Roundtable: Animal History in a Time of Crisis

Introduction

This roundtable on animals in agricultural history started innocently enough. We sought to gather together a group of animal historians to discuss new directions in what has become one of the most dynamic subfields in history. During our preliminary discussions back in September 2019, the theme of crisis was already on our minds. Several participants suggested that we discuss the relationship of animals to the climate crisis and the rise of the Anthropocene, and soon after we formally began, Australia began to burn on an unprecedented scale. So we were already talking about animal history with a sense of urgency about the present when news of a novel coronavirus began to spread. Before we knew it, the world was locked down and COVID-19 was our unavoidable daily reality.

Because of this dynamic, the roundtable became a kind of historical chronicle of what will surely be one of the transformational moments of the twenty-first century. Beginning with a superb discussion of the methodological and substantive questions of animal history—especially as it relates to agricultural history—the first half offers an informal guide to doing animal history generally, and within the context of the Anthropocene more specifically. Then COVID-19 appears, and the discussion shifts dramatically as the participants tackle a subject in real time, trying to make sense of a fluid situation using the tools of a historian. We can still only guess about the long-term outcomes and consequences of the pandemic, but this roundtable offers one example of historians helping to contextualize an especially bewildering sequence of events.

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Editors: You all take slightly different approaches to animal history but clearly see value in exploring animals as historical actors. We’d like for you to start by simply discussing the origins of the field and why you have come to study animals. What do they offer you as historians? How has their inclusion in your research shaped the ways you do history?

Joshua Specht: In the second half of the nineteenth century, domesticated animals, along with almost everything else on four legs, were banished from cities and pushed to the margins of many societies. During the same period, the American historical profession took shape. Historians deepened and archivally grounded our understanding of the past, but in most accounts, animals were oddly absent. When animals were discussed, they were treated as economic or agricultural inputs, rather than meaningful actors. This approach was a product of its time, and it is one that scholars today are working hard to revise.

Ongoing close contact between humans and nonhuman animals characterized most, if not all, past societies. But animals cannot speak for themselves, and as a result are often at the archival margins. Historians took assumptions from their own time, and finding few animal traces in the archive, concluded that nonhuman creatures played little role in shaping their world. This means that animals were everywhere in history, but almost invisible in historiography. As a result, there is a rich opportunity for scholars to give animals their due. Over the past four decades, from the pioneering work of Harriet Ritvo and Richard Bulliet, animal history has grown into what now is a reasonably mainstream field (Ritvo, 1987; Bulliet, 2007).

To animal history’s skeptics, I’d like to suggest that animals can serve as a valuable lens through which to explore almost any topic. The key is treating animals as subjects rather than objects. Consider how animals might be meaningful actors. How did invasive species shape forest management? What kind of labor did animals perform themselves? When was this labor no longer needed and what did it mean for farm life? Conceptualizing animals as makers of history, even if only in a highly circumscribed role, reframes stories we thought we knew.

The animal lens has deepened my work considerably. My work on the history of ranching and meatpacking only came together when I started to decenter beef, and focus more on cattle as living, breathing, and misbehaving animals. The story of cowboys and the long cattle drive became one of cattle performing vital labor as they walked themselves to market. Attention to how
cattle wandered, and what early settlers made of their movement, revealed the active role animals played in the process of colonizing North America (Anderson 2004). Meanwhile, I only started to grasp the economics of the nineteenth-century ranch when I appreciated the extent to which cattle were largely left to care for themselves.

Further, treating cattle as subjects rather than objects led to a major unexpected insight. Across the arc of my study, the animals involved tended to move from subjects to objects. Animals as active agents were vital at the mid-nineteenth-century beginning of the story, but much less important at the end, in the early twentieth century. This was only a tendency—animals have a knack for confounding efforts to reduce them to passivity—but it was one central to the evolution of twentieth-century animal husbandry. Society still depended on animals for its sustenance, but these creatures were often spatially removed from American population centers, and their lives increasingly managed and controlled. This was part of a broader renegotiation of the boundaries of the human and nonhuman world; commodity animals and their ecosystems were segregated from human environments, accelerating animal exploitation and the destruction of distant ecosystems and communities.

Understanding the shift—or attempted shift—of domesticated animals from subjects to objects is deeply relevant to agricultural history. The same period of the animal shift from subject to object was one in which agriculture moved from extensive to intensive production (Anderson 2019). Production increased by intensifying in small spaces far removed from densely populated areas. Agriculture remained as essential as ever, but increasingly invisible to most. By examining this shift through the animal lens, we see how this invisibility enabled animal, environmental, and human exploitation.

In its initial neglect of animals, the historical profession was very much a product of the world in which it originated: one in which animals remained central to sustaining human societies but were nevertheless at the margins. By adding animals as meaningful agents back into the story we can rewrite almost any story we choose. And by exploring how contemporary economic and social systems have tried to remake animal subjects into objects, we may gain a deeper understanding of the ecological challenges we face today.

**Susan Nance:** As a historian of animals, I understand the story of animals in the past to be intrinsically valuable and of political importance. For any group in history to receive their justice, whatever that justice might be, scholars must account for their history. And, yes, as Josh points out, certainly we can also
explore the history of nonhuman animals in order to understand human life. Yet, over the last decade or so, I have tried to achieve some balance in telling the stories of animals and people and have come to see myself as a kind of historical whistleblower who seeks especially to tell those stories that people want to forget.

Initially, my research concerned elephants. As a graduate student studying nineteenth-century American entertainment history, I was astonished to see in circus memoirs and old newspapers accounts of elephants injuring and killing people. In 2005 or so, when I was able to get to work on explaining that phenomenon, animal history was a niche field. It consisted largely of histories of human ideas about and representations of animals, and human uses of animals. Animal breeding practices and the nature of zoos were two especially prominent topics in the literature just then, while much of the literature overlapped with the history of science and animal studies (the interdisciplinary study of human cultures interpreting and representing animals).

This was a great foundation, but I still needed advice on how to interpret historical accounts of elephant behavior. Once at the University of Guelph, I became affiliated with the Campbell Centre for the Study of Animal Welfare (CCSAW). There I had access to an elephant specialist, as well as many veterinarians, ethologists, and their students. This meant taking a crash course in the principles of animal welfare science, a tool by which scientists “ask” animals what they need or prefer by allowing them to choose from a series of options. The assumption underlying such research is that, as products of evolutionary processes, we can trust animals to know what is best for them. This research can produce counterintuitive results that expose the limits of human perception. At one presentation I made to a group of CCSAW students and faculty, I showed the group a 1905 photograph of elephant handlers ushering a large bull elephant, Fritz, into a railcar. Most historians would have asked about the people in the image—their social or economic status, what railyard that was, who photographed the image, for instance. My audience that day had different questions that, as Josh puts it, centered the elephant as a subject, not an object, of our inquiry: Did they really drive that huge elephant in that tiny railcar? How long was the elephant in there? Would any people be inside with him—surely they’d be injured or killed! Did the elephant have hay or water available? What temperature was it? Were other elephants around, where and what kind?

That was a profound turning point for me since I realized that animals live in a kind of parallel reality to ours, and that the task of the animal his-
historian is to try to approximate it. I also surmised that the literature on the needs and nature of contemporary elephants could serve as a kind of methodology for analysis of historical depictions of those animals, their behavior, and its change over time. This was possible with elephants since, as species, they haven’t changed substantially since the nineteenth century, genetically speaking. At the same time, the life experience of captive elephants relative to their free-roaming kin throws plenty of variability into the mix, while the experiences of all elephants have also changed substantially since the early nineteenth century. Still, this was a starting point: learn about the animals you wish to study from whatever scientific literature that is available. Combined with the historian’s skill in vetting sources and contextualizing information, that interdisciplinarity offers a way to see animals in the past as historically contingent beings who acted in their own interests as they understood them.

More recently, I have ventured into the field of agricultural history by studying the animals of ranching and rodeo. The now numerous histories of horses and cattle still document human ideas about and uses of those animals by breeders, the cattlemen’s and horse enthusiasts’ associations, the horsepower or pounds of beef generated, and so on. That history is valid but cannot tell us very much about what it was like to be a calf or bronc or bull in 1870 or 1950. To try to understand how horses and cattle lived in the West, instead I interpreted the reports and discussions of equine and bovine agency and behavior found in cowboy memoirs and rodeo correspondence—sources central to this topic—in light of more contemporary studies of horse and cattle welfare, cognition, and health. Yet, there was one more complication: domesticated animals like horses and cattle can dramatically change—physically, physiologically, and behaviorally—in just a few decades. Add to that each individual’s life experience, which also shapes behavior, and the diversity among them becomes almost unmanageable. Then again, that is a good time to write about animals as individuals, not simply as populations or herds. Seeing agricultural animals—like a famous bucking bronc or an anonymous steer—as unique beings with specific experiences always reveals some unexpected things and problematizes both popular mythology and academic assumptions that we may have used to talk about them in the past.

Reinaldo Funes-Monzote: Around twenty years ago, I was in Spain working on my PhD on the impact of the Cuban sugar cane industry on forest ecosystems. I began to study the sugar cane industry while studying at the University of Havana in 1991, where I took a more traditional approach toward
economy and society. In both cases, I placed some attention on the role of animals, especially the oxen teams, but in fact, they were far from my concerns as a historian-in-training.

