

Edging into the Wild

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In The Variation of Animals and Plants under Domestication, which appeared first in 1868 and in a revised edition in 1875, Charles Darwin developed a theme to which he had accorded great rhetorical and evidentiary significance. The first chapter of On the Origin of Species, published in 1859, had included a description of artificial selection as practiced by farmers, stock breeders, and pet fanciers. Domesticated animals and plants were numerous, familiar, and available for constant observation; they provided a readily available body of evidence. Darwin thus used a reassuringly homely example, and one that was accessible by the general public as well as by members of the scientific community, to introduce the most innovative component of his evolutionary theory—that is, the idea of natural selection as the engine of evolutionary change.

Reassuring as it was, the analogy between natural and artificial selection was far from perfect. The point of Darwin's analogy was to make the idea of natural selection seem plausible by characterizing its efficiency and shaping power. He devoted special attention to domesticated pigeons in Variation, allotting two entire chapters to them, while pigs, cattle, sheep, and goats had to share a single chapter, as did ducks, geese, peacocks, turkeys, guinea fowls, canaries, goldfish, bees, and silk moths.¹ He noted, for example, that some of the prize birds bred by London pigeon fanciers diverged so strikingly in size, plumage, beak shape, flying technique, vocalizations, bone structure, and many other attributes, that if they had been presented to an ornithologist as wild specimens, they would unquestionably have been considered to represent distinct species, perhaps even distinct genera. Darwin argued that if the relatively brief and

constrained selective efforts of human breeders had produced such impressive results, it was likely that the more protracted and thorough-going efforts of nature would work still more efficaciously.

But as Darwin acknowledged, there were some fairly obvious reasons why the two processes might diverge. The superior power of natural selection—"Man can act only on external and visible characters: nature...can act on...the whole machinery of life. Man selects only for his own good; Nature only for that of the being which she tends"²—might constitute a difference of kind rather than of degree, as might the much greater stretches of time available for natural selection. Further, although the mechanism of the two processes appeared superficially similar, their outcomes tended to be rather different. Natural selection produced a constantly increasing and diversifying variety of forms; it never reversed or exactly repeated itself. At first it might seem that the constant development of new breeds of domesticated animals echoed the natural proliferation of wild species. But anyone familiar with artificial selection would have realized that, although improved varieties of wheat and cattle showed little tendency to revert to the condition of their aboriginal wild ancestors, the strains produced by human selection were neither as prolific nor as durable as those produced by nature. Indeed, the animals and plants celebrated as the noblest achievements of the breeder's art were especially liable to delicacy and infertility. This tendency produced a predictable and paradoxical dilemma. Highly bred strains, long isolated from other others of their species to preserve their genealogical purity, far from serving as a springboard for future variation, often had to be revived with infusions of less-

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rarefied blood. Yet any relaxation of reproductive boundaries threatened subsidence into the common run of conspecifics.

At least in part, the disjunction between these two versions of selection reflects a dichotomy between the wild and the domesticated that has operated powerfully within both scientific and general culture, although it has not normally been the subject of much reflection. With regard to animals especially (as opposed to plants) it has tended to be taken for granted.

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When Byron wrote that “the Assyrian came down like the wolf on the fold” (“The Destruction of Sennacherib,” 1815), his audience had no trouble understanding the simile or feeling its force, even though wolves had not threatened most British flocks since the Wars of the Roses. Almost two centuries later, expressions such as “the wolf is at the door,” remain evocative, although the Anglophone experience of wolves has diminished still further. For most of us, they are only to be encountered (if at all) in zoos, or in establishments like Wolf Hollow, which is located in Ipswich, just north of Boston, where a pack of gray wolves lives a sheltered suburban existence behind a high chain link fence.³ Their Massachusetts captivity has produced some modification of their nomadic habits and their fierce independent dispositions. (The pack was established twenty years ago with pups, so that only inherent inclinations needed to be modified, not confirmed behaviors.) Their relationship with their caretakers seems affectionate and playful, sometimes even engagingly doglike—so much so that visitors need to be warned that it would be very dangerous for strangers to presume on this superficial affability. The animals themselves give occasional indications that they retain the capacities of their free-roaming relatives—that though apparently reconciled to confinement, they are far from tame. When large

