# A Very Early Second Birth

*Barry Cooper*

## Abstract

This paper is an application of the philosophical argument made by Tilo Schabert regarding the "second birth" of human beings into a civilization. Schabert's argument is applied to some of the earliest archaeological and genetic evidence concerning the early history of humanity. Specifically, it looks at the replacement of European Neanderthals by invading African Sapiens who, it is argued, were aided by domesticated dogs. Both the invasion and the use of dogs are evidence of a very early civilizational second birth.

**Keywords:** Canid domestication, genetics and history, Neanderthals, population replacement, homo sapiens

## Introduction

The subtitle of Tilo Schabert's book, *The Second Birth*, to be discussed in this symposium, is 'On the Political Beginnings of Human Existence' (Schabert, 2015; page numbers are given in the text). The broadest question he raised in this study was: whence does the political form of human life arise? To this question there are two types of answer. One is philosophical, *sensu lato*; the other is historical. In developing his argument, Schabert combined them with great skill and immense erudition. As did his *Doktorvater*, Eric Voegelin, Schabert employed a method that was both transdisciplinary and empirical: 'The material itself has been allowed to set the course of the investigation' (xv).

For this reason, Schabert was confident 'that there is nothing arbitrary about this enterprise' (2). The "materials" for his reflections were at hand in the "vast repository" of texts that inform human civilizations. That repository constitutes the empirical source – in the Aristotelean sense of experiential (see Cooper, 1989); all one needs to do is familiarize oneself with it. As a scholar, Schabert has undertaken this far from simple task and his readers are in his debt for his so doing.

A second preliminary observation: the distinction between first and second birth, between the bodily completion of the incarnate individual and the living-with-others that completes the human person, echoed the beginning of Aristotle's *Politics*. Moreover, as in Aristotle, the second, political birth is already present in the first. It is a "pregiven" form, or *Gestalt*, Schabert said, and the expression as well as the endless resolution of a 'predicament' (1). The creative passage from first to second birth is not simply an external fact. It is an experience of reality that leads humans to become aware of the changes that have taken place. Human existence carries a new meaning or an additional meaning. With their second birth, humans grow aware of the political and 'become creators of a political creation' (3). They become capable for the first time of inserting a political world that they have created into a nonpolitical one that they did not create precisely because it was "pregiven" (3). The 'predicament', therefore, can be understood as dialectical, a paradoxical combination of the given and the creative (and so nongiven) response to it. Schabert called the creative response "government", by which term (as with "empirical") he likely had a meaning close to the etymological one in mind: humans have the capacity to direct and steer their lives and do so in the context of various "forces" that are experienced as already present "in" them – passions, fantasies, thoughts, and so on. The meaning of the term "human being", in the context Schabert evoked, 'is creative politics' (4). Such a dialectical understanding of our predicament (to state what is self-evident) may have a beginning but cannot have an end. 'Its beginnings are a beginning toward humanity,' Schabert said. So what, actually, *is* this beginning?

Here Schabert distinguished between a beginning (*Anfang*) and a start (*Beginn*). A start is atemporal in the sense that *what* starts is, precisely, time. Starts do not arise from anything prior, though everything arises from the start (see *Phaedrus*, 245c-d). In contrast, a beginning goes beyond the start that the beginning begins and adds to it. 'Beginnings lead away from their start. They emancipate themselves from it and transform what arises from them into an objectivity of their own freedom' (5). A start is, so to speak, both absolute and abstract; a beginning is a beginning of something that continues, which means that a beginning is more than the appearance of a start. It continues or endures "under its own power" and gives itself its own direction and form. With direction and form come limits and specificity.

'Beginnings,' Schabert said, 'open the world. They make the Other actual' (6). Beginnings introduce difference by introducing specificity and otherness. Beginnings begin with bodily (first) birth. All humans are born in their own time and so are distinct. Likewise they die in their own time as well, and between birth and death is the equally exclusive lifetime of the person. More importantly, the first birth is "only the beginning", because bodily birth is only a beginning, but a beginning with which the form of human existence commences its own creativity. 'As human beings, too, emerge in the process of creation, they become and are human beings in the modes of creation. They exist in creation just as everything else exists in creation, first and foremost in the manner of a beginning' (10).

Human existence requires a second birth, a civilization, for the sake of the first birth, the birth of individual bodies. This civilization will be itself separate, actual, created with a beginning. Thus, as well, civilization will need to be defended by the individual human being, just as the individual human being, at his first birth, needs to be defended by his second (20). None of this is novel for the obvious reason that it is contained in very old texts, which Schabert quoted at length (22).