From the seventeenth to the twentieth century, oxen teams were an integral part of the Cuban sugar industry and agriculture in general. Oxen and horses were also crucial for transportation and many other aspects of human life. But historians have not given much attention to the critical role of animals in Cuban society and agriculture. A few have researched the evolution of the livestock economy and the consumption of animal products (Balboa 1991; Gonzalez 2008; Nova 2008; Funes 2012a, 2019). And in the broader historiography of Latin America and the Caribbean, several studies deal with animals in one way or another, usually concerned with production and consumption and with the export trade. Not by chance, most of the studies published about animals are dedicated to areas that developed an export economy—such as Argentina, Uruguay, Brazil, Colombia, or Mexico—based on the abundance of domestic animals such as cattle or sheep (Giberti 1970; Sabato 1989; Edelman 1992; Amaral 1998; Bell 1998; Flórez-Malagón ed. 2008; Sluyter 2012; Wilcox 2017; Van Ausdal and Wilcox 2018).

The long history of the livestock economy points to the promise and possibilities of doing animal history in the region. Tracing this history in the archives is not only possible but very productive. There are many statistics for international commerce and sources at the local level. Municipalities or central governments usually imposed taxes on animal possession, sales, circulation, or slaughtering, alongside regulations on the consumption of meat and other animals products, including those concerning public health or urban life.

When I was writing my doctoral thesis, I focused mainly on impact of the sugar industry’s expansion on the forest and less on other environmental implications. Later I realized that deforestation was only the tip of the iceberg. A significant part of those implications had to do with the changing relations between humans and animals. For example, I began to see the oxen teams in the context of the social and ecological transition generated by the first industrial revolution, and the impact of sugar on other animals such as birds, crabs, and rats became clearer. The best-known case that ties together animals and agroecological transformation could be the expansion of mosquito habitat within the Caribbean’s plantation complex and the subsequent spread of yellow fever and other mosquito vector diseases (McNeill 2010).

The massive transformation of the Cuban landscape by the sugar cane in-
dustry was closely followed by the expansion of cattle ranches. Traditionally, Cuban historiography has paid much more attention to the relationship between tobacco and sugar, following the classic essay by Fernando Ortiz, *Cuban Counterpoint Between Tobacco and Sugar* (Ortiz 1940). But in terms of geographical expansion, the real counterpoint is between the sugar cane and the cattle ranch, or the livestock economy in general. If we follow traditional historiography, it seems that animals would not deserve to be a part of history, or even part of the agricultural history, something that could change with the influence of animal history.

My interest in including animals within Cuban history—or Caribbean and Latin American history more broadly—has expanded to several lines of inquiry: an animal and plant protection society established in Cuba at the end of the nineteenth century; slaughterhouses and milk consumption in Havana at the beginning of the twentieth century; and the history of cattle ranches (bovine mainly) and swine production since colonial times. Currently, I’m working on a project about the “animal protein” debates and policies in Cuba during the Cold War, trying to connect the transformation of animal raising with food consumption-related issues, and its socio-environmental implications.

Although it is hard to trace the origins of animal history and its relationship with agricultural history, the growing field of animal studies offers historians and agricultural historians a wide range of new perspectives and new topics to develop. For Latin America and the Caribbean, we have already some initial historiographical and methodological explorations by authors such as Derby (2011), Few and Tortorici (2013), and Horta Duarte (2019). No less relevant is the opportunity to participate in a broader discussion about the intersection between science, technology, and environment, or the place of animals in our planet. Can we imagine a world without other animal species? Does the earth belong only to human beings? Should we give voice to non-human animals? Contrary to the common techno-optimism, I envision the role of animals in the future as still more critical than robots.

**Gabriel N. Rosenberg:** My journey into animal history is a bit unusual. In graduate school, my primary training was as a historian of American sexuality. I was sometimes frustrated by the metropolitan blinders historians of sexuality often brought to their work. The result, in my opinion, was that the sexual cultures of the metropole, including divergence from heterosexuality, were documented by the subfield, while everyone outside of a big city seemed to be
mired in a vast, ahistorical, and undifferentiated heteronormativity. My first book about 4-H clubs grappled with this (Rosenberg 2015). It showed how the American state tried to govern sexuality in large swaths of rural America and that one product of this governance was the conflation of rurality with healthy heterosexuality. (Another was agribusiness.)

One hypothesis I tested in the book was that sexual knowledge in rural spaces was heavily shaped by interactions with animal reproduction. It’s a cliché among historians of sexuality that rural people learn about sex by watching animals copulate (see, for example, D’Emilio and Freedman 2012, 17). And if the cliché is true, this raised interesting questions: How had changes in livestock breeding altered the knowledge generated by these interactions? How had the dramatic changes in American agriculture and the food system in the past two centuries shaped the history of sexuality? These questions form the basis of my current book project, “Purebred: Making Meat and Eugenics in the Modern World.”

Engaging the material history of livestock breeding has challenged my initial suspicion that humans were “witnessing” animal sex and drawing lessons from it. Humans were doing this, of course, but there was much more to it than that. In the process of managing, supervising, prompting, and forestalling animal mating, humans had also become active participants in animal sex and not merely passive bystanders. I showed, for example, that transformations in livestock breeding in the past century impelled the rewriting of American sex laws to distinguish animal husbandry from bestiality, a distinction that ultimately only resolved to a categorical exemption for animal husbandry (Rosenberg 2017).

All of this transpired against the backdrop of discourses about the presumed naturalness of heterosexuality and, by implication, the heterosexuality of nature (Terry 2001). Even sophisticated environmental histories such as William Cronon’s Nature’s Metropolis often took animal reproduction for granted, as if farmers merely skimmed the cream of a self-sufficient animal heterosexuality (Cronon 1991). My research suggested otherwise (Rosenberg 2016). Mating had to be made. Breeders labored to synchronize animal bodies and desires with the demands of the market. These processes required technical acumen to surmount the challenges posed by the animals themselves.

I am reminded of one archival encounter along these lines that still haunts me: in 1911, a pair of breeders wrote to the Berkshire World and Corn Belt Stockman’s advice columnist, A. J. Lovejoy:
[We own] a young boar twenty-one months old, and … cannot get him to breed at all…. The old boar did not really fight him, but sometimes would root him out of his way. Sometimes during the day the two boars would nest together. The young boar is timid, the sows have fought him more than the old boar…. He will not pay any attention to the sow, not even to mount her.

Lovejoy responded that they should give the boar damiana, an aphrodisiac herb. “Then, if he refuses, castrate him” and send him off to slaughter (Lovejoy 1911).

This exchange ignites in me a maelstrom but it also discloses an object lesson about the possibilities of animal history. The young boar had personality, will, and desire. But he was summoned into the torchlight of human history, and into my encounter with him, only because he would not keep to the script of compulsory reproduction. This failure also dictated the morbid fate that he shortly suffered. I identify with the young boar through inappropriate categories—to call the boar queer is an anachronism and anthropomorphic—and this identification clouds the context of violence: most male swine were castrated and slaughtered for meat; there is nothing special about this violence. I find here a constitutive ambivalence of identification that haunts the history of sexuality. Historians of sexuality are pulled by our identifications with historical subjects even as we caution ourselves against deploying contemporary identitarian logics to make sense of our historical subjects. To think about animals within the history of sexuality, then, is a thrilling, generative, and daunting task, even as one tries to do it in the overdetermined context of animal agriculture. Animal history forces me to think about sexuality without recourse to identity, and, instead, it pushes me to see sexuality as embedded within a more-than-human political ecology.

Sandra Swart: My doctorate in modern history was on a lonely Afrikaans poet. This dissident iconoclast spent some time deep in the South African veld on the cusp of the twentieth century. Among many other adventures—including taking on a corrupt head of state, gunrunning, and a keen interest in the salutary effects of recreational morphine abuse—he studied a troop of baboons in the wild. This was one of the earliest primatological endeavors in the field—and he wrote notes on their natural and unnatural history. Over time, I found myself just as intrigued by these furry fellow primates as I was by the poet. As I was finishing my doctorate I simultaneously did an MSc in environmental change and management (Oxford University was weird like that), which gave me some insights into ecology and ethology. When liber-
At first it felt that I was alone (although soon I built up a menagerie of postgraduates working on dogs, penguins, cats, cattle, ticks, wild game, and epizootics). But it became almost immediately clear that there was already a long track record of taking animals seriously—indeed, of having to taking animals seriously—in African historiography. It is a dangerous thing to draw our historiographical models directly from the Global North—or indeed any noncomparative context, given the shifting and ideographic nature of human–animal relations. When we discuss the roots of the subdiscipline, one usually hears the same names from the Global North. These historians are incredibly important and their research has been undoubtedly seminal. But I also think it may be of value to consider a broader “origin story” of our field. Admittedly, as a separate subdisciplinary turn within African history writing, animal history is of recent provenance. Sure, as a consciously defined “turn” it has remained a shy creature roaming the disciplinary deep forest, nibbling at the borders of curricula, conferences, and journals, straying into unexpected habitats and prone both to disheartening extirpations and joyous bursts of fecundity. But despite this, as a breathing beast it has roamed in full sight in African historians for a very long time, especially historians of agriculture and agrarian change. For example, animals were part of Afrikaner historian P. J. van der Merwe 1930s trilogy on the Trekboers (migratory farmer/rancher), and B. H. Dicke deduced that one of the earliest waves of Voortrekkers (Boer pioneers) to leave the Cape for the interior was not wiped out by indigenous African groups (as previously suggested) but rather by the depredations of the tsetse fly (Carruthers 2003). In fact, historians of Africa have long and enduringly engaged with animals as drivers and subjects of change in human history. Humans changed animal histories, which has been manifest in the wide-ranging historiography of epizootics, livestock farming, pastoralism, and conservation—which goes back to the early twentieth century.

