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President's Lecture

Going Forth and Multiplying: Animal Acclimatization and Invasion

Abstract

The nineteenth century saw numerous transfers and attempted transfers of animal populations, mostly as the result of the spread of European agriculture. The exchange of animal populations facilitated by the acclimatization societies that were established in Europe, North America, Australia, among other places, had more complicated meanings. Introduced aliens were often appreciated or deplored in the same terms that were applied to human migrants. Some animal acclimatizations were part of ambitious attempts to transform entire landscapes. Such transfers also broached or blurred the distinction between the domesticated and the wild. The intentional enhancement of the fauna of a region is a forceful assertion of human power. But most planned acclimatizations failed if they moved beyond the drawing board. And those that succeeded also tended to undermine complacent assumptions about human control.

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People were on the move in the nineteenth century. Millions of men and women participated in massive transfers of human population, spurred by war, famine, persecution, the search for a better life, or (most rarely) the spirit of adventure. The largest of these transfers—although by no means the only one—was from the Old World to the New. Of course, people are not unique in their mobility, as they are not unique in most of their attributes. And many nonhuman animals followed the same paths during that period.¹

Most of the animals thus transplanted were members of domesticated species long accustomed to moving in the human wake. But a small, yet compelling, fraction moved in the service of what was called “acclimatization.” In its most expansive nineteenth-century sense, this meant to “introduce, acclimatize, and domesticate all innocuous animals, birds, fishes, insects, and vegetables, whether useful or ornamental.”² Attitudes toward human migrants have often been contradictory and complicated, and migrants of other species have provoked similarly mixed responses.

Acclimatization was not new in the nineteenth century. From the earliest emergence of agriculture, it had been a frequent corollary of domestication as useful plants and animals followed human routes of trade and migration. The instigators of the wave of acclimatization attempts that crested in the late nineteenth century often claimed that their motives were similarly utilitarian.³ But their actions told a somewhat different story. The nineteenth-century transfers were on a much smaller scale. In addition, they resulted from the vision or desire of a few individuals, not entire communities or societies; they involved the introduction of more or less exotic animals to established settlements, rather than the transportation by human migrants of familiar animals along with tools and household goods, in order to reestablish their economic routine.

Self-conscious efforts at acclimatization also embodied assumptions and aspirations that were much more grandiose and self-confident: the notion that nature was vulnerable to human control and the desire to exercise that control by improving extant biota. In many ways acclimatization seemed more like a continuation of a rather different activity, which also had ancient roots, although not quite as ancient: the keeping of exotic animals in game parks and private menageries. Such establishments served only the rich and powerful; those less fortunate had to be content with public menageries and sideshows. Acclimatization efforts similarly reflected the wealth of human proprietors and implicitly suggested a still greater source of power: the ability to categorize and recategorize. Caged or confined creatures—even tigers or elephants or rhinoceroses—inevitably undermine the distinction between the domesticated and the wild.

Nineteenth-century acclimatization initiatives targeted a wide range of species. Perhaps the most famous American story concerns the

English or house sparrow (*Passer domesticus*), which was allegedly first introduced into the United States by a nostalgic Englishman named Nicolas Pike in 1850, and subsequently reintroduced in various locations in the eastern United States and Canada. In Darwinian terms, it was a great success story. So conspicuously did the introduced sparrows flourish that in 1889, the species was chosen as the subject of the first monograph published by the Bureau of Biological Survey.⁴ They continued to attract such sustained and voluminous commentary that in 1928, a Department of Agriculture survey of introduced birds explained the brevity of its entry on the species on the grounds that it “receives such frequent comment that it requires no more than passing notice here.”⁵