loud vehicles rumble past on nearby Route 133, the wolves tend to howl. And despite their secure enclosure within the built-up landscape of North American sprawl, their calls evoke the eerie menace that has immemorably echoed through the wild woods of fairy tale and fable. At least within the controlled setting of Wolf Hollow, this frisson of fear is clearly attractive. The website howls when you open it, and visitors are invited to howl with the wolves before they leave the sanctuary.

The symbolic resonance of large ferocious wild animals—the traditional representatives of what seems most threatening about the natural world—has thus proved much more durable than their physical presence. Indeed, their absence has often had equal and opposite figurative force. Thus the extermination of wolves in Great Britain, along with such other unruly creatures as bears and wild boars, was routinely adduced as evidence of the triumph of insular (as opposed to continental) civilization in the early modern period. As they dispersed around the globe, British settlers and colonizers set themselves parallel physical and metaphorical challenges, conflating the elimination of dangerous animals with the imposition of political and military order. In North America, hunters could claim bounties for killing wolves from the seventeenth century into the twentieth, although by the latter period wolves had abandoned most of their historic range, persisting only in remote mountains, forests, and tundras. In Africa and (especially) Asia, imperial officials such as Edward Lockwood, a magistrate in the Bengal Civil Service, celebrated the “extermination of wild beasts” as one of “the undoubted advantages...derived from British rule.”⁴

Very occasionally, large aggressive predators could symbolize help rather than hindrance. They served as totems for people whose own inclinations were conventionally wolfish or

leonine. And alongside the legendary and historical accounts of big bad wolves existed a minority tradition that emphasized cooperation rather than competition. From this perspective the similarities of wolf society to that of humans implicitly opened the possibility of individual exchange and adoption. A slender line of imagined lupine nurturers ran from the foster mother of Romulus and Remus to Akela, who protects and mentors Mowgli in The Jungle Book (1894). But in this way, as in others, Rudyard Kipling's animal polity looked toward the past rather than the future. By the late nineteenth century, human opinions of wolves and their ilk had indeed become noticeably mixed. The cause of this amelioration, however, was not an altered understanding of lupine character or an increased appreciation of the possibilities of anthropo-lupine cooperation, but rather a revised estimation of the very qualities that had made wolves traditional objects of fear and loathing.

The shift in European aesthetic sensibility that transformed rugged mountains into objects of admiration rather than disgust is a commonplace of the history of aesthetics. For example, in the early eighteenth century, even the relatively modest heights of what was to become known as the English Lake District impressed Daniel Defoe as "eminent only for being the wildest, most barren and frightful of any that I have passed over in England, or even in Wales itself."⁵ The increasingly Romantic tourists who followed him gradually learned to appreciate this harsh, dramatic landscape, so that a century later the noted literary opium eater Thomas DeQuincey could characterize the vistas that had horrified Defoe as a "paradise of virgin beauty."⁵ Of course, this altered perception had complex roots, but it is suggestive that it coincided with improvements in transportation and other aspects of the infrastructure of tourism. As economic and technological developments made the world seem safer and more comfortable, it became

possible to experience some of its extremes as thrilling rather than terrifying. Or, to put it another way, as nature began to seem a less overwhelming opponent, the valence of its traditional symbols began to change. Ultimately (much later, after their population numbers and geographic ranges had been radically reduced) even wild predators began to benefit from this reevaluation. The ferocity and danger associated with wolves and their figurative ilk became a source of glamour, evoking admiration and sympathy from a wide range of people who were unlikely ever to encounter them. As representatives of the unsettled landscapes in which they had managed to survive, they inspired nostalgia rather than antagonism.