So something important that my training as an historian of Africa made blindingly clear was the idiographic nature of animal–human histories and also that there was a wealth of existing African secondary (not just primary
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data) to be mined. Moreover, historians of Africa have long found innovative methodologies for discussing those that are silenced (“representing” is too big a claim and risks ventriloquizing the subject). I came to believe that while a genuinely multispecies history may be attempted, the starting point is the human (but, unlike orthodox histories, the “human” studied in relation to the “animal other”), and the term “animal sensitive history” may be preferred. So, instead of grandiloquent claims of “history from the animal perspective,” I thought of the more modest term “animal sensitive history,” which takes the analytic holy trinity of the (aptly named) humanities—“race, class, gender”—and insists on adding “species.”

I always brood over why animal history matters, having been challenged as to its “relevance” from the beginning in my southern context. I like Susan’s idea of being a historical whistleblower because increasingly I think of the duties of a historian (and not just the heady pleasure of pure research). So these days I ask how do we write about animals now? In this time of global crisis, with a world on fire in many senses of the word. We should be asking what can historians do in and about the Anthropocene? A key approach—so evident from all of us—Josh, Susan, Reinaldo, and Gabe—is writing “more than human history.” Because one way to render the past usefully unfamiliar in these strange times is to reconstruct histories of the ultimate “Others”—to tell a multispecies story. But what is equally important is to resist the coalescence of orthodoxy, to embrace various historiographical traditions (and to read histories of areas other than our own), to read interdisciplinarily, and to engage actively in comparative work: each in our own way. Because history matters. History matters to us—but I think it can matter to animals too. Depending on how we use it.

Editors: Indeed, how do you write animal histories now? It’s an old conundrum no matter what kind of history one writes, but does our current climatological and political moment make things a bit more urgent? Does animal history have something important to say about the Anthropocene or capitalocene—pick your ‘cene—that other approaches—environmental, agricultural, economic, among others—overlook?

Sandra Swart: So, does animal history have something different to say and maybe something important to say about the current era? Bert advised us to “pick your ‘cene.” Well, one “cene” is the pyrocene.

As we write this, our world is on fire. The scale is unprecedented. In Aus-
tralia, huge bushfires have torched millions of acres in the last few months alone, killing at least twenty-four people so far (without factoring in the silent, long-term effects of breathing smoke-saturated air). It is a scenario familiar from recent global coverage of the Amazon and California and, slightly less familiar to global viewers, from India, Borneo, and South Africa. The same basic set of factors, including climate change and poor land management, is producing wildfires on an unprecedented scale. Historian Stephen Pyne has dubbed our era the Pyrocene: “By cooking landscapes, [humans] went to the top of the food chain. And now that we have begun to cook planets we have become a geologic force” (Pyne 2016).

So how do we write our animal histories now—should we engage our current moment directly? As Bert says, it is an old chestnut for guild historians. Indeed, irrespective of the kind of history one writes, one always faces questions of whether and, if so, how to engage with the current moment as an historian. I would say we already do—we cannot help it. In fact, it has become a magic trick we use to dazzle first-year students. First, we drill them in the difference between primary and secondary sources. They nod happily—they get it. Then we show them how “secondary sources” magically transform into “primary sources” over time. Abracadabra! Shazam! With lightning legerdemain, we reveal that the cutting-edge secondary historical analysis of today becomes the primary fodder of future historians. We show them (if they have not yet wandered off, shaking their heads at such historiographical hocus-pocus) how history writing is a kind of Rorschach test more revealing, sometimes, of its own era than the previous eras it purports to examine.

Moreover, as Pyne shows, the terrors of the present delude some into contending that we are “headed into a no-narrative, no-analogue future” (Pyne 2019). But that simply is not the case. History is useful here—context in this, as in everything, is key. At the moment people are most shocked by—not the human loss, not the food crops (at least not yet), nor even the climate (astonishingly there are still climate change denialists), but rather—the animals. Social media is saturated with the idea of a billion animals dead; the trauma of the troops being sent out to bury thousands of dead animals; of evacuees begging first responders to help their pets; of a woman escaping flames on horseback and of cattle dogs refusing to leave their charges and dying with them. The wildlife loss is perhaps even more haunting: koalas burned, kangaroos fleeing, creatures and critters turning to humans for assistance, ordinary people risking their lives to help wild animals.

These animals are victims. But are (some) animals also part of the prob-
Problem? Could animals be part of the solution? Something usually ignored in high-tech fire solutions is animal involvement. But surely the “pyrocene” is not understandable without taking animals seriously. So we ask what should animal historians do about a world on fire? We must not be prescriptive—a hundred historiographical flowers can bloom, after all—but one key way is surely using the discipline of history in conservation efforts.

Quite aside from the devastating impact on animals and the issue of how industrial livestock production helped create our (now) blistering planet (both of which historians of animals can explain), is the historical role of animals in managing fire. Can reconsidering animal distribution from a historical perspective actually help stop the spread of wildfires? Recent research in trophic rewilding (reintroducing currently absent species to regenerate robust historical landscapes and ecological webs) suggests that in some places, restoring large herbivores could defend against mega-fires. Evidence from current ecology, paleoecology, and—interesting for this discussion—historical literature and the archival record, suggests globally higher herbivore densities even quite recently in the pre- and early-colonial period. Reports by hunters in southern Africa until and into the nineteenth century include images of oceans of game, indeed “numbers impossible to estimate,” “thousands and tens of thousands,” and “100,000 seen from a wagon at one time” (Skead 2007; Boshoff et al. 2010). Such a density of grazers decreased veld fuel load and thereby fire intensity and frequency. Such analysis also reminds us that contemporary fire-dominated ecosystems are not “natural” but the product of a fairly recent history of extirpation and extinction of herbivores. Christopher Johnson and others have scoured the archives and the paleorecord, and in half of the case studies, fires increased after the big grazers vanished. For example, in the oldest game reserve in Africa—South Africa’s Hluhluwe–Imfolozi Park—fires apparently got bigger, hotter, and more frequent after the mega-grazers were culled to eradicate tsetse fly. In fact, before the white rhinos vanished, fires average roughly ten hectares but became fifty times larger after the rhinos were extirpated (Johnson et al. 2018). So perhaps rewilding rangelands with pre-colonial (or even earlier) levels and diversity of herbivores may shift ecosystems into less fire-dominant states (Venter et al. 2017). This still needs a lot of historical (let alone scientific) analysis—other variables need to be considered. But if true, it is exciting and hopeful in a time when we need hope. It gives historians a new mission because such rewilding cannot take place without

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1. For older time periods, they used fungal spores associated with herbivore dung as a measure of their distribution and charcoal abundance to measure fire frequency.
accurate archival analysis and idiographic contextualization—conservation in the Anthropocene needs historians of animals.

**Susan Nance:** You ask if animal history and agricultural history are especially relevant in the Anthropocene or capitalocene era, and I say YES! But, so is agricultural history newly relevant. Consider the intersection of the current Holocene or sixth mass extinction phenomenon (an extinction rate many dozens or perhaps hundreds of times higher than average due to human activity and global warming) and agricultural history. My current research, to a degree, asks about the agriculturalization (I do not think “domestication” is quite right) of new species in the twentieth century—for instance tigers, chimpanzees, and tropical fish.

To see what I mean, back up a bit and think about the attitudes toward the environment, including animals, that Keith Thomas identified in *Man and the Natural World* some years ago (Thomas 1983). Accelerated by the invention of capitalism, specific modes of religious thought, and other factors, people in early modern England began to see living things as commodities and to imagine stark distinctions between humans and other species. As these attitudes proliferated around the world, everywhere more and more people came to expect the land, plants, animals, and water, to generate capital. They mistakenly imagined the natural world as a limitless repository of intrinsically worthless raw material just waiting for human ingenuity to make it useful to people and profitable to a consumer economy. These particular, modern attitudes toward the environment, of which settled agriculture and certainly industrial agriculture are key parts, in no small part got us to this historical point (or, really, I want to say *got us into this mess*).

Environmental systems that sustained a very small global human population of primarily hunters and gatherers for millennia (yes, I know I’m generalizing here, but bear with me) can no longer sustain us if we are seven billion people and counting. So, in many, many places people coped with population growth and mobility by removing the ecologies and natural/nonhuman-driven systems that existed and replaced them with settled agriculture in order to mass produce food, timber, cotton, and industrial crops—including livestock or fur animals.

