

To appear in the November 2015 theme issue on animals of The American Historian, the non-peer-reviewed magazine of the Organization of American Historians

The Urban Upwelling

Etienne S. Benson

In late September 2015 a video began circulating on social media under the hashtag #pizzarat. As of early October, it had garnered more than seven million views on YouTube—sufficient evidence of cultural relevance to make not only meme-happy sites such as BuzzFeed and Gawker take note, but also mainstream media such as the *New York Times*, CNN, and NPR. The 14-second video, shot by comedian Matt Little, showed a rat dragging a slice of pizza down the steps of a Manhattan subway station. Responses to the video varied. Some interpreted it as evidence of poor sanitation, while others admired the little rodent’s pluck and perseverance, seeing him or her as “a symbol of the ultimate New Yorker.”¹

Just as it can be difficult for those familiar with other mass transit systems around the world to understand New Yorkers’ ability to tolerate their system’s grime and odor, it is difficult to write about the Pizza Rat phenomenon without feeling a little bit tarnished by association. Nonetheless, like many other unappetizing episodes in history, it offers a teachable moment. The rat’s celebrity can be seen as part of the history of anthropomorphism, reformatted for an age of crowdsourced media, but it also points to a profound transformation of earthly ecologies that has reconfigured the material conditions of human-animal encounter in American cities over the past several centuries. Viewing rats and other nonhuman animals as participants in urban economies and ecologies, I want to suggest, can generate some new questions and insights into the history of life in the city.

Cities have always been sites where resources are concentrated and diverse individuals come together, and rats and other “pests” and “vermin” have thrived in the interstices of urban food systems for millennia. Over the past two centuries, however, cities have grown to unprecedented sizes, whether one measures them by population, geographical extent, energy consumption, waste production, or other metrics. As of 2014, approximately 82 percent of North Americans lived in urban areas; globally, the proportion was 54 percent.² On a per-capita basis, people living in cities may have a smaller environmental footprint than those living outside of cities, but in the aggregate they constitute one of the driving forces of the Anthropocene.

The increasing centrality of urban metabolisms to the functioning of Earth systems casts new light on the encounters between human and nonhuman life that take place within the city’s borders. Oceanic ecosystems offer a useful metaphor. The phenomenon of upwelling occurs along coastlines and around seamounts where wind and currents bring cold, nutrient-rich water to the surface. Such upwellings can support extraordinary biological productivity, as phytoplankton use nitrates, phosphates, and other nutrients to create energy-rich organic matter, which then serves as the basis of diverse food chains. Resources are rarely “wasted” in such systems; instead they are concentrated and dispersed, stored and circulated. In the natural economies of abundance

that emerge around upwellings, examples of inter- and intraspecies predation, parasitism, competition, symbiosis, and cooperation abound. Off the coast of Peru, for example, dolphins herd schools of small fish toward the surface, where they are also consumed by seabirds, whose blood nourishes ticks and other parasites and whose guano can be harvested for human agriculture.³

So it is in modern cities, where the vast flows of energy and materials that have been harnessed for human purposes have also generated opportunities for other forms of life, even as the ecologies of the rural hinterlands that support them have become increasingly depauperate. Cities are artificial upwellings, driven by the winds of human commerce and providing occasions for multispecies encounters of almost every imaginable form. Once we recognize that these flows of energy and nutrients are only partially captured and controlled by their human residents, new questions about some well-known episodes in the history of human-animal relations in the American city arise.

Take, for example, the elimination of feral, stray, and free-roaming domesticated animals from the streets of American cities between the middle of the nineteenth century and the early decades of the twentieth century. Historians have shown how the elimination of urban pig-raising was shaped by class and race-based hierarchies, and how the movement to round up stray dogs was linked to the sanitation and humane movements.⁴ They have not, however, spent much time considering precisely what these animals were eating on city streets, or what happened to those nutrients once the animals were gone.

Following the nutrients reveals some surprising connections. Much of the food consumed by free-roaming animals in the nineteenth-century American city was waste dumped haphazardly in streets and alleyways. What happened to those calories and nutrients once the pigs and free-roaming dogs had been eliminated? They, too, were swept from the streets. It was precisely during this period, and for some of the same reasons, that the disposal of food waste was regulated and centralized. Street trash and street animals, two forms of threat to the public order, were eliminated in tandem.