The sparrow’s adaptation to North America may have been a triumph from the passerine point of view, but hominids soon came to a different conclusion. Although the first recorded introduction was at midcentury, the most celebrated one occurred a decade and a half later. The *New York Times* chronicled the evolving assessments of the new immigrants. In November 1868, it celebrated the “wonderfully rapid increase in the number of sparrows which were imported from England a year or so ago”; they had done “noble work” by eating the inchworms that infested the city’s parks, described by the *Times* as “the intolerable plague of numberless myriads of that most disgusting shiver-producing, cold-chills-down-your-back-generating, filthy and noisome of all crawling things.” The reporter praised the kindness of children who fed the sparrows and that of adults who subscribed to a fund that provided birdhouses for “young married couples”; he promised that, if they continued to thrive and devour, English sparrows would be claimed as “thoroughly naturalized citizens.”⁶

Two years later, sympathy was still strong, at least in some quarters. For example, the author of an anonymous letter to the editor of the *Times* criticized his fellow citizens in general, and Henry Bergh, the founder of the American Society for the Prevention of Cruelty to Animals, in particular, for failing to provide thirsty sparrows with water. Bergh took the allegation seriously enough to compose an immediate reply, pointing out that despite his “profound interest . . . in all that relates to the sufferings of the brute creation—great and small,” neither he nor his society had the authority to erect fountains in public parks.⁷ But the tide was already turning. Only a few months later the *Times* published an article entitled, “Our Sparrows. What They Were Engaged to Do and How They Have Performed Their Work. How They Increase and Multiply—Do They Starve Our Native Song-Birds, and Must We Convert Them into Pot-Pies?”⁸

There was, of course, a moral of this story, but apparently it was not universally obvious. A few years later English starlings were introduced, also in New York City, and not by a lone (or rogue) acclimatizer.

In 1871 the American Acclimatization Society, modeled on a very successful French predecessor and an already defunct British one, was founded to provide a formal institutional base for such attempts. It is widely reported, although occasionally doubted, that Eugene Schieffelin, the society's moving spirit, wished to introduce to the United States all the birds named in Shakespeare. One reason for doubt is simply quantitative—according to a little book called *The Birds of Shakespeare*, which was published in 1916, the bard mentioned well over fifty avian species, not all of them native to Britain.⁹ Less controversially, this attempt—which also turned out to be excessively successful—was part of what the Department of Agriculture retrospectively characterized as “the many attempts to add to our bird fauna the attractive and familiar [and “useful”] song birds of Europe.”¹⁰ The report of the 1877 annual meeting of the American Acclimatization Society, at which the starling release was triumphantly announced, also approvingly reported more or less successful releases of English skylarks, pheasants, chaffinches, and blackbirds, and it looked forward to the introduction of English titmice and robins, as well as additional chaffinches, blackbirds, and skylarks—all characterized as

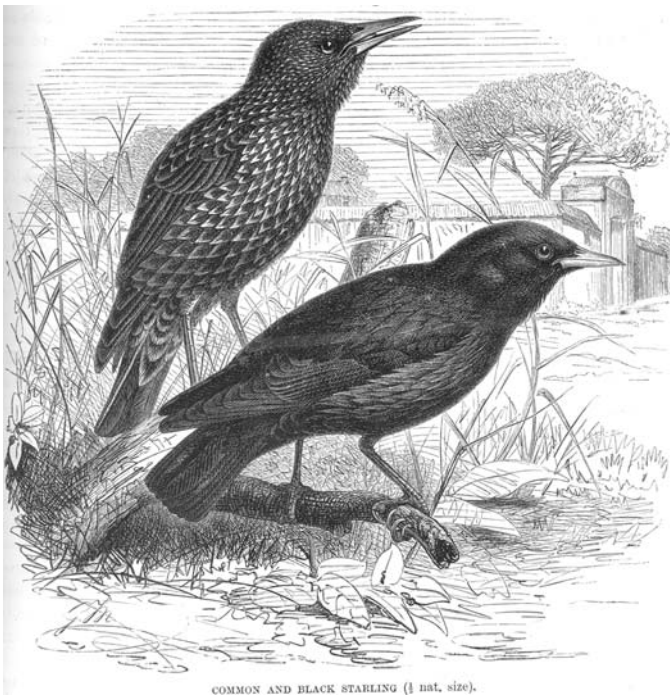


Figure 1: Starlings. Credit: Richard Lydekker, ed. *The Royal Natural History* (London: Frederick Warne, 1894–5) vol III, p. 345. Copy in possession of the author.