Take this well-known historical pattern a step further—are wild animals about to become agriculturalized or domesticated? Sandra has thought about this with respect to attempts to reinvent the quagga (Swart 2015), which mimic work with cattle and other domesticated species—that is, to have hu-
mans take control of reproduction and distribution of creatures no longer viable at large on the land, that is, in the wild. Consider modern zoos and aquariums. They are, as they have always been, net consumers of animals. Sure, they breed some pandas and other celebrity species. At the same time and unbeknownst to their patrons, they need a steady supply from the wild of less-famous individual birds, reptiles, fish and sea mammals, primates, and others in order to restock their displays. Are zoos and aquariums part of agricultural history? Actually, yes.

My latest research documents the exotic and wild animal trade in North America in the twentieth century. One might call it an “animal sensitive history,” as Sandra proposes. Like Sandra, I politely protest anytime someone says (usually meaning well) that I write the history of animals from “the horse’s point of view” or “from the elephant’s perspective.” I simply write the history of animals with the political project of documenting these beings. And, if at all possible, I want that history to give some sense of what it was like to be one of those animals without claiming to know their perspective with certainty—is that not how we write about people much of the time?

In the twentieth century, globally speaking, people’s traditional attitudes toward wild animals changed dramatically from one of respectful coexistence at a distance, spiked here and there with hateful campaigns of extermination, to fascinated commodification. Focus in on a city like Las Vegas after World War II, and one could find there on The Strip all manner of wild and exotic animal exhibits and live shows that transformed those animals from exotic wild animals into pets and entertainment. This should seem jarringly bizarre to us, but it does not anymore.

For decades, hunters and animal traders, whose business had really begun in the nineteenth century, continued traveling to Asia and Africa to capture these beings for essentially unregulated sale in the United States. Many of these abducted creatures did not live long. Yet, with some, people learned how to persuade or coerce them into reproducing in captivity and to feed them into the traffic in wild and exotic animals on the continent. Thus did chimpanzees, tigers, tropical fish, and others come into the agricultural realm, even if they were not exactly domesticated in terms of genetic transformation. The display of wild exotic animals in Las Vegas casino-hotels, film and television productions, and many zoos was supported by yet other zoos and many entrepreneurial “wild animal ranches” and extreme petkeeping/breeding compounds that could supply anybody with anything just about any time, for a fee.

In my analysis, a rural property in Ohio where the proprietor mass breeds
Bengal tigers is a kind of agriculture, no less than a fur “farm” or a broiler facility. For the tiger compound, there are no 4-H clubs for the kids, to be sure. There was instead a community of sometimes unconventional people who sought to live independently off the land on their own terms by producing animals the market demanded. They were and are in many ways just like farmers and ranchers.

So, if agriculture is a way to control the natural world—plants, water, and animals—in the age of the sixth mass extinction, we can see that people have already begun to employ those same human agricultural technologies and modes of thinking to produce the wild exotic animals we can no longer feasibly harvest from the wild.

For me, the stories of the beings who became caught up in the wild and exotic animal trade is about how consumers—the key players here—ever got on board with the idea in the first place. The idea that it was a human right to abduct wild animals, ship them around the world, train them to perform on stage, or confine them in a tank or pen and show them to paying customers—these were what Scott Sandage termed “folklores of capitalism”—that is, colloquial ideas and values that people used to normalize life in a market economy no matter how damaging it clearly was to people and others (Sandage 2005, 77). Consumer attitudes toward wild exotic animals were perhaps eco-folklores of capitalism. For audiences, accepting all that meant leaving behind thoughts of respectful coexistence at a distance with wild animals and even spiteful schemes for their extermination. How did consumers—including the audiences at Las Vegas shows who saw wild exotic animals on stage—leave those ideas behind? What was hidden from them, by whom, and why? So, indeed, I see animal history and agricultural history as crucial to our understanding of the Holocene, or Anthropocene, or capitalocene era because they show us the eco-folklores of capitalism that are no longer sustainable.

Gabriel N. Rosenberg: Susan and Sandra’s comments make me think about the possible role that agricultural logics and technologies may yet play in the vast bioengineering that may be necessary for the human species to survive a boiling planet. This is a vital and promising topic, and historians of animals and agriculture can contribute in multiple ways: by offering histories of agriculture that attend with nuance to the social and political contexts of agricultural technological development and deployment, but also by situating our own contemporary struggles in a deeper history of ecological modification, a history less confined by the nature/culture boundary.
All of this must proceed in spite of a paradox that Susan and Sandra also get at: the task is to provincialize and deprovincialize anthropocentrism at once. We need to tell stories about human ecological relations that make room for the agency and fates of other creatures—that emphasizes human ecological interdependence with them—even as we chronicle the human species’ unparalleled ecological footprint. No other species has modified its surrounding environs to the extent that humans have, if to varying degrees and with uneven consequences for global climate change. Yet it remains politically important to tell those stories in a way that primes us to consider other creatures. I like here Sandra’s concept of “animal sensitive history,” which seems to me to align nicely with critical anthropocentrism. It is an awareness that we cannot “see as animals see,” and that, to the extent we try to imagine how animals see, think, and feel about the world, we are bound in what I call the “anthropic cage.” It is ultimately only through human perception, cognition, and judgment that we can come to feel or know anything about other creatures. Thus, likeness to the human, however we might configure it, will always be the conceptual precondition of sensitivity to the interests of other creatures and, thus, to the ability to speak against anthropocentrism. There is no way to tell a purely “animal history.” Insofar as the historian is inevitably human and history is not simply a chronicle of events but the story we tell about them, humans will always be present, even if only as the historian lurking quietly in the shadows of the text.

That’s a long windup to say that in the time of mass extinction, I worry about the collective ability of animal historians to tell good stories about species loss that do not also attend to our own identifications (and disidentifications) with what it means to be human. What are we losing through extinction and why do we care? What are we mourning? This is an odd question, but I would caution against running too quickly to the obvious answers (biodiversity). Juno Salazar Parreñas has written a magnificent and harrowing book called Decolonizing Extinction that covers some of the issues raised by Susan’s exotic animal breeders (Parreñas 2018). There is “demand” for Susan’s exotic animals, in part, because of a human desire for an exotic wilderness, but that longing is intensified by feelings of collective guilt tied up in devastating ecological changes and mass extinction. By comparison, Parreñas explores a facility in Sarawak, Malaysia, where orphaned orangutans are “rehabilitated” for release into the wild, a release that will, in all likelihood, never come. On its face, the facility seems designed to ameliorate or reverse the damage wrought on the Malaysian landscape by the violence of colonialism and racial
capitalism, but, substantively, the labor and ecological relations of the facility actually deepen and reinforce that violence. The result is something of an orangutan dystopia where the obvious and continuing suffering of animals (and humans) is justified in the name of biodiversity and conservation. Attachment to an abstract orangutan species underwrites suffering and violence that will be experienced by particular, living orangutans, orangutans for whom the concepts species, conservation, and biodiversity are meaningless. Parreñas concludes the book by pondering an alternative ethics of hospice partially drawn from the “violence of care” literature within medical anthropology: if, by our collective actions, (some) humans have irreparably harmed other creatures, perhaps we have an ethical obligation to provide them with a peaceful death or, at the very least, to sever an attachment to them that results in excruciating forced life and endless cycles of forced reproduction of the same.

“Forced reproduction of the same,” however, tells us precisely why we must think of both Parreñas’s orangutans and Susan’s tigers within the constellation of the agricultural. I agree entirely with Susan’s nomination of her exotic animal breeders as engaged in agriculture. Analytically, I think what justifies this claim is a definition of agriculture as the governance of nonhuman reproduction to meet (perceived) human interests. That is, agriculture is centrally and distinctively about reproduction. Ironically, I think it would be helpful for scholars working on the history of domesticated animals to be more agricultural, by which I mean they should attend to what is distinctive about agricultural production in comparison to other industrial economic activities. They should attend not just to the economic and technical processes by which live animals are transformed into commodities, but also to what must happen before commodification: breeding and reproductive governance. I would be remiss not to mention that there have been and will be a number of excellent studies doing just this, including Rebecca Woods’s Herds Shot Round the World (2017), Emily Pawley’s The Nature of the Future (2020), Lisa Onaga’s Cocoon Cultures (forthcoming), and Tamar Novick’s Milk & Honey (forthcoming). Similarly, agricultural historians should be more proactive about engaging with literatures that seek to theorize reproduction in relationship to value and capitalism. In other words, it would be a very good thing, indeed, if agricultural historians spent more time reading feminist theory.

Reinaldo Funes-Monzote: I agree the role of history, or at least think its place within the debates on the present environmental crisis, is very relevant and urgent in our current political and climatological moment. Sandra men-
tioned the unprecedented scale of (wild?) fires in Australia, and those in California and the Amazon basin—from Brazil to Bolivia—were of similar scale this year. But we can see too the tremendous threat that represents the rise and expansion of COVID-19 from its epicenter in Wuhan, China, to other cities and countries around the world. Animals are very present in both cases. In the first, we see the immense and uncountable number of wild or domestic animals’ deaths, and in the second, the virus and disease are presumably of animal origin.

