commons.wikimedia.org/wiki/File:He_can_stand_stroking,_too..._\(27205424372\).jpg](https://commons.wikimedia.org/wiki/File:He_can_stand_stroking,_too..._(27205424372).jpg).

the outskirts of human groups, scrounging any food that became available, drifting back into lives as entirely wild wolves with only a few remaining in close relationships with humans.

With time, the changing socioecology of those wolves that became more integrated into human communities, or even simply scrounged for food, would have influenced the evolutionary selection pressures that they experienced (Marshall-Pescini et al. 2017). Being able to tolerate closeness to humans would have been an advantage, as would a certain openness to new experiences and new relationships, setting in train a sequence of genetic changes towards increasing friendliness. These increasingly friendly wolves would have been better able to develop a new kind of relationship with humans. Humans, in turn, may have begun to protect and care for adult wolves and their puppies within human settlements, with their descendants eventually becoming lineages that were more isolated from their wild counterparts.

The increased sensitivity to social support and emotional vulnerability of proto-dogs, which comes with increasing friendliness, will have matched similar vulnerabilities in humans. Proto-dogs could not only have been able to provide an additional source of affection and stimulation to infants, and a pleasing sense of reward for nurturance to adults, but also to plug an emotional gap left through an attachment system highly sensitive to any deficiencies in social surroundings (Kurdek 2008). It is not difficult to see how such proto-dogs could become an emotional safety net after the emergence of modern humans, who, as we have seen in Chapter 5, were now increasingly moving between new groups, encountering new people and living lives that sometimes failed to provide the supportive social relationships they craved. Moreover, as wolves themselves also changed, it may no longer have been viable emotionally to be a *lone wolf*, with human companionship preferable to loneliness for wolves isolated from a pack, much as wolf companionship well have been preferable to loneliness for humans feeling isolated or lonely themselves. In both species, their recent hypersociality may have enabled a new kind of relationship, but may also have driven each towards the other.

Increasingly friendly wolves will have been less dangerous companions, better able to understand humans, less stressed by human environment, and more likely to stay for longer within a human group (Morey and Jeger 2015). They may have begun not only to act differently but to look morphologically distinct, even while still showing some levels of interbreeding with their wilder relatives. Certainly, the genetic record suggests many thousands of years of interaction and hybridisation between tame and wild animals. Sustained domestication, demanding that humans protected wolves from being driven away or killed for food in times of famine, probably depended on genuine emotional attachments (Bradshaw 2011). At times and places where isolation and loneliness (such as from ecological conditions limiting contacts between human groups), or social stress (such as from more competitive and hierarchical social dynamics), became more pronounced, even closer attachments may have developed.

With time, proto-dogs will have become ever more emotionally attuned to humans, to the point at which they could seem almost disturbingly human-like. For dogs, this would have meant both the potential for strong personal

bonds with people, but also the possibility of becoming scapegoats for human relationships, and subject to aggression for the areas in which they failed to fulfil human expectations. Their capacity to share goals, and contentment with performing roles that were useful, such as hunting, defence and carrying loads, also allowed them to become a form of technology as well as a friend.

Rather than being a new technology first, and friends second, the story of wolf domestication may have been one in which nurturance and friendship came first, and in which emotional vulnerabilities of both species played a key role.

The journey shared between humans and wolves prompts not only further questions about that relationship but also leads to reflections about ourselves as supposedly independent from the natural world and the animals around us. When we consider the closeness of our relationship to dogs, and their wolf ancestors, we cannot help but reflect on the oddity of our human-focused narrative of human origins. Our social story is almost always taught as one in which human social relationships are the only ones of significance. However, it is clear that, throughout our evolutionary past, our hearts and minds have been intertwined with those of other animals, of which dogs are only one example. Children will have played with the young of other species, and adults will have developed relationships with wild animals that crossed their paths, or even ones that took residence in their settlements. The relationships we developed with wolves, and the dogs that they became, are just one example of this intimacy.

Our shared journeys also prompt us to reflect on the other pathways, and evolutionary journeys towards other species which were often equally viable, albeit less intimately connected. We explore one of these alternative pathways taken by humans in Part 3.

Conclusions

Though we tend to see human origins in a rather individualistic and independent way (as discussed in the introduction to this volume), it is clear that our evolutionary past has been one of a close connection to animals

living around us. This relationship with the natural world is far more intimate than we tend to acknowledge. Ecology, and relationships to other animals, played an important role in the evolution of human compassion, as we have discussed in Part 1. However, human closeness and interdependence with other animals developed even further after 300,000 years ago, as discussed here. Where our relationship with wolves is concerned, even the line between 'human' and 'animal' itself becomes blurred. Members of this entirely different, and only very distantly related, species become our companions and friends, and even members of our communities. Of all the animals with which we share our lives, it is the descendants of wolves that seem to have by far the greatest capacities to affect us emotionally.

The so-called 'domestication' of wolves was more likely to have been a process in which both humans and ancestral wolves moved physically and emotionally closer to each other, rather than a one-sided imposition by humans for some economic gain. We often think of the creation of the 'domestic' dog as some kind of human achievement in which dogs have been co-opted to suit our needs, a little like cleverly adopting a new type of technology. However, insights from our understanding of the emotional brain, and the new emotional vulnerabilities that developed during the period 300,000 to 30,000 years ago, suggest, in contrast, that our shared emotional motivations may have had a much more important role to play than we might imagine, and that our emotional vulnerabilities, rather than our intellect, may have driven us together.

Key points

- Our evolutionary history is typically represented as one in which humans were independent from other animals, or even dominated nature. In reality, our evolutionary past has been about interdependence with the natural world. Moreover, other animals have played not just an economic role but important social and emotional roles in our lives.
- Of all the animals with which we interact or share our lives, it is dogs with which we show the strongest emotional bonds. Dogs can fill a gap in many of our emotional lives, particularly in modern industrialised contexts, providing important emotional support and companionship, as well as complementing existing human social relationships.

- We have traditionally assumed that the domestication of wolves occurred due to their functional usefulness as an aid in hunting, in defence or in carrying loads, and through elevated human ingenuity. However, these practical functions are largely dependent on specialised breeds or training, and are likely to have developed long after a close relationship between people and wolves emerged.
- Wolves and humans share a common background of evolutionary pressures on their emotions, despite the phylogenetic distance which separates us. The explanation for an increasing closeness between humans and wolves, and the so-called 'domestication' of the wolf, may lie in shared emotional needs and vulnerabilities between the two species.

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