“birds which were useful to the farmer and contributed to the beauty of the groves and fields.”¹¹

Not all acclimatization attempts met with equal success. After the American annexation of what became Texas, California, Arizona, and New Mexico, the US Army found that patrolling the vast empty territory along the Mexican frontier was a daunting task, especially in the overwhelming absence of roads. The horses and mules who normally hauled soldiers and their gear did not function efficiently in this harsh environment. Of course, although the challenges of the desert environment were new to the US Army, they were not absolutely new. The soldiers and merchants of North Africa and the Middle East had solved a similar problem centuries earlier, and some open-minded Americans were aware of this.¹² Several officials serving in the dry trackless regions therefore persuaded Jefferson Davis, then the secretary of war, that what the army needed was camels, and in 1855 Congress appropriated \$30,000 to test the idea.

Acquiring camels was more expensive than acquiring sparrows, partly because they are much larger and partly because such

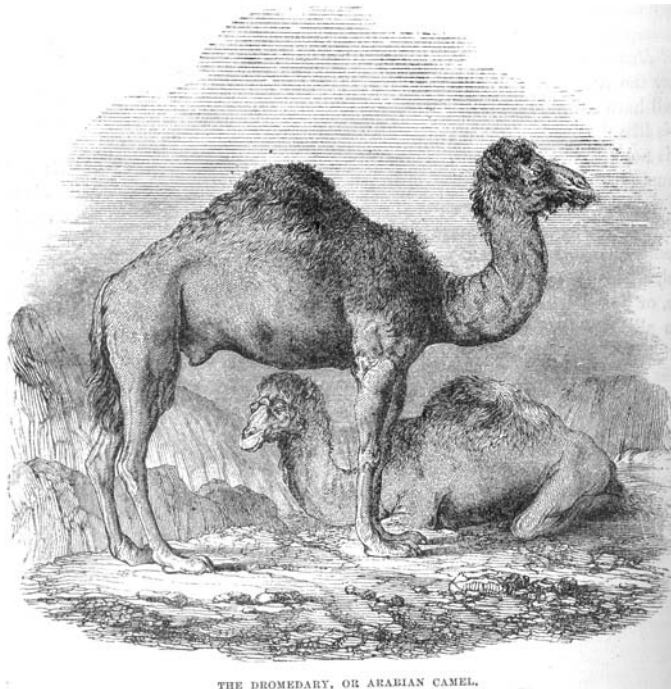


Figure 2: Camel. Credit: S. G. Goodrich, *Illustrated History of the Animal Kingdom, being a Systematic and Popular Description of the Habits, Structure and Classification of Animals from the Highest to the Lowest Forms, with their relations to Agriculture, Commerce, Manufactures, and the Arts* (New York: Derby and Jackson, 1861) p. 576. Copy in possession of the author.



Figure 3: Camel trains used to carry supplies including well timbers and sleepers for construction of the Trans-Australian Railways, between 1914–17. Credit: John L. Buckland collection of railway transport photographs, National Library of Australia.

transactions required intermediate negotiations with people—camel owners, foreign government, customs officials. And the animals themselves demanded significantly more attention, which Americans familiar only with such northern species as horses and cattle were ill equipped to provide. (In consequence a Syrian handler named Hadji Ali—soon anglicized to “Hi Jolly”—was hired to accompany the first shipment of camels.) A total of seventy-five camels survived their ocean voyages and their subsequent treks to army posts throughout the Southwest.