The history of humanity is inseparable from the history of animals and other species. Such recognition begins to answer the call by Donald Worster years ago to see human history merely as natural history (Worster 1984). Also, more than the question of animal agency, I’d prefer to adhere to the concept of coevolution between humans and the rest of nature. Of course, we can presume that we humans have been the most “active” in this interaction, imposing our domain over other species and modeling entire ecosystems toward our own interests. However, as we know from the historical research, the triumphs over nature have often been relative. And those efforts to control nature must be considered alongside the policies to control other peoples and species. Here is one of the reasons why history and historians—or social sciences and humanities in general—are critical for the current discussion about the Anthropocene. We can’t charge the whole of humanity with the same level of responsibility for the great transformation that has reached in one way or another every region of the planet, but with deeply unequal consequences.

Within the discussion about a new geological age created by human action, most of the attention goes to the hardcore of science and technology research: changes of nitrogen, water or carbon cycles, or great geoengineering works. Proponents of the Anthropocene date the origins of the new era to the domestication of plants and animals during the Neolithic revolution. But the overwhelming majority consider as tipping points the beginnings of the industrial revolution at the end of the eighteenth century and the so-called “great acceleration” since the 1950s. However, I have the impression that only a few indicators take into consideration the historical changing relations between humans and animals. One seems to be the rising methane emissions by cattle as supposedly more dangerous than the carbon dioxide emissions of cars. Even if it is true, it is very convenient for those who wish to deflect attention from more general climate reforms in industrialized countries.

For sure, animal history could contribute significantly to our understanding of the origins and evolution of the so-called Anthropocene. And this history
Agriculture isn't linear in any way. When I was writing my article about the first Cuban association to protect animals and plants (Funes 2006), one of the references that struck me most was an article by Jason Hribal (2003) about animals as part of the working class. When I make public presentations about the topic, the audience always smiles, which suggests how difficult it is to accept this parallel between workers and animals. But Hribal and others have revealed many exciting connections. For example, there are clear links between the abolitionist movement against slavery and initial concerns about animal cruelty and advocacy for animal rights (Davis 2016, 39–45). When I explored the links between industrialization and the use of animals more deeply, history was more complicated than I thought initially. Two other works beneficial in my process to reconsider the place of animals within industrial society were Ann Norton Greene's *Horses at Work* (2008) and Clay McShane and Joel Tarr's *The Horse in the City* (2011).

But my concern about animals in modern society was also influenced by my own experience in Cuba after the collapse of the Soviet Union and during the economic crisis named the Special Period in Peacetime. The then prevalent model of industrial agriculture suddenly declined—or even collapsed—because of the lack of oil, chemical fertilizers, irrigation, lubricants, animal feed, and other inputs. In this “peak oil” context, animals became part of the solution. The government and scientific institutions began to encourage the use of oxen teams, which had almost disappeared from the large-scale state-owned agricultural enterprise, but not from the small sector of private farmers (with less than sixty-four hectares per farm). Thanks to programs implemented to increase animal traction, the island’s oxen population went from 163,000 in 1990 to 400,000 ten years later (Rios and Cardenas 2003). (Of course, this included teaching people again how to train an oxen team.) The use of horses in medium- and small-sized cities became a solution for mobility and other uses such as the collection of solid waste. On the other side, more animals circulating brought a revival of concerns about animal welfare and animal rights.

Finally, the fall of the industrial agriculture model propelled the rise of a nationwide organic agriculture movement that integrated scientists, peasants, and different state institutions. The crisis motivated this shift, but at the same time, we need to consider the increasing consciousness about the failures of the large-scale agricultural model. Animals played an essential role in the organic model, not only to provide animal traction in times of oil and machinery scarcity but also to incorporate manure in a more integrated agricultural-livestock system. We can consider this as a low-input model of sustainability in
the Anthropocene age.

I think the challenge of the Anthropocene is how to combine modern and expensive solutions (usually created in labs), with the many suitable and inexpensive alternatives that still prevail in many areas of the world as a product of centuries of coevolution between humans and other species. Some historian colleagues working within the agroecological movement call this an “applied history,” learning from the best experiences of the past to build a more sustainable future (Gonzalez de Molina and Toledo 2014, 9–42).

Joshua Specht: To start broadly, I think history can help us face our current ecological challenges in two ways: (1) by tracing an account of how we got to our current predicament, and (2) by helping to explain the dynamics of social, political, and environmental movements. Animal history can make important contributions on both counts. At least part of the present crisis is about the production, or as Gabe put it, reproduction, of a contingent relationship between the human and nonhuman world: industrial agriculture and intensive animal husbandry. Unwinding that, or asking what came before, might point us toward a way forward. On the second point, as Sandra has noted, humans often understand environmental crises through their impact on animals. Perhaps history gives us a sense of how to mobilize human concern into meaningful political change.

My work studies the reproduction of a for-profit ecosystem founded on the relationship between cattle, humans, and horses across much of western North America during the nineteenth century. This was not simply the incorporation of environments into a capitalist system (though this was perhaps a first step), but rather the wholesale (though not always successful) remaking of ecosystems as capitalist systems—plains into range land and ranches. Situated within broader economic forces and trends, this tendency has an ever-expanding logic; in this sense it fits with Susan’s fascinating discussion of the agriculturalization of all forms of animal life (not just cattle, but tigers, fish, etc). Under these conditions, animal life only exists in the service of profit. This search for profit has grave implications for biodiversity, deforestation, and greenhouse gas emissions.

The reproduction of this kind of capitalist ecology accompanied a related process: the increasing separation of these ecologies from dense human environments. Sites of production and sites of consumption have moved ever farther apart. This means that human societies—or perhaps more accurately, their most powerful members—are driving and benefiting from a process of
ecological remaking for which they bear few of the immediate costs. These costs are carried by animals, ecosystems, and the humans who work in these spaces.

Tracing the history of these related dynamics points (in some very small way) toward how to address the challenges of the Anthropocene. I very much agree with Sandra that the concept of “rewilding” has enormous potential. Few landscapes have ever been wholly independent of human intervention. But a capitalist ecology and a human-shaped landscape are not the same thing. History provides us with instances of alternate ecologies, such as lower-impact herding models, that can mitigate the excesses of contemporary animal agriculture. In this sense I’d like to echo Reinaldo, who suggests historians with varied temporal perspectives and geographic areas of study can best identify these processes, as their work reveals contexts and moments where industrial (emissions-intensive) approaches were impossible and more sustainable options were a necessity. This rewilding process, of course, should not just be about mitigating capitalist ecologies, but also dismantling as many as possible. These projects require creativity—such as the efforts of the organization Rewilding Europe to reintroduce large grazing animals (at times even proxy species) into preserves across the world as a process of ecological restoration.

This process also requires rewilding spaces where we live. It involves producing more porous built environments. It involves slowing down the speed of our lives—thinking here of Gary Kroll’s fascinating work on roadkill (Kroll 2015). It involves thinking about urban agriculture and looking to the history of urban animals for missed opportunities. Rewilding our built environment puts humans and nonhumans in sustained contact, not only connecting humans more directly to their impacts, but also undoing the logic of separation that characterizes recent human-animal relationships.

When we talk about the Anthropocene we talk about large-scale social and economic problems and impacts. Yet we also see how fundamental the individual relationship between human and animal has been to our history and our present. Sandra addressed this in her response—how the Australian bushfires, with varied impacts on people and landscapes, were fundamentally understood through photographs of burned koalas and statistics about the deaths of hundreds of millions of animals. We come to know and understand environments most intimately through animals.

At the level of politics, perhaps we can learn from this. People are motivated by individual relationships—particularly with individual people or animals—but solutions are aggregate and structural. The history of hu-
man–animal relationships can help us understand how to get that first step, and perhaps other historians as well as sociologists, anthropologists, political scientists, and others can help figure out how to aggregate individual connection into collective change.

Animal history can certainly help us navigate the effects of the Anthropocene (or capitalocene if you prefer), develop new models of relating to the nonhuman world, and perhaps find the tools to build political energy for change. During the present crisis, human histories and animal histories are woven together as much as ever before, despite the spatial separation most of us have from animal agriculture. History reveals how that came to be and in that process, we might find at least some of the tools needed to undo that divide.

Editors: In the course of responding to a question about how to write history with an eye on today, the world has been upended by COVID–19. Reinaldo mentioned this in his previous response, and the virus has since shut down much of the world. We are still in the middle of this crisis as we write, and I’m not sure how much sense we can make of it as historians at this point. But let’s try nonetheless. Animals have certainly been a part of this story, especially in the early reports out of China. And I suspect that agriculture and food supply will become more of a central storyline as the virus progresses. So how do we make sense of COVID–19 as historians of animals and agriculture? How can we contribute to this global conversation?

Joshua Specht: It feels strange writing this now, in the middle of everything, when it will be read at a time of greater clarity about the pandemic. On the other hand, it feels strange to write about anything else. I’m guessing most of us are under “stay at home” orders and I have not really thought about much other than COVID–19 in the past few months. Given that the virus almost certainly has a nonhuman origin and (as you mention) it is having profound effects on our food supply, I agree that historians of agriculture and animals have much to contribute to the conversation.