Before considering the beginning in the historical and chronological sense, there is one more "philosophical" observation to note: the specific mode of human creativity within the form supplied by a second birth is action. Here, in addition to Aristotle, Schabert mentioned Hannah Arendt, whose *The Human Condition* (1958) discussed the human capacity for action at length and along similar lines. Indeed, Arendt actually used the term "second birth", though in a slightly different sense. Like Arendt, Schabert considered the capacity for action a central attribute of human being. Humans, he said, 'are always doing something. They are active beings by nature; they exist in action and in no other way' (32). Life is movement between birth and death, and so is transformation and change. This capacity to innovate is also pregiven and uncaused but nevertheless gives itself form and limit as a human being does one thing and not another, as he or she begins and completes an activity, or changes his or her mind, or creates new plans. Life as action is both uncaused and governed, a notion that is 'apparently paradoxical' (33).

Given that there are no pre-given rules by which human beings are compelled to lead their lives, how can humans lead their lives at all? 'Under what conditions can a human being, in the flux of his life, be the helmsman of his life? This is the great question' (33). And the answer, once again, is: in the beginning is found the capacity to decide by creating one form and not another. Human beings exist in (or within) their existence, but they also act for their existence by giving it form, by making a new, specific and distinct beginning. Human beings must act, not in the sense that their acts are necessary rather than creative, but in the sense that, for an act to be real, to be my act rather than yours, it is I who must act and reveal myself as agent. That is, through action, human beings are, or rather, become, what they do. They are free to act creatively because they must. And from their action and the action of others, society and polity are begun and stories are told to give meaning to our second birth.

Schabert elsewhere provided detailed stories of two gifted and creative statesmen, Boston mayor Kevin White and François Mitterrand, president of the French Republic (see Schabert, 1989; 2002; 2009). In this contribution of the symposium on *The Second Birth*, I will discuss one of the earliest examples of human creativity. This story, like all stories, is a narrative. Because so much of the evidence is in the form of relatively anonymous archaeological and genetic material, it is often unfamiliar to more-or-less commonsensical political scientists. The balance of this paper, then, is an exercise in applying Schabert's philosophical argument to such evidence of very early human history as is currently available. One may call this subject matter paleohistory. The term refers to a period of human history when one can hardly distinguish evidence of the creativity of human action from the conditioning context of biology. In addition to applying Schabert's argument to biological materials, this paper is a kind of postscript to an earlier argument I made regarding technology as one consequence of "action into nature," a term introduced by Arendt (see Cooper, 1991). A degree of indulgence, even intellectual creativity, is therefore asked of the reader.

## Neanderthals and Sapiens

One of the most interesting, and thus widely debated, problems among paleoscientists concerns the relationship between *Homo neanderthalensis* and *Homo sapiens*. We might note that, already, the use of the Latin "botanical" and "zoological" names suggests that we are dealing with natural processes. For reasons that Schabert has made perfectly clear, this approach, however widespread in paleoscience, is not entirely adequate. It is, however, a good place to begin this application of Schabert's philosophical argument to paleohistorical materials.

With the arrival of the "replacement crowd" (Pääbo, 2014) out of Africa, there began the displacement of European Neanderthals by Africans. There are disputes about the routes taken by the Africans and disagreements regarding the names to be accorded the two populations. Scientists concerned chiefly with morphological differences between the two hominins often distinguish between invading "anatomically modern humans" (AMH) and aboriginal Neanderthals. However, as Cartmill (2011) observed, AMH is a remarkably vague concept. It 'has no clear meaning or established meaning, and is basically a scientific sounding way of evading the fact that there is no agreement on the list and distribution of the defining autapomorphies [i.e., distinctive anatomical attributes] of the human species'. Even more evasive, in my opinion, is the substitution of the term "behaviourally modern humans" (BMH) for AMH, inasmuch as it is precisely what constitutes the modernity of the behaviour of the invading hominins that is at issue. We cannot settle such problems here; one must be mindful, however, that when Linnaeus came to classify humans, he wrote '*gnothé seauton*', or 'know thyself', which was originally written over the forecourt of the Temple of Apollo at Delphi. For simplicity, we shall refer to the newcomers as Sapiens.

In an earlier paper, (Cooper, 2013) I discussed some of these controversies and described the state of the debate up to about 2011 or so. Since then, further discoveries, particularly by paleogeneticists, have raised additional questions and provided additional accounts of Sapiens-Neanderthal interaction.

The evolutionary history of Sapiens, Neanderthals, and Denisovians, who were the species equivalent of Asian cousins of the European Neanderthals, is complex and a topic of extensive debate among specialists. Leaving the Denisovians aside, Neanderthals attained a distinctive morphology around 250KYA (thousand years ago). By about 130KYA, a relatively warm period allowed the simultaneous expansion of the ranges of Neanderthals and Sapiens. Some paleoscientists argue that both evolved from *Homo heidelbergensis* and that, by around 130KYA, Neanderthals resembled rugby players (probably front-row props) and had rugby-ball shaped heads, whereas Sapiens were more like soccer players with soccer-ball heads. Since the average size of a Neanderthal head was larger than that of a Sapiens, the significance of head-shape and size is also in dispute. One wag dismissed the problem as "paleophrenology".