Symbolic shifts were supplemented by shifts in scientific understanding, which redefined high-end predators as a necessary element of many natural ecosystems. Late nineteenth-century attempts at wild animal protection were modeled on the hunting preserves of European and Asian elites. Thus the immediate antecedents of modern wildlife sanctuaries and national parks were designed to protect individual species that were identified as both desirable (either intrinsically or as game) or in danger of extinction, such as the bison in North America or the giraffe in Africa. They were much less concerned with preserving the surrounding web of life. In most cases, indeed, early wildlife management policies had the opposite effect, continuing, for example, to encourage the persecution of predators such as lions, hyenas, and wild dogs. Although not all of the species targeted for protection provided conventional hunting trophies—for example, by the end of the nineteenth century, many great ape populations received some form of protection—all were herbivores. Further, none offered significant resistance to human domination of their territory. (If they did, policies could be reversed. For example, hippopotami, which enjoyed protection in some parts of southern Africa, were slaughtered with official

encouragement in Uganda, where their belligerent attitude toward river traffic interfered with trade.⁶) Predators inclined to kill the species designated for protection received no protection themselves, either physical or legal. On the contrary, in many settings people simply replaced large predators at the top of the food chain and showed no mercy to their supplanted rivals.

Deep ancient roots can be unearthed for holistic or ecological thinking. Although most of the British pioneers of game preservation had enjoyed the classical education prescribed for privileged Victorian boys, the works of Charles Darwin may have offered more readily accessible arguments for understanding biological assemblages as interconnected wholes. Darwin provided many illustrations of the subtle and complex relationships among the organisms that shared a given territory. For example, in On the Origin of Species, he explained the frequency of several species of wild flowers in southern England as a function of the number of domestic cats kept in nearby villages. The cats had no direct interest in the flowers, but more cats meant fewer field mice, which preyed on bee hives—therefore fewer mice meant more bees to fertilize the flowers.⁷ Nevertheless, it was not until the last half of the twentieth century that individual species were routinely considered as components of larger systems by wildlife managers, and that the standard unit of management became the ecosystem rather than the species. In consequence, large predators were redefined as essential components (even indicators) of a healthy environment rather than blots on the landscape. They often began to receive legal protection, however belated and ineffective. And there has been a movement to reintroduce them to areas that have been ostensibly preserved in their wild form or that are in process of restoration. Thus in recent decades wolves have reoccupied several of their former habitats in the western United States, both as a result of carefully coordinated reintroduction by

humans, as in Yellowstone National Park, and as a result of independent (but unimpeded) migration from Canada. It is interesting that the re-emergence or even the prospective re-emergence of the wolf has inspired a parallel re-emergence of traditional fear and hostility among neighboring human populations.

I have been using several terms as if their meanings were clear and definite, when in fact they are contested and ambiguous. As has often been repeated, the cultural critic Raymond Williams characterized “nature” as “perhaps the most complex word in the English language.”⁸ The term “wilderness” is similarly problematic. In the context of preservation or restoration, it often collocates with words like “pristine” and “untouched,” and therefore connotes a condition at once primeval and static. This connotation suggests that the first task of landscape stewards is to identify this ur-condition, but even a moderately long chronological perspective demonstrates that any such effort is bound to be quixotic. The environment in which modern animals have evolved has never been stable. Less than twenty thousand years ago much of North America and Eurasia was covered by glaciers. After their gradual release from the burden of ice and water, most northern lands continued to experience significant shifts in topography and climate, and, therefore, in flora and fauna. These natural changes have been supplemented for thousands of years by the impact of human activities. The theoretical and political problems presented by “wilderness” are knottier still. In a groundbreaking essay published more than a decade ago, William Cronon argued that wilderness and civilization (or “garden”) were not mutually exclusive opposites, but that they rather formed part of a single continuum. Far from being absolute, “the one place on earth that stands apart from humanity,” wilderness was itself “a quite

profoundly human creation.”⁹ Cronon’s formulation sparked (and continues to spark) agonized resistance on the part of environmentalists who base their commitment on the notion of untouched nature.