Early research indicates the coronavirus may have crossed from bats to humans, possibly via a pangolin. This may have happened in a “wet market” in Wuhan, China, where customers can (among other things) purchase animals live for immediate slaughter. From President Trump’s insistence on calling it the “Chinese virus” to a 75,000-signature online petition to “ban wet markets in China” (the petition, and others like it, emphasize how “inhumane” these markets are), there seems to be a disgust that this kind of thing has happened.
The implication is that this kind of thing would not happen in a place like the United States.

In this sense, COVID-19 validates assumptions about human–animal interactions. Beyond the use of the virus for xenophobic ends, the shock to people seems to be the visibility of the human–animal food relationship—that there is something risky or improper about buying your food for slaughter in front of you.

Of course the close proximity between humans and animals (and their visera) that is supposed to be the risk of wet markets is no less central to food production in a place like the United States. The difference in the United States is that it occurs in facilities far out of sight. And in some sense this happens in the United States with far less oversight; wet markets are, after all, public, whereas American laws prevent the recording or distribution of slaughterhouse images and video.

COVID-19 is a reminder of our embeddedness in the animal world. Despite the conceptual boundaries we draw between human and nonhuman, we are in intimate contact with animals everywhere in the world, from the wet markets of Hubei province to the slaughterhouses of South Dakota. Animals make our world, whether visible or not. And sometimes that centrality has fundamental consequences. We can and should be thinking hard about the risks zoonotic diseases pose, but we also cannot pretend they are only a feature of societies elsewhere. And of course a historical reminder is important here: the 1918 flu had its likely origin in Haskell County, Kansas, as it jumped from livestock to the human population.

To move to COVID-19’s impact, it is starting to have serious consequences for agriculture and our food chain. In April, the pandemic was reaching crisis levels among meat processing facility workers. Slaughter facilities have become hotbeds of infection. This was in part a consequence of existing dynamics within animal slaughter. Animal processing resists mechanization—the variability in carcasses makes the process better suited for humans than machines. Work is grueling and dangerous, but processors have streamlined the disassembly line for speed and worker replaceability. Turnover is very high. Workers with limited access to community networks or state support are ideal; these populations have limited ability to protest or organize. This was the case in 1890 when employees were often recent immigrants from eastern

2. There is the related issue of wildlife consumption (and wildlife) markets, which are often conflated with wet markets. It does seem that wildlife consumption poses risks, though the point here is that wildlife consumption is also a feature of food systems across the world and to the extent it poses risks, it is one we should consider everywhere.
Europe and it applies today, when many employees are undocumented immigrants from central America.

This brutally efficient system has kept the slaughterhouses running and processors profiting for over a century. But it breaks down in a pandemic: workers are getting sick, they are feeling pressure to keep working, and when sick workers must be replaced, bosses have no idea whether their labor pool is healthy. Processors first tried “responsibility bonuses” for workers who would keep working through April—already a sign of recruitment and operation problems—and later some facilities were forced to shutter entirely. On April 12, 2020, Smithfield closed a plant in Sioux Falls, South Dakota, that represented roughly 5 percent of US pork production. Plants in Iowa, Colorado, and elsewhere have also been shuttered. Similar dynamics have been playing out on farms across the country.

The marginality of agricultural and food labor has been central to producing our world of cheap food. But it has also created a major vulnerability to pandemic. This has real costs for shoppers, but we should also remember workers could be paying with their lives. This story is being repeated throughout the American economy; working-class Americans with little safety net are more fearful about their economic prospects than the health risks of the worst pandemic in decades (or more). And it is easy to see why: stopping work, however briefly, risks financial ruin.

The scale and ferocity of the COVID-19 pandemic is in part the consequence of a failure of memory—an assumption that this could not or would not happen. Our job is to put the current pandemic into a longer ongoing story. To remind people that we are not separate from the animal world, and that perhaps mitigating these crises is not about fruitlessly trying to divide human and nonhuman, but to think carefully about what has made that relationship so exploitative of both the people and animals at the heart of it.

Susan Nance: Over the last month or so, we’ve seen plenty of discussion in public and academic venues of the sad irony that the fiftieth anniversary of the first Earth Day was marked by a global pandemic. Like Josh and Reinaldo, politicians, pundits, advocates, and others have drawn attention to the anthropogenic nature of the crisis and a sense that our ecological chickens have come home to roost, so to speak. For agricultural historians an important question now is how we engage with those public debates. Are we willing to investigate if and how pandemics are due to unsustainable human engagement with animals and the broader global environment? Are we ideologically obligated
to defend settled agriculture or industrial agriculture because increased food production has fueled human population growth and (on balance) increased human comfort? Are we obligated to take a position regarding the hunting or farming of wild animals, whether bushmeat and pangolin scales, or tigers bred at an Oklahoma compound? Recently, one television program tried to shame North American viewers into seeing their own complicity in the history of pandemics when the host, Bill Maher, compared global habitat destruction and wild animal consumption to everyday consumerism by describing “factory farm” CAFOs as “America’s wet markets” (Real Time 2020) Likewise, Jane Goodall points to “humanity’s disregard for nature and disrespect for animals” as a cause of the COVID-19 pandemic (Diprose and Neal 2020). Here she puts the crisis in almost existential terms as a product not just of this historical moment or one regional economy or tradition, but of an almost universal human attitude toward other species that denies that our fate is tied to theirs. As a field, does agricultural history have something to say about that idea, academically or publicly?

As Reinaldo notes, the work of environmental historian Donald Worster seems especially relevant now, and just last week he analyzed the issue of the mutual dependence between humans and other species similarly to Goodall. In Worster’s analysis, agriculture itself is a central component within the dark history of human behaviors that produced “disturbance[s] in ecological relations” that drive pandemics, global warming, and other types of unsustainable environmental change. “Agricultural history is full of epidemics, and they have harmed not only our own species,” he says (Worster 2020). Human agriculture by definition required, beyond domestication of particular animals and plants, wild animal habitat destruction. The twin villains (do we still see them as heroes?) of habitat destruction and monoculture solved one set of human problems but then triggered many others.

Perhaps this moment offers historians of agriculture an important opportunity to ensure the field is at the center of debates and solutions that arise from this pandemic, as industries, economies, and cultures change in response to it. For instance, like animal researchers in fields from veterinary medicine to philosophy, many agricultural historians have for years been exploring the principle that what happens to animals happens to people. Historically, why has that lesson been so difficult for humanity to understand and abide by? I think agricultural historians can be central to assembling an answer to that question for scholars and the public if we reconsider which animals we have attended to (mostly captive domestic) and, thus, what documentary and ana-
lytical opportunities we may have missed as a result. As Reinaldo points out, as historians we are in a position to predict the future (historians tend to be good at that!) and explain what “agriculture” will look like this century in various places on the globe.

**Reinaldo Funes-Monzote:** Unexpectedly (but not unpredictably), a pandemic of animal origins became global and is the biggest threat in generations to many of our common assumptions about modern life. It is interesting to see how much this event is shaping each of our answers in many ways. When I mentioned the initial emergence of the virus, never did I imagine the possibility of such a quick spread around the world. The previous comments were made under the influence of the “peak oil” experience in Cuba in the 1990s, but now the oil shortage does not constitute the problem. On the contrary, from the economic view, the supply is well above the demand.

I agree that animals are a very relevant part of this (present) history, alongside agriculture and food. We are receiving news every day that involves animals: from the increasing numbers of wild animals in cities because of the lockdown, to zoo animals and pets getting infected. However, the news is more urgent when it refers to animals as sources of food (market shortages, rationing, COVID-19 spread in slaughterhouses), roles that modern society reserves for most of these other earthlings. Books such as Josh's *Red Meat Republic* (2019) are very relevant to understand our current relations with animals in historical terms. As he wrote above, “COVID-19 is a reminder of our embeddedness in the animal world.”

There are several interconnections between our food systems and the consequences of the pandemic. As Susan said, industrial agriculture fueled the population growth of the last two centuries. Nevertheless, it created many vulnerabilities, which feel different depending on the context (and the country). For example, an animal protein-based diet became a synonym for well-being after World War II, and was replicated as the ideal diet for the rest of the world. The model largely came from the typical diet in the United States, which was centered on red meat and other animal protein sources such as milk, pork, chicken, and eggs.

Promoting a diet model based on animal protein generated a widespread intervention in natural ecosystems around the world. In Latin America, environmentalist authors coined the term “hamburger connection” to explain the influence of the US fast-food boom since the 1960s on tropical forest depletion (Myers 1981; Myers and Tucker 1987). Today this process continues in
new cattle frontiers in the Amazon basin and other tropical ecosystems (now to feed China as well) (Hoeller 2015). Increase in meat consumption generates other damage such as solid waste and water pollution, not to mention the social consequences. However, maybe today the more visible impacts are diseases such as diabetes, obesity, and hypertension.