Sometime between 90KYA and 120KYA in the Levant, Sapiens moved into the area but were subsequently displaced by Neanderthals. Again the reasons for this successive occupation are disputed – no doubt climate change was a factor, but how great a factor remains unsettled. The sequence of Sapiens replaced by Neanderthals first suggested and then sustained the narrative that there was nothing inevitable about Sapiens emerging as the sole hominin on earth. For a time in human history, there was something akin to hominin diversity characterized by a slowly fluctuating back-and-forth equilibrium.

Paleoscientists are aware that the general evolutionary model constitutes a narrative or story. A generation ago, Hodder (1989) made a plea to reintroduce narrative to archaeological writing. A few years later, Landau (1991) argued that any natural scientific account (even physics) of a series of events manifests its meaning as narrative. Narrative has since then become a common theme in paleoscience (Stoczkowski, 2002; Pyne and Pyne, 2002; Joyce, 2002). Until very recently, the reigning narrative had not changed much from that of the early twentieth century, when Neanderthals were disparaged as brutes (Moser, 1992). Such judgements seem to contemporary paleoscientists to be particularly odd because Neanderthals existed for between 200KYA and 500KA, depending on how they are described, whereas Sapiens have been present for a much shorter period of time. In terms of biological history, that is, Neanderthals were highly successful. One reason why modern humans find reasons to cherish Sapiens and disparage Neanderthals, as Sheets-Johnstone (1999) argued, may simply be the parochial fact that we are their descendants (see also D'Errico et al., 1998). Or, as Hackett and Dennell noted, the narratives of Neanderthal extinction carry the implicit conclusion that 'it is better for the world that they died out' (2003, 824).

Often the discussion of the "replacement" of Neanderthals, which is already euphemistic, is expressed in the even more bloodless language of the "transition" from a stable Mousterian technocomplex of stone choppers and axes to the later more dynamic Aurignacian, ca. 40KYA, which included bone and antler points as well as stone knives. The members of the

Aurignacian culture did not just produce improved stone tools – thinner blades, for example – they also produced ornaments and art. The Aurignacians also developed extended trade networks (Mellars, 1996). For many years, Aurignacian culture was taken to mark the beginning of the Upper Paleolithic and the end of Neanderthal Europe, which was also an elegant way of avoiding the big question: 'did the Aurignacians wipe out the Neanderthals?' (Papagini and Morse, 2015, 159). More recently, it has been argued that the Neanderthals were not extinguished by the Aurignacians, but that perhaps the Gravettians, around 25KYA, with greater numbers, new hunting strategies, and even more extensive trade networks, were responsible. Whether the culture was Gravettian or Aurignacian, it seems likely, as Nicolas Conard observed, that, without the arrival of Sapiens in Europe, the Neanderthals would not have disappeared (Conard, 2011). By this new narrative, the question of maladapted Neanderthal bodies, dramatic climate change, deficient cultural life, vulnerability to tropical diseases brought out of Africa, interbreeding, or simple evolutionary economic competition is a secondary concern. In the following section, we outline what may be called the Shipman thesis as exemplifying both a new paleonarrative and one that illustrated Schabert's argument regarding human action and creativity.

## The Shipman Thesis

The thesis was expressed clearly in the title of Shipman's 2015 book: *The Invaders: How Humans and Their Dogs drove Neanderthals to Extinction* (Shipman, 2015a). The specific narrative he developed was part of a larger story of what paleoscientists call the late Quaternary megafaunal extinction (see Hortola and Martinez-Navarro, 2013). By this account, Sapiens were considered (outside their native African range) to be an invasive species akin to sessile marine organisms, insects, plants, fish, birds, and other mammals. The difference between Sapiens and other invasive species is, as Flannery and Burney (2005) observed, that when Sapiens came to town, a collapse of other fauna invariably followed. Shipman proposed revised dates for Sapiens-Neanderthal contact, which had the consequence of speeding up the previously agreed-upon rate of Neanderthal decline and eventual extinction. Climatic instability, especially the very cold weather associated with Marine Isotope Stage 3 (60KYA-24KYA), and even volcanic eruptions played a role, but the major factor was simply an invasion by Sapiens that proved fatal to Neanderthals.