If wildness in landscape has been effectively (if controversially) problematized, the same cannot be said for wildness in animals. The Oxford English Dictionary defines the adjective “wild” unambiguously, and it emphasizes its zoological application. The first sense refers to animals: “Living in a state of nature; not tame, not domesticated: opp. to TAME.” In a standard lexicographical ploy, “tame” is defined with equal confidence and complete circularity as (also the first sense) “Reclaimed from the wild state; brought under the control and care of man; domestic; domesticated. (Opp. to wild.)” But outside the dictionary these terms are harder to pin down and their interrelationships are more complex. Like Cronon’s wilderness and garden, the wild and the tame or domesticated exist along a continuum. In a world where human environmental influence extends to the highest latitudes and the deepest seas, few animal lives remain untouched by it. At least in this sense, therefore, few can be said to be completely wild—for example, it would be difficult so to characterize the wolves that were captured, sedated, airlifted to Yellowstone, and then kept in “acclimatization pens” to help them adapt to their new companions and surroundings. And as the valence of the wild has increased and its definition has become more obviously a matter of assertion rather than description, the boundaries of domestication have also blurred.

Not that they were ever especially clear. As twenty-first century wolves belong to a long line of animals whose wildness has been compromised, tameness has conversely also existed on a sliding scale. According to the OED, both “wild” and “tame” have persisted for a millennium,

remaining constant in form as well as core meaning, while the language around them has mutated beyond easy comprehension, if not beyond recognition. But this robustness on the level of abstraction has cloaked imprecision and ambiguity on the level of application or reference. Although medieval farmers and hunters may have had no trouble distinguishing livestock animals from game or vermin, it would have been difficult to extract any general definition from their practices. The impact of domestication varied from kind to kind, as well as from creature to creature. The innate aggression of the falcons and ferrets who assisted human hunters was merely channeled, not transformed; when they were not working, they were confined like wild animals in menageries. Then as now, people exerted much greater sway over their dogs than over their cats, who were mostly allowed to follow their own instincts with regard to rodents and reproduction. Medieval cattle, the providers of labor as well as meat, milk, and hides, led more constrained lives than did contemporary sheep, and pigs were often left to forage in the woods like the wild boars that they closely resembled.

With hindsight, even these relatively tame cattle could appear undomesticated, especially as wildness gained in glamour. Thus changes in the animals' physical circumstances were complicated by changes in the way they were perceived. In the late eighteenth century, for example, a few small herds of unruly white cattle, who roamed like deer through the parks of their wealthy owners, were celebrated as aboriginal and wild. As the Earl of Tankerville, whose Chillingham herd was the most famous, put it, his "wild cattle" were "the ancient breed of the island, inclosed long since within the boundary of the park."¹⁰ The "ancient breed" was sometimes alleged to be the mighty aurochs (the extinct wild ancestor of all domestic cattle, which had been eliminated in Britain by Bronze Age hunters; the last one died in Poland in the

seventeenth century), which gave these herds an ancestry distinct from that of ordinary domestic cattle. To increase or underscore their distinctiveness, the white cattle were never milked, and if their meat was required for such ceremonial occasions as the coming-of-age of a human heir, they were hunted and shot, not ignominiously slaughtered. Through the nineteenth century, their autochthonic nobility continued to inspire the effusions of such distinguished poets and painters as Sir Walter Scott and Sir Edward Landseer, as well as the expenditure of newly wealthy landowners eager to bask by association in the prestige of wild nobility and ancient descent.

But even at the height of their renown, it was clear that the claims of the white cattle to wildness included a large measure of wishful thinking. Skeptics persuasively wondered whether, even assuming that the nineteenth-century emparked herds lived in a state of nature, that state represented a historical constant or a relatively modern restoration.¹¹ Many who investigated the background of the herds concluded that they were feral at best (at wildest, in other words)—that they were the descendants of domesticated animals, whether originally owned by Roman settlers or by later farmers. Modern anatomical and genetic research has confirmed these doubts, firmly connecting the emparked herds with the ordinary domestic cattle of the medieval period.¹² But so great is the continuing appeal of wildness, and so limited the persuasive force of scientific evidence, that a recent president of the Chillingham Wild Cattle Association has nevertheless asserted that "although there is still much that is not known about the origins of the Chillingham Wild Cattle, one fact that is certain is that they were never domesticated."¹³