The industrial agri-food system seems not to be behind the virus this time. However, it is connected to the pandemic and its outcomes in many ways, including the health preconditions that make the effects of COVID-19 even worse. Josh and Susan remind us of the convergence between the exploitation of the human labor force and the exploitation of nature. Not by chance, several commentators in recent weeks have recalled the message of Upton Sinclair’s *The Jungle*, as Josh does in his comments above about labor.

Many who advocate for an alternative model of a more sustainable agriculture are taking this moment to point out the risks of industrial agriculture. Even when the danger comes from somewhere other than energy shortages or other problems, agricultural and food systems are showing their limits, and we can expect that the worst is yet to come. How long is it possible to maintain industrialized agriculture, a model that consumes more energy to produce food than the energy humans finally obtain in the supermarkets? Does it make sense to use food crops as biodiesel for cars when so many people in the world are undernourished? What are the health and environmental costs of persisting with a diet heavily dependent on animal protein products?

In different ways, this crisis represents taking the foot off the accelerator at the edge of the precipice. Some scientists and environmentalists see this moment as the revenge of nature against a system based on private profits and economic growth at any cost (Carrington 2020; Altieri and Nichols 2020). Hopefully, COVID-19 could help convince the politicians, economists, and society at large of the necessity to change the unsustainable patterns of production and consumption in the prevalent international system.

The current pandemic could accelerate the growing interest in animals within the history of agriculture. It could also promote more collaboration between different historiographical approaches, connecting more history of science and technology, environmental history, history of medicine and public health, food history, and socio-economic history. The same applies to cultural and intellectual history with more materialist concerns, in order to reinsert “Our Kind”—to use the title of Marvin Harris’s sweeping anthropological history of human beings—into the broader life system of our planet (Harris 1989).
Some observers think science could emerge stronger after this crisis, maybe a naive belief when so many countries are led by populist politicians and growth economists. Will the current public health and economic crisis be enough to change our collision course with the limits of the earth? Will humanity finally speak with one voice to confront the climate crisis? Is this a moment for optimism or pessimism? Science surely has a lot to say about all of this, but history and the humanities are very necessary now to remember our biocultural memory (Toledo and Barrera 2008).

History of agriculture and animal history can contribute to the role of the academy after COVID-19. When we applaud the heroes who are fighting the pandemic on the front lines, we need to include the less visible who are working to bring the food to our tables and taking care of the many domestic animals around the world. A significant number are still small farmers who supply the local markets, and this crisis validates how relevant they are today and will be tomorrow, despite the uneven support from governments and banks.

Gabriel N. Rosenberg: Susan, Reinaldo, and Josh have already cut to the chase: to understand the origin and trajectory of the COVID-19 pandemic we must contextualize it within the historical development of the global food system and its current reliance on animal proteins. That growth has propelled the “twin villains” of “habitat destruction and monoculture,” as Susan names them, and set the stage for inevitable zoonotic spillover events. As agriculture encroaches on previously uncultivated areas, humans (and livestock) encounter disease reservoirs that, once introduced, can blaze through fragile industrial monocultures (Wallace 2019). COVID-19 dramatizes this process and is among the deadliest (for humans) zoonotic pandemics of recent history. But from a more-than-human perspective COVID-19 is neither particularly unique nor deadly. As COVID-19 was winding up in China in late 2019, another pandemic was winding down. A wave of “African Swine Fever” claimed as many as 300 million swine in China by November 2019 (Charles 2019). Similarly, as COVID-19 tore across the United States in March 2020, poultry farmers in the Southeast struggled to contain a strain of avian flu that in 2015 killed 50 million chickens (Pitt 2020). Agricultural and animal historians should be making the case to the public that COVID-19 is not an exceptional or surprising event. Rather, it is a predictable consequence of the global food system and its subtending ecological relations.

Historians of animals and agriculture might also deepen that conversation,
however, by explaining how the *imagined* and *idealized* ecological relations of different communities, including how humans relate to animals within those societies, constitute continuing human hierarchies and inequality. One important and recurring theme in agricultural and environmental history, from Alfred Crosby on, has been the way that ecological displacement and transformation has been an engine of colonial domination (Crosby 1972). Indeed, Josh’s book and his response above do a magnificent job of explaining the role of capitalist cattle ecologies in the colonization and development of the American West. To this I would add that white settlers usually conceived of the superiority of their own societies and their right to violently displace indigenous peoples in terms of their preferred ecologies, with the presence of settled, market-oriented agriculture and improved livestock distinguishing civilization from barbarism. Harriet Ritvo’s classic scholarship and Rebecca Woods’s more recent work both show how different settler societies competed for status and belonging within the British empire through the quality of their husbandry and the refinement of their livestock (Ritvo 1987; Woods 2017). Implicit in this was the idea that the mastery of animals was a legitimate basis to judge and rank human societies. Europeans cited the absence of settled agriculture and improved livestock (in the cases of the Americas and Africa) and the type of settled agriculture and improved livestock (in the cases of South and East Asia) as evidence of their own superiority and distance from animality, as well as the beastliness and inferiority of the various societies they sought to subjugate. As numerous scholars argue, the concepts of breed, species, and race emerged together, with the ordering of life within and beyond the boundary of species constantly shifting (Ritvo 1987; Rosenberg 2016; Pergadia 2018; Zelinger 2019). In this, animality has been a pivotal figure in what the theorist and poet Sylvia Wynter terms “the genre” of “Man,” the presumption that white European society is the most fully human mode of being (Wynter 2003; see also McKittrick 2015). And as work by the literary scholar Zakiyyah Iman Jackson shows, the “African diasporic cultural productions” of the past two centuries have contested this genre by “producing nonbinaristic models of human–animal relations, advancing theories of trans–species interdependency, observing trans–species precarity, and hypothesizing cross–species relationality in a manner that preserves alterity while undermining the nonhuman and animality’s abjection, an abjection that constantly rebounds on marginalized humans” (Jackson 2020, 18).

I can’t help but think about all this as we observe the Western media responses to the zoonotic contours of the pandemic. In the early goings, before
the full force and fatality of the pandemic was evident, Western media was hypnotized by lurid accounts of potential zoonotic transmission at so-called “wet markets,” with pangolin and civet meats, as well as “bat soup” tagged as the acute source of zoonotic spillover. One account in the *New York Times* was magnetic enough that the philosophers Peter Singer and Paola Cavalieri (2020) quoted it at length in their unqualified call for a global ban on wet markets (apparently even those numerous wet markets around the world where live slaughter is not practiced and that pose no serious threat of zoonotic spillover). These accounts matched a longstanding and highly racialized obsession in American and European culture with the beastly appetites of Chinese immigrants alleged to eat rats, dogs, and any other meat they could get their hands on (Liu 2015; Coe 2016). It obviated the relationship between the supply of exotic farmed meats and the economic pressures placed on small Chinese farmers by consolidation in the Chinese pork industry and competition from multinational animal agribusiness firms (Schneider 2014). To put it simply, small farmers who once survived by raising pigs now must survive by raising civets and selling them in wet markets (Lynteris and Fearnley 2020).

As Josh notes above, the irony that American slaughterhouses, by virtue of being largely private spaces, are less regulated and accountable than public wet markets was entirely lost on these various media commenters, even when those same slaughterhouses became hotbeds for viral transmission. There, the “essential” but low-paid, disproportionately immigrant people of color added the threat of infection to their already hazardous workplace. The desire (or demand) driving the operation of those slaughterhouses? Perfectly normal. I think there is still much to think and say about what is counted as a normal and decent relationship to farmed animals and what is counted as a perverse and cruel relationship. Parsing these differences will give us an occasion to reflect on how notions of normal relations with animals are always embedded within racial imaginaries.

**Sandra Swart:** We began this conversation with a world on fire. We started the discussion in what feels like a different world, with out of control bushfires devastating communities—of humans and plants and animals. We now conclude by writing in a different kind of global conflagration: a fast-spreading and dangerous virus rampant in the context of fast-spreading and dangerous political repression. I write under lockdown (as Josh pointed out most of us are under “stay at home” orders) intended to contain the first advances of the virus in our own country by “flattening the curve” of infection. Like the
Anthropocene itself, the virus means different things for different people—it affects the powerless, the impoverished, malnourished, and immune-compromised more harshly. In the same way, the lockdown means different things to different people—for some it is merely a temporary suspension of work and pleasure, for others it is the real possibility of bankruptcy or even starvation. Its effects are compounded by the economics of catastrophe: South Africa’s massive gulf between rich and poor is thrown into stark relief. While some other countries on lockdown rely on the existing social contract to self-police, South Africa hastily passed draconian legislation (anyone breaking the rules faces six months in gaol or a fine, or both). The South African Defence Force called up reserves in advance of declaring this state of emergency. The army and police are now patrolling the streets again—eerily reminiscent of Apartheid’s dying days—but this time they are deployed against an enemy that is invisible and unkillable. Alleged ad hoc violence from armed law enforcement meant widespread assaults, humiliations, and the deaths of two black men, one breaking the new law and the other breaking no laws but “disrespecting” the men in uniform. We are not alone: we watch as right-wing repression and “big man” politics ascend in Brazil, India, Russia, and the United States (where the Black Lives Matter movement also combats police violence).