The argument was both simple and elegant. Both Sapiens and Neanderthals were predators, though Shipman argued, along with many other paleoscientists, that Sapiens pursued a greater variation in prey. To put it the other way around, Neanderthals had fewer fallback food options than Sapiens during hard times, which suggests they had such "conservative" tastes that they preferred to starve than sample new food. Around 32KYA, Shipman argued, Sapiens started killing mammoths in much greater numbers than they did previously or Neanderthals ever did (Shipman 2015b). Moreover, Sapiens killed mature beasts and not just young ones as Neanderthals had done. By this argument, Sapiens were a new "apex predator" and, like all such new ones, had a disproportionate influence, called a "trophic cascade", on other species, both prey and predators alike.

We noted above that the "replacement" of Neanderthals by Sapiens has been discussed in terms of the replacement of the Mousterian by the Aurignacian culture – for simplicity, we ignore the Châtelperronian (see, however, Bar-Yosef and Bordes, 2010). Needles were part of the Aurignacian technocomplex, so we know that Sapiens sported tailored clothing. They also used stand-off weapons such as throwing spears and bows and arrows, for instance, in addition to the thrusting spears that Neanderthals used (Vencl, 1999). The result was that the new apex predator could acquire meat more efficiently, even though their caloric requirements were lower than Neanderthals.

Shipman introduced one additional consideration, which was first made by Steve Churchill, who has devoted much of his professional life to discussing Neanderthal hunting strategies and results (see Churchill, 2014). According to Churchill, Neanderthals may have been predators and they may have hunted in packs, but they were not necessarily apex predators. He "suspected" that Neanderthals may have been able to take on lions, scimitar cats, wolves, and hyenas, but only 'when numbers were on their side'. However, given their faunal competitors, he also suspected 'that most times the Neanderthals were on the losing side of these interactions'. Moreover, the effective range of Neanderthal weapons would have brought them perilously close to the claws and teeth of other carnivores. This limitation was not a problem for the more efficient stand-off weapons of Sapiens (see Churchill, et al., 2009; Ramirez Rozzi, et al., 2009; Henry 2004; Zhu and Bingham, 2011).

## Domestication

The last piece of the puzzle for Shipman concerned the domestication of dogs. Like the story he told of Sapiens as an invasive species, this account is also primarily a biological one. Late twentieth-century genetic evidence showed the divergence of dogs and wolves as taking place around 14KYA (Morey, 1994). Some paleogeneticists argued that the diversity of dog DNA pointed to 'multiple founding events' whereby dogs were bred from wolves. For millennia, dogs were not genetically isolated from wolves because they occasionally or regularly interbred with wild wolf populations (Vila et al., 1997). The consequences of dog-wolf interbreeding influences the domestication narrative, as is discussed below.

There were several anomalies found among these early dog populations. To begin with, the dogs were about the same size as wolves, which meant they violated the size reduction that typically accompanies domestication. Since Neolithic peoples such as the Sioux also selected large "wolf-like" animals, the same may be true of Paleolithic dog-breeders (see Maximilian, 1906, 345; Wilson, 1924, 229ff; Sablin and Kholpachev, 2002).

A second, equally interesting discovery was that the earliest dogs came into existence much earlier than had previously been thought. In 2009, Mietje Germonpré and colleagues presented evidence that domestication began some 30KYA, during the Aurignacian, and that the changes from wolf to dog morphology appeared rather abruptly (Germonpré, et al., 2009). Like the Siberian dogs and those of the Sioux, they were large but did not show morphological traits intermediate between fossil wolves and much younger prehistoric dogs such as Eliseevichi I as studied by Sablin and Kholpachev. Germonpré and her colleagues also clarified one previously puzzling aspect of the genetic diversity of Paleolithic dogs.

> Since dogs were domesticated from gray wolves, ultimately the first dogs would have carried a wolf-like genetic sequence, and hence will not be identifiable genetically as the

> first dogs. Only after isolated breeding, is it possible that certain genotypes in the Paleolithic dogs drifted to high frequency and might therefore be distinguishable from those of the source wolf population. Thus one would only expect to see a differentiation of dogs and wolves after several thousands of years due to the bottleneck caused by selective breeding during early domestication (Germonpré, et al., 2009, 484).

At the same time, some morphological traits were likely expressed, and selected for. Moreover, whatever the negative effects of such traits, if the proto-dogs had still been in the wild, those negative effects would have been reduced by human contact, care, feeding, and protection. Thus, slightly disadvantageous genetic traits of dogs as compared to wolves were not fatal to the survival and viability of dogs because dogs had been adopted by Aurignacian Sapiens.