To the surprise of some skeptics, the camels soon proved capable of fulfilling their assigned role. For example, in 1849 the *Scientific American* expressed “strong doubt of their success,” but within a decade considered that “there is . . . a fair prospect of the Arabian camel becoming a regularly naturalized and valuable American citizen.”¹³ As a result of closer observation, the officers who used the camels on missions were, on the whole, favorably impressed, although the muleteers who took care of them tended to hold the opposite opinion.

But these discordant evaluations did not explain the ultimate failure of the experiment. With the outbreak of the Civil War, responsibility for the camels, whose numbers had grown somewhat through natural increase, passed to the Confederacy. Even their early advocate Jefferson Davis had other priorities at that point. Some of the camels were sold to circuses, menageries, and zoos; others were simply allowed to wander away into the wild dry lands. They were sighted (and chased and hunted) with decreasing frequency during the postwar decades.¹⁴ In 1901 a journalist reported that “now and then a passenger on the Southern Pacific Railroad . . . has had a sight of

some gaunt, bony and decrepit old camel . . . grown white with age, [and] become as wild and intractable as any mustang.”¹⁵

So no immigrant camel problem emerged in the United States. But, as the very different Australian story suggests, that was the result of historical contingency, rather than any lack of adaptability or enterprise on the part of the camels. Although the Society for the Acclimatization of Animals, Birds, Fishes, Insects and Vegetables within the United Kingdom failed to thrive (founded in 1860, it was absorbed by the Ornithological Society of London in 1866),¹⁶ the acclimatization movement was enthusiastically embraced in some of the remoter reaches of the British Empire. In particular, acclimatization societies quickly sprang up throughout the antipodes, where their members understood their mission in weighty progressive and patriotic terms. Their published reports asserted that new kinds of animals were not desired merely for aesthetic or culinary diversification (the most frequent motivations of American and European acclimatizers); they were needed to repair the defects of the indigenous faunas of Australia and New Zealand, which lacked the “serviceable animals” found so abundantly in Britain, including, among others, the deer, the partridge, the rook, the hare, and the sparrow. Acclimatizers further complained that while nature had provided other temperate lands with “a great profusion . . . of ruminants good for food, *not one single creature of the kind inhabits Australia!*” Enthusiasts were not discouraged when immigrant rabbits and sparrows began to despoil gardens and fields, merely suggesting that it might be advisable to “introduce the mongoose to war against the rabbits.” They continued to urge “the acclimatization of every good thing the world contains” until “the country teemed with animals introduced from other countries.”¹⁷

As was often the case, ordinary domesticated animals were not of primary concern to the most dedicated and visionary acclimatizers, although in many places cattle and sheep were more influential than rabbits or rats or sparrows in converting alien landscapes into home-like ones. But in Australia, as in Texas and Arizona, extraordinary domesticated animals could fall into another category. Similar problems—vast trackless deserts that nevertheless required to be traversed by people and their equipment—suggested similar solutions. A few immigrant camels arrived in Australia in 1840, but they were not integrated into the economic life of the colony (or colonies) for several decades. In the 1860s, just as the Civil War deflected official interest from the North American camels, their Australian conspecifics were beginning to flourish. By 1878 *Nature* reported approvingly that they worked well when yoked in pairs like oxen, and that they remained very useful in exploring expeditions, although most labored in the service of ordinary commercial purposes.¹⁸ They also carried materials for the major infrastructure projects that brought piped water and the telegraph to the dry interior. A camel breeding stud was established in

1866; overall, in addition to homegrown animals, approximately ten to twelve thousand camels were imported for draft and for riding during the subsequent half century.¹⁹ They remained essential into the 1920s when they were supplanted by cars and trucks—the same fate that had already befallen horses in Europe and elsewhere.