Still, people did not stop producing garbage, and pigs did not stop eating it. People simply started disposing of it in dumps on the outskirts of cities, where it continued to feed pigs as well as rats, flies, and other animals who had previously flourished in trash-strewn streets and back yards. Well into the twentieth century, the great “triumph” of urban reformers over pigs and those who raised them was mainly a matter of spatial segregation and centralization that left the flow of resources largely untouched. It was only with the spread of sanitary landfills after World War II and the recognition of health risks posed to pigs by unsterilized garbage that the practice of allowing pigs to forage in dumps declined.⁵

Garbage collection has never been an exact science, however; there is always some slack in the system, some inefficiency that creates opportunities. Even as pigs were moved to the outskirts of cities and stray dogs were rounded up and killed, other nonhuman animals moved in to take advantage of food waste during those moments between when it had been discarded and when it was collected. Whether tossed casually onto the street or into a trash receptacle, the food that had been produced in the

biodiversity deserts of modernized agriculture and shipped into the ecological nexus of the city still found eager nonhuman consumers.

These consumers included not only familiar human commensals such as rats, mice, and flies, but also a variety of wildlife. Squirrels, for instance, were released in many urban parks in American cities between the mid-nineteenth century and the early twentieth century. Thanks to the planting of street trees, the creation of urban green spaces, and the expansion of leafy suburbs—all of which relied on imported nutrients in the form of fertilizer—they were able to continue harvesting the acorns, buds, and shoots that had sustained their non-urbanized ancestors.⁶ But they also turned to richer and more reliable fare: the easily accessible food waste that accumulated in dumpsters and trash receptacles or dropped from the hands or mouths of careless eaters.

Squirrels were not the only urban wildlife to benefit from human waste and from the human desire to adorn the urban landscape with lush vegetation. Raccoons, opossums, pigeons, and many other species similarly feasted on the urban upwelling, and foxes, hawks, and other predators thrived on these animals in turn. Other species, such as white-tailed deer, ate little garbage but benefited from the fertilizer-fueled greening of parks, gardens, and yards. Food waste and fertilizer are not the only reasons we can enjoy the sight of a red-tailed hawk soaring over a bustling downtown park, but they are important parts of the story.

If attention to nutrient cycles and energy flows helps explain the transition from street animals to urban wildlife, it also provides new perspectives on the elimination of working animals and animal agriculture from American cities, which has muted the multispecies cacophony of the city. Whereas the urban soundscape of the United States was once filled with horses neighing, chickens cackling, cows lowing, and pigs grunting, it has been dominated since the mid-twentieth century by the rumble of the internal combustion engine.

This aural transition took place in several steps. At first, animal agriculture was consolidated and segregated rather than entirely eliminated from the city. Massive feedlots and dairies were built in the industrial outskirts to replace the many smaller establishments once scattered throughout the city. Eventually, however, even these concentrated animal operations vanished as refrigerated transport made it feasible to produce milk, eggs, and meat in locations distant from the point of sale and consumption. Soon after, automobiles rendered the urban horse obsolete. These transitions took longer in some places than others, but by the mid-twentieth century the era when one could encounter working and food animals in the American city seemed to be over.⁷

Again, following the nutrients allows us to map unexpected connections. Unlike swine and stray dogs, cattle and horses did not scavenge for food in the trash-strewn streets. Once they were no longer needed, cities could stop importing grain to feed them. The replacement of horses by automobiles thus represented not just a transition from one prime mover to another, but also the elimination of a class of nonhuman consumers. Like all consumers, horses had participated in the circulation of resources. Their “food waste,” for example, in the form of spilled and partly digested grain, nourished non-native house sparrows, whose populations boomed in late-nineteenth-century American cities. A

nuisance for some urban residents, horse manure was a windfall for others. When this aspect of the upwelling ceased, sparrows had to look elsewhere for sustenance.⁸

The closing of slaughterhouses and stables blocked one form of circulation, but it did not bring the importation of animal feed into the city to an end. Instead, another class of nonhuman consumers expanded: pets. The reorientation of the veterinary profession in the early twentieth century reflects this shift. Instead of focusing on horses and cattle, veterinarians increasingly specialized in the ailments of dogs, cats, and other “small animals.”⁹ Meanwhile, a gargantuan pet-supply industry emerged to bring the benefits (and increase the efficiency) of industrialized agriculture to the city’s growing pet population. In 2012 it was estimated that New York City was home to 1.1 million dogs and cats, or about one for every three households. These numbers dwarf those of the working horse population even at its peak.¹⁰ Thus, while the kinds of animals found in the city have changed dramatically, it is not clear that the total number has appreciably decreased. American cities have fewer pigs, but more raccoons; fewer horses, but more dogs and cats.