Germonpré's argument was controversial (see Crockford and Kuzmin, 2012; Germonpré et al., 2102). The authors elaborated their view that domestication of dogs was to be understood as 'an intimate relationship between humans and canids'. In a second paper, she and her colleagues presented additional arguments in support of the view that "Paleolithic dogs" were morphologically distinct from both modern wolves and modern dogs. They reiterated their view that domestication of the Paleolithic wolf began even earlier than previously thought, now some 36KYA. 'Not only can the origin of the dog be placed well into the Pleistocene,' they wrote, 'it is now clear that dogs originated from an extinct Pleistocene wolf population.' Thus, modern wolves are not the ancestors of existing dogs; rather, 'the source population is an extinct wolf group' (Germonpré, et al., 2014, 262, 277). This interpretation of the genetic evidence has been broadly confirmed by other paleogeneticists (see Larson, et al., 2012; Thalmann, et al., 2013; Larson and Burger, 2013; Freedman, et al., 2014; Skoglund, et al., 2015).

Most of the genetics-based narrative, however, avoids dealing with such problems as the care provided by humans to these proto-dogs or Paleolithic dogs and focusses simply on the biological "mechanisms" involved in the domestication of dogs from wild wolf populations. Let us first examine a few of these diminished or reductionist accounts before considering the question of what domestication might actually mean.

One widely agreed-upon biological description of domestication is that, first, it 'has a beginning but not an end', and second, that, as a process it includes 'transitional forms and complex underlying demographics' (Larson, 2013, 198). So far as dogs are concerned, the spatial and temporal imprecision of their beginning was held to be a genetic consequence of 'the sustained admixture between different dog and wolf populations' over a period of at least 15,000 years, which has inevitably blurred the genetic signatures of both dogs and wolves (Larson and Bradley, 2014).

Perhaps a more important reason for this imprecision is that genetic accounts are almost always expressed in terms of causal "mechanisms". For example, a recent attempt at synthesizing much of the work on domestication of dogs argued that the initial period of domestication (whenever that was and wherever it occurred) was, on genetic evidence, 'less intentionally directed by humans' than the more recent development of specific dog breeds (Freedman, et al, 2016). Such an account is obviously hypothetical since the "intentionality" of humans in the Upper Paleolithic can hardly be inferred from canid genetics. By this argument, however, archaic genetic changes in canids were a response to dietary and behavioral divergence by proto-dogs or by Paleolithic dogs from the ancestral wild (wolf) population. Freedman and his colleagues developed an elaborate and sophisticated statistical "scan" to distinguish genetic changes in these dogs from demographic fluctuation and frequent admixtures of wolf genes that accompanied the domestication process. The result was that 'two categories of genes continually emerged in the top half of our candidate regions list: those influencing behavior … and genes related to metabolism, in particular, lipid metabolism' (Freedman, et al., 2016). In more-or-less commonsense terms, Freedman and his colleagues found genetic evidence showing that when proto-dogs started hunting with humans, they consumed more lipids than did wild wolves. In a similar story, Axelsson and his team argue that dogs learned to eat starch (Axelsson et al., 2013). Neither account, however, attributes agency to the humans or to the canids. Somehow, it just happened.

As a final example of the natural science narrative, let us consider the argument of Wilkins, Wrangham, and Fitch regarding the "domestication syndrome" (2014). The authors began with the observations of Darwin (1868) prior to the postulation of genetic "mechanisms." From a survey of animal breeding and discussions with animal breeders, Darwin observed that domesticated mammals displayed a collection of behavioral, physiological, and morphological traits absent from their wild predecessors. The updated version of these characteristics include:

> Increased docility and tameness, coat color changes, reductions in tooth size, changes in craniofacial morphology, alterations in ear and tail form (e.g., floppy ears), more frequent and nonseasonal estrus cycles, alterations in adrenocorticotropic hormone levels, changes concentrations of several neurotransmitters, prolongations in juvenile behavior, and reductions in both total brain size and of particular brain regions (Wilkins, *et al.*, 2014).

Obviously Darwin knew nothing of adrenocorticotropic hormone levels or neurotransmitters, though he could observe the prolongation of juvenile behavior, now called paedomorphosis. The authors argue that this combination of traits, the "domestication syndrome", is caused by a reduction in neural crest cells, which are pluripotent stem cells that are part of vertebrate embryos and so develop along with the animal. This hypothesis, the authors said, 'is, to our knowledge, the only unified, mechanistically grounded explanation for all the traits of the syndrome'.

We have followed one cluster of genetic narratives regarding domestication of dogs from wolves. In terms of the Shipman hypothesis, we can stipulate, for example, that the "mechanistically grounded explanation" of the domestication syndrome may well be correct as an explanation. At the same time, however, humans are not just evolving biological organisms. Nor, indeed, are dogs simply to be explained by a mechanistic genetic story. Humans are not driven by evolutionary necessities, whatever one may say of dogs and wolves, but are capable of choice and action. This attribute, which is so strongly and ably discussed by Schabert, is also central to the problem of the domestication of wild animals. Let us, then, reconsider the non-genetic accounts.