Suddenly, what had seemed an unusually successful adventure in acclimatization took on a different cast. As in the American Southwest, once the camels lost their utility, they became completely superfluous. A camel-sized pet is an expensive luxury, and there was no circus or zoo market for animals that had long ceased to be unusual. So some were shot, and others, whose owners had kinder hearts, were set free to roam. At this point the Australian story diverged from the American story once again. Camels had lived in Australia for at least as long as many of its human inhabitants (that is, the ones with European roots) in terms of years, and in terms of generations, they had lived there longer. They were well adapted to the harsh terrain, where they foraged and reproduced, rather than dwindling and dying.²⁰ The number of their feral descendants has increased to over a million—by far the largest herd of free-living camels in the world. People complained that they competed for resources with other animals, wild and domesticated, and that they were disrupting fragile desert ecosystems; they were occasionally reported to terrorize small towns. Because like cattle, camels produce greenhouse gases as a by-product of digestion, they have recently been targeted as part of a national effort to reduce carbon dioxide emissions.²¹

After helping to build the nation, camels had, it was asserted, “outstayed their welcome.”²² A cull of twenty-five thousand per year, mostly accomplished by sharpshooters, sometimes from helicopters, had not kept up with new births, and the niche market for camel meat that arose in the 1980s had made even less of a dent. As officials contemplated more drastic methods that would quickly reduce the population by two thirds, human resistance also emerged, sometimes based on regard for the welfare of individual camels, sometimes on the hope the camels could be converted dead or alive into a profit center, and sometimes on the fear that large-scale eradication would require the violation of property rights.²³ Nevertheless a major cull is now underway.

The acclimatization project has often been interpreted as a somewhat naive and crude expression of the motives that underlay nineteenth-century imperialism—intellectual and scientific, as well as political and military—more generally. But this is only a partial explanation; acclimatization also reveals an underlying ambivalence or unease. There is, for one thing, a difference between the imposition of the European biota on the rest of the world and the transfer of exotic animals and plants to the homeland. And for another, the enterprise of acclimatization is much more likely to demonstrate the limitations

of human control of nature than the reverse—whether the targets of acclimatization shrivel and die, or whether they reproduce with unanticipated enthusiasm.

Already, by the late nineteenth century, introduction of exotic plants and animals could be seen as a kind of Pandora's box. The Society for the Protection of Native Plants (now renamed, in consideration of contemporary sensibilities, the New England Wild Flower Society) was founded in 1900, to “conserve and promote the region's native plants.”²⁴ It was the first such organization in the United States; in the intervening century societies with similar goals were established across the continent and around the world. The commitment to preserve native flora and fauna from the encroachment of aliens marked a turn, conscious or otherwise, from offense to defense—perhaps in the American context to be read in conjunction with the Chinese Exclusion Act of 1882 and the more comprehensive Immigration Act of 1924.

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Notes

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- 1 This paper was originally presented as the presidential lecture at the 2010 ASEH annual meeting in Phoenix. A version appeared in the “On the Human,” an online forum sponsored by the National Humanities Center, in November 2011. The discussion can be accessed at <http://onthehuman.org/>.
- 2 Christopher Lever, *The Naturalized Animals of the British Isles* (London: Hutchinson, 1977), 29–35.
- 3 For accounts of acclimatization efforts in a range of geographic settings, see Peter Coates, *American Perceptions of Immigrant and Invasive Species* (Berkeley: University of California Press, 2006); Douglas R. Weiner, “The Roots of ‘Michurinism’: Transformist Biology and Acclimatization as Currents in the Russian Life Sciences,” *Annals of Sciences* 42 (1985): 243–60; Michael Osborne, *Nature, the Exotic, and the Science of French Colonialism* (Bloomington: Indiana University Press, 1994); Warwick Anderson, “Climates of Opinion: Acclimatization in Nineteenth-Century France and England,” *Victorian Studies* (1992), 135–47; and Thomas R. Dunlap, *Nature and the English Diaspora* (Cambridge: Cambridge University Press, 1999).
- 4 Michael P. Moulton et al., “The Earliest House Sparrow Introductions to North America,” *Biological Invasions* 12 (2010): 2955–58; Walter B. Barrow, *The English Sparrow (*Passer domesticus*) in North America, Especially in its Relations to*