Only a few people possessed the resources necessary to express their admiration for the

wild, and their somewhat paradoxical desire to encompass it within the domestic sphere, on such a grand scale. But numerous alternative options emerged for those with more restricted acres and purses. An increasing variety of exotic animals stocked private menageries. The largest of these were on a sufficiently grand scale to have also included a cattle herd, if their owners had been so inclined—for example, those of George III or the thirteenth Earl of Derby, which accommodated large animals like kangaroos, cheetahs, zebras, and antelopes. Smaller animals required more modest quarters, and parrots, monkeys, canaries, and even the celebrated but ill-fated wombats owned by the poet Dante Gabriel Rossetti could be treated as pets. Breeders attempted to enhance or invigorated their livestock with infusions of exotic blood. If they were disinclined or unable to maintain their own wild sire, they could, in the 1820s and 1830s, pay a stud fee to the newly established Zoological Society of London for the services of a zebu or a zebra. In Australia, Russia, Algeria and the United States, as well as in Britain and France, the acclimatization societies of the late nineteenth century targeted an impressive range of species for transportation and domestication, from the predictable (exotic deer and wild sheep) to the more imaginative (yaks, camels, and tapirs).¹⁴ So difficult (or undesirable) had it become to distinguish between wild animals and tame ones, that exotic breeds of domestic dogs were exhibited in Victorian zoos, and small wild felines were exhibited in some early cat shows.

The popular appeal of wild animals has continued to increase as they have become more accessible, either in the flesh or in the media. So entangled have wildness and domesticity become that it is now necessary to warn visitors to North American parks that roadside bears may bite the hands that feed them, and it is now possible for domesticated animals to represent nature. This extended symbolic reach was demonstrated in 2001, when foot and mouth disease

struck British livestock. Because the disease spreads rapidly and easily, the government prescribed a cull not only of all infected herds and flocks, but of all apparently healthy livestock living in their vicinity. Although outbreaks were widespread, the greatest number of cases occurred in the Lake District, the starkly dramatic landscape that had been disparaged by Daniel Defoe and praised by Thomas de Quincey; it is now the site of England's largest national park. Video and print coverage of the cull, which took the spectacular form of soldier shooting flocks of sheep and then immolating them in enormous pyres, thus featured some of the nation's most cherished countryside as background.

The ovine victims also had iconic status. Most of them belonged to the local Herdwick breed, and at first the intensive cull seemed to threaten its very survival. What was at stake was not merely adaptation to a demanding environment, since several other British hill breeds look very like the Herdwicks and share their physical and emotional toughness. The Herdwicks' special claim to consideration was their connection to their native ground, itself a kind of national sacred space. Not only were the sheep acknowledged to possess detailed topographical information about the hills they inhabited, but their owners claimed that they transmitted it mystically down the generations, from ewe to lamb. So well recognized was their attachment to their home territories, that when a farm was sold, the resident Herdwicks were conventionally included in the bargain, on the theory that if they were taken away, they would soon manage to return. And despite strong historical indications that the ancestral Herdwicks had arrived in the vicinity of the Lake District by boat, and the further fact that all British sheep descend from wild mouflons originally domesticated in the eastern Mediterranean region, they were traditionally celebrated as indigenous, "peculiar to that high, exposed, rocky, mountainous district."¹⁵ An

article in the preeminent Victorian agricultural journal asserted that the Herdwicks possessed “more of the characters of an original race than any other in the county” and that they showed “no marks of kindred with any other race.”¹⁶ Twenty-first-century journalists reporting on the threatened toll of foot and mouth disease adopted similar rhetoric.