## Intentionality

Darwin suggested two possible reasons for domestication. The first was the 'gentler conditions of living' that animals experienced once they were domesticated. A second, more tentative reason was rather vaguely referred to as hybridization of distinct breeds and species. Neither is widely accepted today, given the preference for mechanistically grounded genetic explanations. And yet it does not take much by way of imagination to understand that Upper Paleolithic humans, who doubtless had plenty of opportunity to observe wolves, might have considered "tamed wolves" to be a useful and animate hunting tool. Like humans, wolves are social animals that hunt in packs during the day – unlike cats who are both solitary and nocturnal hunters (see Morey, 2006). In addition, canids can smell, track, locate, and hold game in place far more effectively that can humans. And, of course, they are efficient predators (see Shipman, 2015a, Ch. 13).

Now, when domestication is considered from the perspective of humans, the questions of intentionality and human decision, which is to say the human capacity for action, has to be considered (Morey, 1994). In addition, one must distinguish between taming an individual animal through proper training and domesticating a species so that behavioral changes are transmitted to successive generations. That is, to use modern language, there is always a genetic component to domestication, even if it is not exhaustive.

Consider this famous example: starting in 1959 in Novosibirsk at the Institute of Cytology and Genetics, Dmitri Belyaev began a multi-decade experiment that was continued after his death by his students. Belyaev selected silver foxes on the basis of their tameness in the expectation that tamer animals would adapt to life in captivity better than those that were aggressive or deeply fearful of humans. He then developed a selective breeding program designed to reproduce this "tameability" factor (see Belyaev, 1969; Trut, 1999). Belyaev argued, much as did Darwin, that reduced stress levels among foxes living in a protected and gentler environment led to changes in hormones that, in turn, altered gene expression. There was, therefore, a genetic component to the domestication experiment, but there was also a behavioral one and that was shaped by creative human intentionality.

One may understand the domestication of dogs as a point of contact between genetics and the narrative of mechanistically grounded genetic explanation with that of human cultural change. At the very least, the domestication of dogs, a human-mediated activity, is 'fundamentally different from non-human symbiotic relationships' (Zeder, 2012a). That is, the application of the human capacity for action, for the introduction of novelty into the world that resulted in the domestication of dogs far exceeds the transformational capacities of ordinary of "natural" symbiosis. Domestication, in short, is an example of "action into nature".

One can, finally, loosen up the genetic mechanistic explanations from the side of the proto-dogs as well. What paleoscientists refer to as the "commensual pathway" to domestication, whereby wild animals associate with humans to eat their garbage or to scavenge from human-killed prey, contains an element of benefit to the potential domesticate. Obviously one need not anthropomorphize proto-dogs as "foreseeing" nutritional benefits to be gained from hanging around with humans in order to understand the transition from commensual to domestic need not be particularly difficult (see Zeder, 2012b).

## Conclusions

The extinction of Neanderthals, like the domestication of dogs, touches both history, in the sense of cultural evolution or displacement, and biology. The paleoscientific discussion of the succession of Mousterian to Châtelperronian to Aurignacian is akin in principle to other kinds of human cultural change. Likewise the gene flows between Neanderthals and Sapiens has an obvious biological component. The interesting position of domestication of dogs in this context is that it is primarily a cultural event. 'Whatever abilities modern humans used to capture and apparently domesticate wolves into wolf-dogs,' Shipman said, 'were either unknown to Neanderthals or beyond their capabilities' (Shipman, 2015a, 212).

Ex hypothesi, the combination of two adept predators, Sapiens and proto-dogs, combined to help induce what was a catastrophic environment for Neanderthals. The cliché about dogs being man's (or human being's) best friends, and certainly his oldest domesticate, may have carried an additional threat to Neanderthals. Unlike stone choppers and blades, dogs do not work for anyone who happens along. They work for their masters and mistresses and, for one reason or another, these roles were apparently monopolized by Sapiens. Why this should be so, why Neanderthals were apparently incapable of domesticating dogs, is never addressed.

The "replacement" of Neanderthals in Europe by Sapiens and the domestication of dogs as an element in that activity was not "pregiven", to use a term of Schabert. The outcome was not inevitable precisely because it was riddled with human intention and uncertainty. Sapiens were, no doubt, leading their lives, but so were Neanderthals. Whatever the cultural elements involved, one may understand Neanderthal "replacement" as a very early creative action, an early beginning that was followed by endless others, most spectacularly and immediately in the decorated caves of Franco-Cantabria.

## Bibliography

Arendt, Hannah (1958) *The Human Condition*, Chicago: University of Chicago Press.

Axelsson, Eric, et al, (2013) 'The Genomic Signature of Dog Domestication Reveals Adaptation to a Starch-Rich Diet', *Nature* 495: 360-65.