If the de-animalization of the American city appears illusory on close inspection, we should also not be too quick to embrace the idea that the shift from working and food animals to pets and wildlife represents a transition in human-animal relations from “domestic” to “postdomestic,” from economic exigency to luxury consumption.¹¹ The absence of factories in postindustrial American cities indicates neither that factories are no longer necessary nor that city dwellers no longer work; similarly, the disappearance of horses from city streets does not mean that domesticated urban animals no longer perform important economic functions. In service economies where flexibility and resilience in the face of insecurity are highly valued, pets do more than entertain: they provide emotional support and well-attested health benefits. Where once horses pulled carts laden with material goods, dogs and cats now carry our emotional burdens.

The urban upwelling thus supports a complex multispecies economy of producers, consumers, and “service workers.” Like the profusion of marine life around an oceanic seamount, humans, dogs, squirrels, hawks and myriad other urban residents cooperate and compete within a natural economy of abundance that is ultimately grounded on the exploitation of fossil fuels and shaped by the vagaries of human commerce. By tracing commodities beyond the human, we can learn a great deal about how cities function as ecological and economic units. What we call “waste” or “inefficiency” because it fails to serve our own human purposes often represents opportunities for other forms of urban life. Paying attention to these circulations can remind us that the places we consider most human, for better or worse, are in fact teeming with nonhuman animals and their projects.

The Pizza Rat of ephemeral Internet fame is one of these unintended urbanites, engaged in making a life for himself or herself within the resource-rich New York subway system. I suspect that what made this particular rat so fascinating was the fact that the “waste” being consumed was not merely large in comparison to the rat’s body but also whole and unblemished. It was as if the rat had decided that the scraps and dregs of human food consumption were no longer enough; only a full slice, direct from the pizzeria, would do. Such inversions of the urban ecological order take place all the time, provoking anxiety and fascination in equal measure. They are one consequence of the

reshuffling of earthly metabolisms that has accompanied the incredible growth and urbanization of human populations and the tremendous (and tremendously unequal) increase in material consumption since the nineteenth century, most of which has been concentrated in cities. Historians have much to say about the multispecies encounters that take place within these urban upwellings.

1 Emma G. Fitzsimmons, “‘Pizza Rat’ Prompts a Collective ‘Ew’ and Debate on Cleaning New York Subway,” *New York Times*, Sept. 22, 2015, <http://www.nytimes.com/2015/09/23/nyregion/pizza-rat-spurs-debate-on-how-to-clean-up-new-yorks-subway-system.html>; “A Rat in New York City Shows How We All Feel

2 United Nations, Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects: The 2014 Revision, Highlights* (2014), <http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf>.

3 Gregory Cushman, *Guano and the Opening of the Pacific World: A Global Ecological History* (2013), 88, 171–72.

4 Catherine McNeur, “The ‘Swinish Multitude’: Controversies over Hogs in Antebellum New York City,” *Journal of Urban History*, 37 (Sept. 2011), 639–60; Jessica Wang, “Dogs and the Making of the American State: Voluntary Association, State Power, and the Politics of Animal Control in New York City, 1850–1920,” *Journal of American History*, 98 (March 2012), 998–1024.

5 Martin V. Melosi, *Garbage In The Cities: Refuse, Reform, and the Environment*, (2005), 187–188.

6 Etienne Benson, “The Urbanization of the Eastern Gray Squirrel in the United States,” *Journal of American History*, 100 (Dec. 2013), 691–710.

7 William Cronon, *Nature’s Metropolis: Chicago and the Great West* (1991), 207–59; Ann Norton Greene, *Horses at Work: Harnessing Power in Industrial America* (2008); Clay McShane and Joel A. Tarr, *The Horse in the City: Living Machines in the Nineteenth Century* (2007).

8 Peter Coates, *American Perceptions of Immigrant and Invasive Species: Strangers on the Land* (2006), 28–70.

9 Susan D. Jones, *Valuing Animals: Veterinarians and their Patients in Modern America* (2003).

10 StatsBee’s Blog, “New York City’s Pet Population,” Feb. 14, 2012, <http://www.nycdc.com/blog-entry/new-york-city-s-pet-population>; McShane and Tarr, *Horse in the City*, p. 33.

11 Richard W. Bulliet, *Hunters, Herders, and Hamburgers: The Past and Future of Human-Animal Relationships* (2005); Richard White, "Animals of Enterprise," in *Oxford History of the American West*, ed. Clyde A. Milner II, Carol A. O'Connor, and Martha A. Sandweiss (1994), 237–73.