- Agriculture*, USDA Division of Economic Ornithology and Mammalogy Bulletin 1, (Washington, DC: GPO, 1889).
- 5 John C. Phillips, *Wild Birds Introduced or Transplanted in North America*, USDA Technical Bulletin 61 (April 1928): 49.
 - 6 "Our Feathered Friends," *New York Times*, November 22, 1868, 8.
 - 7 "Man's Inhumanity to Birds," *New York Times*, July 22, 1870, 2; Henry Bergh, "Mr. Bergh and the Sparrows—A Defence against Certain Aspersions," *New York Times*, July 23, 1870, 3.
 - 8 "Our Sparrows," *New York Times*, November 20, 1870, 6.
 - 9 Archibald Geikie, *The Birds of Shakespeare* (Glasgow: J. Maclehose, 1916).
 - 10 Phillips, *Wild Birds*, 48–49.
 - 11 "American Acclimatization Society," *New York Times*, November 15, 1877, 2.
 - 12 For the definitive account of the integration of camel transport into the economies and societies of the Middle East and North Africa, see Richard W. Bulliet, *The Camel and the Wheel* (New York: Columbia University Press, 1990).
 - 13 "Camels for the Western Prairies," *Scientific American*, September 8, 1849, 405; "The Camels," *Scientific American*, January 23, 1858, 155.
 - 14 This account is drawn from Fred S. Perrine, "Uncle Sam's Camel Corps," *New Mexico Historical Review* 1 (1925): 434–44.
 - 15 Helen T. Griswold, "The Camel Comedy," *Current Literature* 31 (1901): 218–19.
 - 16 Harriet Ritvo, *The Animal Estate: The English and Other Creatures in the Victorian Age* (Cambridge: Harvard University Press, 1987), 237–41.
 - 17 Acclimatisation Society of Victoria, *First Annual Report* (1862), 8, 39, and *Sixth Annual Report* (1868), 29–30; South Australian Zoological and Acclimatization Society, *Seventh Annual Report* (1885), 7; Acclimatisation Society of Victoria, *Third Annual Report* (1864), 30, and *Fifth Annual Report* (1867), 25.
 - 18 "Geographical Notes," *Nature*, July 25, 1878, 337.
 - 19 "Camels Australia Export." <http://www.camelsaust.com.au/history.htm> (accessed March 30, 2011); "A Brief History of Camels in Australia," based on Strategies for Development (1993) prepared by the Camel Industry Steering Committee for the Northern Territory Government. http://camelfarm.com/camels/camels_australia.html.
 - 20 HariPriya Rangan and Christian Kull have argued that the camels prospered in part as a result of the success of several introduced species (one from Africa and one from the Americas) of acacia. "The Indian Ocean and the Making of Outback Australia: An Ecocultural Odyssey," in *Indian Ocean Studies: Cultural, Social and Political Perspectives*, ed. Shanti Moothy and Ashraf Jamal (New York: Routledge, 2010), 45–72.
 - 21 "Australian CO₂ Farming Offset Scheme Begins," AlertNet website, December 8, 2011. <http://www.trust.org/alertnet/news/factbox-australia-co2-farming-offset-scheme-begins> (accessed December 9, 2011).
 - 22 "A Million Camels Plague Australia," *National Geographic News*, October 26, 2009. <http://news.nationalgeographic.com/news/2009/10/091026-australia-camels-video-ap.html> (accessed March 30, 2011).

- 23 "Feral Camels in Western Australia," Department of Environment and Conservation, Western Australia, website. <http://www.dec.wa.gov.au/content/view/3224/1968/> (accessed December 9, 2011).
- 24 New England Wild Flower Society website. <http://www.newfs.org/about/history/?searchterm=history> (accessed April 1, 2011).