Bar-Yosef, O. and J.-G. Bordes (2010) "Who Were the Makers of the Châtelperronian Culture?" *Journal of Human Evolution* 59: 586-93.

Belyaev, D.K. (1969) "Domestication of Animals", *Science* 5: 47-52.

Cartmill, M. (2001) "Taxonomic Revolutions and the Animal-Human Boundary" in R. Corbey and W. Roebucks (eds.), *Studying Human Origins: Disciplinary History and Epistemology*, Amsterdam: Amsterdam University Press.

Churchill, Steven E. (2014), *Thin on the Ground: Neandertal Biology, Archaeology, and Ecology*, New York: Wiley.

Churchill, Steven E. et al. (2009) "Shanidar 3 Neandertal Rib Puncture Wound and Paleolithic Weaponry", *Journal of Human Evolution* 57: 163-78.

Conard, Nicholas (2011) "The Demise of the Neanderthal Cultural Niche and the Beginning of the Upper Paleolithic in Southwestern Germany", in Nicolas Conard and Jürgen Richter (eds), *Neanderthal Lifeways, Subsistence and Technology: 150 Years of Neanderthal Study*, Dordrecht: Springer.

Cooper, Barry (1989) "Eric Voegelin, Empirical Political Scientist", in Barry Cooper, *The Restoration of Political Science and the Crisis of Modernity*. Lewiston: Edwin Mellen.

Cooper, Barry (1991) *Action into Nature: An Essay on the Meaning of Technology*, Notre Dame: Notre Dame University Press.

Cooper, Barry (2013) "Neanderthal Politics", in Brendan Leahy and David Walsh (eds), *The Human Voyage of Self-Discovery: Essays in Honour of Brendan Purcell*, Dublin: Veritas.

Crockford, S. and Y. Kuzmin (2012) Comments on Germonpré et al., *Journal of Archaeological Science* 3: 2797-2801.

Darwin, Charles, (1868) *The Variation of Plants and Animals under Domestication*, London: John Murray.

D'Errico, Francesco et al. "Neanderthal Acculturation in Western Europe? A Critical Review of the Evidence and its Interpretation", *Current Anthropology* 39(Special Issue): 1-44.

Flannery, Tim and Burney, David (2005) "Fifty millennia of Catastrophic Extinctions after Human Contact", *Trends in Ecology and Evolution* 20: 395-401.
Freedman, Adam H. et al, (2014) "Genome Sequencing Highlights the Dynamic Early History of Dogs", *PLOS Genetics* 10(1): 1-12.
Freedman, Adam H. et al, (2016) "Demographically-Based Evaluation of Genomic Regions under Selection in Domestic Dogs", *PLOS Genetics* 12(3): 1-23.
Germonpré, Mietje, et al, (2009) "Fossil Dogs and Wolves from Paleolithic Sites in Belgium, the Ukraine, and Russia: Osteometry, Ancient DNA, and Stable Isotopes", *Journal of Archaeological Science* 36: 473-490.
Germonpré, Mietje, et al, (2012) "Paleolithic Dogs and the Early Domestication of the Wolf: A Reply to the Comments of Crockford and Kuzmin", *Journal of Archaeological Science* 40: 786-792.
Germonpré, Mietje, et al., (2015) "Large Canids at the Gravettian Predmosti Site, the Czech Republic: The Mandible", *Quaternary International* 359-60: 261-279.
Hackett, Abigail and Robin Dennell (2003) "Neanderthals as Fiction in Archaeological Narrative", *Antiquity* 77: 816-827.
Henry, D.O. et al, (2004) "Human Behavioral Organization in the Middle Paleolithic: Were Neanderthals Different?" *American Anthropologist* 106: 17-31.
Hodder, Ian, (1989) "Writing Archaeology: Site Reports in Context", *Antiquity* 63: 268-274.
Hortola, Polycarp and Bienvenido Martinez-Navarro (2013) "The Quaternary Megafaunal Extinction and the Fate of the Neanderthals: An Integrative Working Hypothesis", *Quaternary International* 295: 69-72.
Joyce, Rosemary (2002) *The Languages of Archaeology: Dialogue, Narrative, and Writing*, Oxford: Blackwell.
Landau, Misia, (1991) *Narratives of Human Evolution: The Hero Story*, New Haven: Yale University Press.
Larson, Greger and Donan Q. Fuller (2014) "The Evolution of Animal Domestication", *Annual Review of Ecology, Evolution, and Systematics* 45: 115-136.
Larson, Greger, et al., (2012) "Rethinking Dog Domestication by Integrating Genetics, Archaeology, and Biogeography", *PNAS* 109(23): 8878-8883.
Larson, Greger and J. Burger (2013) "A Population Genetics View of Animal Domestication", *Trends in Genetics*, 29:4: 197-205.
Larson, Greger and Daniel G. Bradley (2014) "How Much is that in Dog Years? The Advent of Canine Population Genomics", *PLOS Genetics* 10:1: 1-3.
Maximilian, A.P. (1906) "Travels in the Interior of North America", *Early Western Travels* 22: 5-393.
Mellars, Paul (1996) *The Neanderthal Legacy: An Archaeological Perspective from Western Europe*, Princeton: Princeton University Press.
Morey, Darcy F. (1994) "The Early Evolution of the Domestic Dog", *American Scientist* 82(4): 336-47.
Morey, Darcy F. (2006) "Burying Key Evidence: The Social Bond between Dogs and People", *Journal of Archaeological Science* 33: 158-175.
Moser, Stephanie (1992) "The Visual Language of Archaeology: A Case Study of the Neanderthals", *Antiquity* 66: 831-844.
Papagianni, Dimitara and Michael A. Morse (2015) *The Neanderthals Rediscovered: How Modern Science is Rewriting their Story,* Rev. Ed. London: Thames and Hudson.
Pyne, Lydia V. and Stephen J. Pyne (2012) *The Last Lost World: Human Origins and the Invention of the Pleistocene*, New York: Penguin.
Ramirez, Rozzi, F.V., et al., (2009) "Cutmarked Human Remains bearing Neanderthal Features and Modern Human Remains Associated with the Aurignacian at Les Rois", *Journal of Anthropological Sciences* 87: 153-85.
Sablin, Mikhail V. and Gennady A. Khlopachev, (2002) "The Earliest Ice Age Dogs: Evidence form Eliseevichi I:, *Current Anthropology* 43:5: 795-799.
Schabert, Tilo (1989) *Boston Politics: The Creativity of Power*, New York: Walter de Gruyter.
Schabert, Tilo (2002) *Wie Weltgeschichte gemacht wird: Frankreich und die deutsche Einheit*, Stuttgart: Klett-Cotta.
Schabert, Tilo (2009) *How World History is Made: France and the Reunification of Germany*, translated J.T. Tuttle, Barry Cooper (ed), Columbia: University of Missouri Press.
Schabert, Tilo (2015) *The Second Birth: On the Political Beginnings of Human Existence*, Chicago: University of Chicago Press.
Sheets-Johnstone, Maxine (1999) *The Primacy of Movement*, Amsterdam: John Benjamins Publishing Company.