As the sheep were nativized, they were also naturalized. A reporter for the Independent newspaper feared that if the Herdwicks disappeared, the whole ecology of the region might be changed “beyond recognition.”¹⁷ And, since the dramatic bare uplands of the Lake District have been maintained by nibbling flocks for at least a millennium, his concern was not completely unreasonable. Thus whether technically indigenous or not, and although they are incontestably domesticated, the Herdwicks have become compelling symbols of the apparently untamed landscape they inhabit—more compelling than the numerous wild birds and small mammals with which they share it. Like the landscape itself, they seem wilder than they are; that is, they appear to be independent and free ranging, but their lives (and, indeed, their very existence) are ultimately determined by human economic exigencies. They are both accessible (that is, there are a lot of them and they are everywhere, not only in the fields, but grazing and napping beside the roads and even on top of them) and also inaccessible (that is, they are skittish, and tend to retreat when approached). The armed assault on the Herdwick sheep was therefore perceived as at once an attack on the domesticated countryside and the unspoiled natural landscape. In both the sheep and their environment the wild and the tame had inextricably merged.

If vernacular usage illustrates the increasing slippage between wildness and tameness in animals, scientific classification has made a similar point from the opposite direction. The

species concept has a long and vexed history. The study of natural history (or botany and zoology) requires that individual kinds be labeled, but for many plants and animals (those that, unlike giraffes, for example, have very similar relatives) it has often been difficult for naturalists to tell where one kind ends and the next begins. Darwin's theory of evolution by natural selection provided a theoretical reason for this difficulty, and his shrewd observations that "it is in the best-known countries that we find the greatest number of forms of doubtful value" and that "if any animal or plant...be highly useful to man...varieties of it will almost universally be found recorded" offered a more pragmatic explanation.¹⁸ The classification of domesticated animals has epitomized this problem. That is, none of them has become sufficiently different from its wild ancestor to preclude the production of fertile offspring (the conventional if perennially problematic definition of the line between species), and some mate happily with more distant relatives. Nineteenth-century zoo keepers enjoyed experimenting along these lines, and zoo goers admired the resulting hybrids between horses and zebras, domestic cattle and bison, and dogs and wolves.¹⁹

Despite these persuasive demonstrations of kinship, however, from the from the eighteenth-century emergence of modern taxonomy, classifiers have ordinarily allotted each type of domestic animal its own species name. While recognizing the theoretical difficulties thus produced, most modern taxonomists have continued to follow conventional practice. Domestic sheep are still classified as *Ovis aries* while the mouflon is *Ovis orientalis*, and dogs as *Canis familiaris* while the wolf is *Canis lupus*. The archaeozoologist Juliet Clutton-Brock explains this practice as efficient (it would be unnecessarily confusing to alter widely accepted nomenclature) as well as scientifically grounded, at least to some extent (most domestic animal populations are

reproductively isolated from wild ones by human strictures, if not by biological ones).²⁰ But it also constitutes a simultaneous acknowledgment of the artificiality of the distinction between wild animals and domesticated ones, and of its importance and power. Vernacular understandings can trump those based on anatomy and physiology.

The implications of making or not making such distinctions extend beyond the intellectual realm. They construct the physical world at the same time that they describe it. Although the howls of the wolf may retain their primordial menace, the wolves who make them have long vanished from most of their vast original range, and they are threatened in much of their remaining territory. To persist or to return, they need human protection, not only physical but legal and taxonomic. With the advent of DNA analysis in recent decades, the taxonomic stakes have risen, so that even animals that look and act wild may be found genetically unworthy. Thus efforts to preserve the red wolf, which originally ranged across the southeastern states, have been complicated by suggestions that it is not a separate species, but a hybrid of the grey wolf and the coyote. No such aspersions have been cast upon the pedigree of the grey wolf, but nevertheless every attempted grey wolf restoration has triggered human resistance, and local challenges to their endangered status inevitably follow even moderate success. Wildness has become a political issue as well as a zoological one—indeed, a matter of life and death. If domestic dogs were returned to their ancestral taxon, wolves would become one of the commonest animals in the lower 48 states, rather than one of the rarest. Their survival as wild animals depends on the dog's continuing definition as domesticated.