We are not the first historians to try to understand a plague happening around them: the soldier-historian Thucydides (460–400 BCE), who once observed how nature was more terrifying than war itself, lived through an outbreak too. He—like us—witnessed accompanying outbreaks of panic, nihilism, religious mania, and “big man” politics. Perhaps Thucydides’s central observation was that civilization is fragile, a thin veneer that is easily eroded.

Today, this view of civilization is counterposed against the “return of Nature” narrative. Trapped in our homes, we nevertheless witness nature occupying our empty urban spaces. We saw lions and hyenas take over the greens on Skukuza’s golf course. We saw the famous Kleinmond swamp horses galloping on suddenly deserted beaches. In Venice, we saw dolphins swimming in newly blue canals; in Barcelona, we saw boars scavenging; in Albania, we saw flamingos thriving; and in India, baby sea turtles surviving.

These images might seem cheerful or even redemptive. Yet they mask the economic paralysis caused by the crisis. Of course, historians of animals are already mistrustful of the idea of a prelapsarian “pure” nature untouched by humans—having borne witness to the violent enforcement of “fortress conservation,” which insisted that humans and animals cannot coexist and forcibly removed disempowered people to make way for pristine preserves.
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(Adams and McShane 1996; Brokington 2002; MacKenzie 1988). Moreover, not all the images were so pretty. Synanthropes fared poorly. With the loss of tourists, temple monkeys in Thailand were forced into Hunger Games-style fighting over scraps and Japan's sika deer had to leave nature preserves to forage in suburban gardens. In some cities, with food wastage dramatically reduced, rats suddenly became visible, swarming the streets in search of leftovers and reminding terrified onlookers of other plagues.

Just as interesting, at least for historians, was how much of this “nature resurgent” narrative was wishful thinking—or just plain “fake news.” The social media posts about the dolphins, mentioned above, were not true. (Parodies then went viral: the Loch Ness monster reclaimed Venice’s canals and an image of rainbow lorikeets was captioned: “Pigeons in London are returning to their natural colors now that pollution levels are lower. The earth is healing.”) The idea that the earth could heal seemed particularly appealing: despite the parodies, the positive pictures of “nature returning” (both true and untrue) went viral, following almost epidemiological patterns.

There are several ways to respond to the pictures that involve Getting History Wrong. The first way to get it wrong is believing them to be portents of an inevitable (even desirable) apocalypse. These believers proclaim with gleeful schadenfreude that the pandemic is an omen that Nature (which subs in for god in these ostensibly secular but strikingly eschatological accounts) has decided to punish humanity for their ecocidal sins. They contend: “covid is not the virus, humanity is the virus.” They anticipate the virus submerging existing civilization like the Judeo-Christian flood, drowning the sinners and saving only a few worthy people and some select charismatic creatures to repopulate the earth. Their misanthropic metanarrative imposes a vision on a global ecology that will almost certainly not respond in the way they imagine. Also, historians need to engage in public debate, as Susan points out, to remind everyone that this kind of thinking is embedded in eugenics and ethnonationalism. Their impulse easily becomes a quest for retribution, as Thucydides warned us. Here it is a blame game embraced by white supremacists eager to pin the virus on the foreign “other,” and blame immigration for its spread, as Josh touched on.

Historians should remind them that, quite aside from the dark genocidal fantasies they hope the virus enacts, depopulation has unexpected and sometimes terrible consequences, especially when lifeways that have coevolved with ecosystems are ruptured. Declensionist narratives are often simply Bad History and historians of past agricultural systems have, for example, shown how
some indigenous societies have lived sustainably despite colonialist fantasies of their destructive capacity (Leach and Mearns 1996; Fairhead and Leach 1996).

In any case, demographic decline will probably (hopefully) not be the driver of change following the pandemic. Instead, the proxies for “nature resurgent” will become liminal again. The lions will leave the golf course when the first men in tartan tam o’ shanters and plaid knickerbockers show up; the rats will return to the alleys when the restaurants reopen. This brings us to the second way to misunderstand the “resurgent nature” narrative, which is to use it to minimise the Anthropocene’s threat. For some it seems to prove that nature will bounce back rapidly and given half a chance, dolphins will frolic in once-polluted canals. These images suggest that in this breathing-space, nature revives and we all survive without needing any real changes to our current lifestyles.

But maybe there is a third way to think about the images. After all, COVID-19 is just the tip of a melting iceberg of climate catastrophe, drought, bushfires, polar ice-melt, floods, rising sea level. (And as Gabriel points out, we should not think of it as an exceptional event, so much as entirely predictable). Perhaps for many this has led to a sense of paralysis, a fatalistic helplessness, apathy—or “environmental ennui.” So for them, maybe the animals who came in from the wild are visible proxies for a host of other things: for example, as the global economy shuts down we see concomitant reduced air pollution and reduced emissions. In this time of heightened anxiety, the trope offers “meaning”—that maybe some good can be salvaged from the pandemic, loneliness and economic meltdown: not that nature bounces back, but maybe we learn some lessons. “Nature resilient” might not offer the false hope of “nature resurgent,” but instead some small encouragement to spur active engagement.

Historians can help spur such engagement, showing how the crisis of the Anthropocene is the result of the logic of living for the few and sacrificing the many. This is something we can trace back ten thousand years to the Neolithic revolution and the rise of sedentary farming societies. Historians can demonstrate that many of the Anthropocene’s future disasters have already happened. We can point to localized microclimatic change and ecosystem ruin, compulsory relocations and forced removals, loss of vernacular knowledge and social rupture, poverty and violence experienced by indigenous peoples—in Africa, Asia, the Americas, Australia—as a result of imperialism, colonialization, and neocolonialism (Holmes, Gaynor, and Morgan 2020).
I think historians are at our most valuable in crises when using our power to connect ostensibly singular events to larger narratives of continuity and change (Guldi and Armitage 2014). We are also able to access primary sources unknown to natural (and even social) scientists—we can integrate historic maps and photographs, colonial archives, indigenous oral tradition and knowledge systems, and oral history with other data to reach more nuanced understandings over the longer term. Historians of agriculture and the environment such as Don Worster, mentioned by Reinaldo and Susan earlier, have long critiqued the panglossian and whiggish narrative of growth, while—in counterpoise—others such as Fairhead, Leach, and Mearns have also debunked simplistic declensionist tales. In rethinking the socio-economic and political status quo and considering radical alternatives, historians are best placed to show past strategies and schemes now forgotten, opportunities ignored, and alternative visions of the future abandoned. As Guldi and Armitage suggest, historians can find elusive data, evaluate conflicting evidence, assimilate data from different time periods and on different scales into complex narratives, and then, finally, present their conclusions to a variety of different audiences—including those who make the big decisions that shape our world.

This is really important because one key thing the virus crisis makes clear is that, although some of us are trying to bridge the gap between university and community, we now need to get strategic. Soon we will face the drying up of research funding—we need to forge alliances with other disciplines, NGOs, policy institutes and, yes, sometimes industry. At the same time, we need to be aware of unequal relationships and not let our research agendas be dictated to us. But, speaking of unequal relationships of power, we must also make sure to listen to people and communities less often heard in universities.

After all, we need to think about things differently—at least that is an opportunity of sorts. Optimistically, Arundhati Roy suggests: “But the rupture exists. And in the midst of this terrible despair, it offers us a chance to rethink the doomsday machine we have built for ourselves. Nothing could be worse than a return to normality. Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next” (Roy 2020).

But another historical thinker Antonio Gramsci (1891–1937), who certainly knew something about lockdowns himself, warned us about what happens in an interregnum. Imprisoned by fascists, he wrote, “The old world is dying, and the new world struggles to be born: now is the time of monsters”
Monsters are thriving. As historians, we too see the rise of the "big men" and repression I mentioned: from the top-down state-directed violence of the most powerful men in the world down to the everyday violence protested by BLM and the quotidian bullying by armed security forces who have murdered civilians in South Africa under lockdown—simply for not "respecting them." And that brings me to environmental and agrarian history's long-time concern with understanding power. Reinaldo and Gabriel already talked about labor and nature’s exploitation and about racial imaginaries. I suggest that while there exists a strong body of work on the operation of power in agrarian labor relations and agribusiness, we still need more analyses of the shifting intersections of race, class, gender, and "species" within the agrarian landscape and more engagements with socio-environmental justice (Jacobs 2003; Merchant 2003; Wakild 2013). This conversation among us has reminded me that History is not a job. History is a way of seeing the world—and maybe changing it.

We close this conversation with the pandemic that has closed the world down. To paraphrase Lenin, there are certain historical events that light up reality like a flash of lightning across a stormy sky. They illuminate things that you would not otherwise see. At its most basic level, the zoonosis reminds us of animal kinship, that there are no "others." Let us hope that in this time of COVID-19 we at least simply start to see the other living creatures around us and understand the depth and length of our shared past. If one thing comes from the current crisis, it will be at least the broad-scale acceptance of a central tenet of the history we write: humans are not separate from the earth's ecosystems. There is no “natural world” and no “human world”—only the world.

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3. This translation was popularized by Slavoj Žižek; another version has it as "In this interregnum a great variety of morbid symptoms appear."


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