Shipman, Pat (2015a) *The Invaders: How Humans and their Dogs drove Neanderthals to Extinction*, Cambridge: The Belknap Press of Harvard University Press.

Shipman, Pat (2015b) "How do you kill 86 Mammoths? Taphonomoic Investigations of Mammoth Megasites", *Quaternary International* 359-60: 38-46.

Skoglund, Pontus, et al, (2015) "Ancient Wolf Genome Reveals an Early Divergence of Domestic Dog Ancestors and Admixture into High-Latitude Breeds", *Current Biology* 25 (1 June): 1515-1519.

Stoczkowski, Wiktor (2002) *Explaining Human Origins: Myth, Imagination and Conjecture*, Cambridge: Cambridge University Press.

Thalmann, O. et al., (2013) "Complete Mitochondrial Genomes of Ancient Canids suggest a European Origin of Domestic Dogs", *Science* 342 (November 15): 871-74.

Trut, Lyudmila N. (1999) "Early Canid Domestication: The Farm-Fox Experiment". *American Scientist* 87: 2: 160-169.

Vencl, Slavomil (1999) "Stone Age Warfare" in John Carman and Anthony Harding (eds), *Ancient Warfare: Archaeological Perspectives*, Phoenix Mill: Sutton.

Vila, Charles et al. (1997) "Multiple and Ancient Origins of the Domestic Dog", *Science* 276: 1687-1689.

Wilkins, Adam S. et al., (2014) "The 'Domestication Syndrome' in Mammals: A Unified Explanation Based on Neural Crest Cell Behavior and Genetics", *Genetics* 197: 795-808.

Wilson, G. L. (1924) "The Horse and the Dog in Hidatsa Culture", *American Museum of Natural History: Anthropological Papers* 15: 123-311.

Zeder, Melinda A. (2012a) "The Domestication of Animals", *Journal of Anthropological Research* 68: 2: 161-190.

Zeder, Melinda, A. (2012b) "Pathways to Animal Domestication" in Paul Gepts et al, (eds) *Biodiversity in Agriculture: Domestication, Evolution and Sustainability*, Cambridge: Cambridge University Press.

Zhu, Q and G.P. Bingham (2011) "Human Readiness to Throw: The Size-Weight Illusion is not an Illusion when Picking the Best Objects to Throw", *Evolution and Human Behavior* 32: 288-293.