One of the clearest implications of Charles Darwin's theory of evolution by natural selection was that the category of species was essentially artificial. If parent species morphed

gradually into their evolutionary offspring, their distinctive Latin labels reflected the exigencies of science rather than any observable external phenomena. Although many living species were easy enough to distinguish from their closest relatives, the boundaries that separated others seemed to be the result of human assertion, which suggested that the problem of interspecific hybridization could be understood as an artifact of zoological taxonomy rather than an anomaly of nature. Even explicit acknowledgment of the constructed nature of the species category did not, however, undermine its utility, either for scholars and scientists, or for the many people who dealt with animals more pragmatically. Certainly, Darwin's theory did not end (and has not yet ended) the centuries-old debate about the definition of "species." Although the categories of "wild" and "tame" or "domesticated" are less authoritatively attested, they are equally problematic and equally powerful. Absolute wildness may be difficult to define on paper and even more difficult to identify in the world, but it nevertheless continues to determine government policies, the actions of individual humans, and the fate of many other kinds of animals.

NOTES

¹ Charles Darwin, The Variation of Animals and Plants under Domestication (London: John Murray, 1868). Chapters 5 and 6 devoted to pigeons.

² Charles Darwin, On the Origin of Species (1859; facsimile Cambridge, MA: Harvard University Press, 1964), 83.

³ <http://www.wolfhollowipswich.org/>

4. Edward Lockwood, Natural History, Sport, and Travel (London: W. H. Allen, 1878), 237.

2. Daniel Defoe, A Tour Through the Whole Island of Great Britain, ed. P. N. Furband and W. R. Owens (1724-26; New Haven: Yale University Press, 1991), 291.

5. Thomas De Quincey, Literary Reminiscences from the Autobiography of an English Opium Eater in The Works of Thomas De Quincey, vol. 3 (Boston: Houghton Mifflin, 1851), 310-311.

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6. Harriet Ritvo, The Animal Estate: The English and Other Creatures in the Victorian Age (Cambridge, MA: Harvard University Press, 1987), 284-289.
 7. Darwin, On the Origin of Species, 73-74.
 8. Raymond Williams, Keywords (New York: Oxford University Press, 1976), 184.
 9. William Cronon, "The Trouble with Wilderness; or Getting Back to the Wrong Nature," in Uncommon Ground: Rethinking the Human Place in Nature (New York: Oxford University Press, 1996), 69.
 10. C. A. B. Tankerville and L. Hindmarsh, "On the Wild Cattle of Chillingham Park," Athenaeum 565 (25 August 1838), 611.
 11. For an extended discussion of the history of this debate, see Harriet Ritvo, "Race, Breed, and Myths of Origin: Chillingham Cattle as Ancient Britons," Representations No. 39 (Summer, 1992), pp. 1-22.
 12. For summaries of recent research see Hall and Clutton-Brock, Two Hundred Years of British Farm Livestock, Stephen J. G. Hall, "The White Herd of Chillingham," Journal of the Royal Agricultural Society of England 150 (1989), 112-119, and Stephen J. G. Hall, "Running Wild," Ark 16 (1989), 12-15 and 46-49.
 13. Ian Bennet, "Chillingham Cattle," Ark 18 (1991), 22.
 14. Ritvo, Animal Estate, 232-242.
 15. John Bailey and George Culley, General View of the Agriculture of Northumberland, Cumberland, and Westmorland (1805; Newcastle: Frank Graham, 1972), 245.
 16. William Dickinson, "On the Farming of Cumberland," Journal of the Royal Agricultural Society of England 13 (1852), 264.
 17. Ian Herbert, "Foot and Mouth Crisis: Cumbria," Independent (March 27, 2001), 5.
 18. Darwin, Origin, 50.
 19. Harriet Ritvo, The Platypus and the Mermaid, and Other Figments of the Classifying Imagination (Cambridge, MA: Harvard University Press, 1997), 92-95.
 20. Juliet Clutton-Brock, A Natural History of Domesticated Mammals (London: British

Museum (Natural History), 1987), 194-197.