

○ VOLUME 11 NUMBER 2, 2012

SPECIAL ISSUE: COMMONS, CLASS STRUGGLE AND THE WORLD

Animals are Part of the Working Class Reviewed

Jason Hribal

Independent Scholar

Humans are in a constant search for commonalities between themselves and other animals. This is often done in direct contradiction to the proverbs of science and industry for which such thinking is anthropomorphic and heretical. It is at a young age that the children of the United States are taught repeatedly of these rules, as stipulated and standardized by the educational curriculum. Humans are uniquely human; other animals are something else—don't draw commonalities. Yet never in recorded history are more people doing the very opposite. From the popularity of animal rights to the changing notion of the family, which is expanding to include dogs and cats, the social relationships that define our lives seem to be speedily evolving in this direction. Why? Capitalist enclosure over the modern historical period might have destroyed much of the commons and their culture, but the social relations engrained in them have persisted. Commoning between humans and other animals has been an ever-present fact and growing practice. Commoning can be found at its strongest in family, community, and class. This essay will consider the latter in-depth.

It was nearly a decade ago when 'Animals are Part of the Working Class' (Hribal 2003) appeared in the journal *Labor History*. Since that time, the article has been engaged by mainstream scholarship—circulated, discussed, and criticized. Parts of its thesis have been fully assimilated, but others are still being dodged and remain a challenge to people's thinking. At this point, I see no reason to revise the article or retreat from its findings. But some comments on my commentators, as well as on the significant work, which approaches the same issues—with little or no reference to my work—have become necessary.¹

The article itself was based on my dissertation, the origins of which stretch back to 1998. At that time, I had a basic question in mind: What was the role that other animals played in the development of capitalism? To answer this, I chose to focus on the North Atlantic region of the world, from the British Isles to the Americas. My primary research came to rely heavily on the surveys performed from the seventeenth to the early nineteenth centuries. This was the era of mass enclosure and the destruction of the commons, and these surveys played an essential role in it.

What were these surveys? On a macro-level, they were itemized lists of economic resources: a catalog of land, animals, plants, inanimate material, and humans. They were kept in almost every county in England and its colonies, from Scotland to Ireland to the Americas. This is how it worked. An outsider would enter a parish or colonial region. He might disclose from the outset that he was paid to do so, such as by the Board of Agriculture, but other times we are left to guess their sources of funding. He would then survey the area analyzing the above listed factors and write up a book-sized report, which would be published and circulated. These surveys were, at their core, highly detailed economic statements. They were contemporaneous: what was actually there in that location in terms of profitable resources. And they indicated economic possibilities: what could be developed in the future. In this way, these surveys acted as an ignition and justification for the enclosure movement.

On a micro-level, the surveys were an ethnography providing a window into the social, cultural, and economic life of the commons in a particular region at a particular period of time. How did ordinary people live? How did they define the commons? What were the differences between one parish and another? Such questions can begin to be answered through these surveys. Their role as primary document is invaluable, as there are few primary resources that can relate this kind of information. Hence, while I doubt the authors ever intended to be ethnographers, all of their writings can be inverted for other purposes. For contemporary historians and anthropologists, these surveys describe a way of life that no longer exists.

For my own purpose, the surveys allowed me an access into the lives of other animals. I could see the cows in the fields and pigs in the woods. I could see how the commons worked for them. And I could see how their relationships with humans functioned socially, culturally, and economically. Moreover, these surveys let me make direct comparisons between those particular moments in time and the dramatic changes that would soon come or had already begun. Those revolutions that historians love to speak of, the agricultural, industrial, and urban revolutions, became much clearer and more comprehensive. I now had a picture of before, during, and after.

I drew several conclusions. First, animals played an indispensable role in the development of capitalism. None of the above revolutions

could have occurred without them. Second, their indispensable role was that of laborers. Animals worked on the farms, in the factories, and in the cities. They, as much as humans, built the modern world. Third, through the process of the aforementioned revolutions and through their indispensable labor, animals became part of the working class.

II

'No equal capital', Adam Smith recognized in *The Wealth of Nations*, 'puts into motion a greater quantity of productive labour than that of the farmer. Not only his labouring servants, but his labouring cattle are productive labourers' (2009, p. 260). It was, after all, cattle that provided Scotland its commercial advantage. It was cattle that produced much of its wealth.

The labourers and labouring cattle, therefore, employed in agriculture, not only occasion, like the workmen in manufactures, the reproductions of a value equal to their own consumption, or to the capital which employs them, together with its owner's profits, but of a much greater value. (Smith 2009, p. 260)

This was surplus value and cattle, like their human counterparts, worked to create it. Cattle, Smith recognized, were workers.

Karl Marx did not agree. In *Capital Vol. II*, he took the Scottish economist to task for such an assessment. 'How much Adam Smith barred his own way to an understanding of the role of labour-power in the valorization process is shown by the following sentence, which puts the labour of the worker on the same level as that of draught cattle' (1992, p. 292). 'A charming compliment for the laboring servants', he adds. Marx truly did not get it. How could Smith say such a seemingly irrational thing? Only humans could be laborers—only humans. To think otherwise was ludicrous. In some editions, Marx, or Engels as the editor, attaches a (!) or (sic!) to any corresponding quotations from *The Wealth of Nations*—e.g. 'labouring cattle (sic!)'. The purpose, beyond needling Smith for good measure, was to further emphasize the point.

Why couldn't cattle be laborers? For Marx, it was presupposed from the start. 'We are not dealing here with those first instinctive forms of labour which remain on the animal level' (1990, p. 283). Man changes the material form of nature and realizes a purpose in this materialization process. He modifies and manufactures with a vision and creativity that other animals do not have. Thus, when a bird builds her nest or a beaver constructs his dam, it is only instinct guiding the process. These actions are in no way comparable to those of man. Labor is 'an exclusively human characteristic' (Marx 1990, pp. 283-4).

Eventually, Marx continued, man would go on to domesticate animals for the purpose of labor, but this did not mean that these animals then

became laborers. Rather they became the 'material substratum'—the layers of foundation upon which the human superstructure was built (1990, p. 133). Animals were used as motive power or instruments of labor in a process of production guided by humans. Animals became commodities and forms of capital. 'An ox, as a draught animal, is fixed capital. If it is eaten, however, it no longer functions either as a means of labour, or as fixed capital'; 'When being fattened for slaughter they are raw material that eventually passes into circulation as a product, and so not fixed but circulating capital' (Marx 1992, p. 239, p. 241). But in either form, their function was one of human design and purpose.

Marx did agree with Smith on one position about other animals: their importance in the process of early accumulation. Marx called it 'primitive'. Smith deemed it 'previous'. A better word, however, would be 'primary'. The Physiocrat Turgot thought that the value of domesticated animals formed the basis of value itself (2011a, pp. 23-43). He used the example of sheep in Europe:

The common value of a sheep of medium age and condition is taken as the unit. In this way, the expression of values in terms of sheep becomes an agreed form of expression, and this word one sheep, in the language of commerce, simply signifies a certain value which, in the minds of those who hear it, carries not merely the idea of one sheep, but of a certain quantity of the more common types of commodities which are regarded as the equivalent of this value. (Turgot 2011a, pp. 23-4)

Value became use-value, which in turn, became exchange-value—that is, sheep were the central element, or commodity-form, in the circuit of trading.

Anthropologists have long analyzed this process. Evans-Pritchard wrote the classic on the role of cows in southern Sudan in 1940. Rappaport followed with his study on the centrality of pigs in New Guinea in 1968. Countless ethnographers followed them traveling into various sections of the world and further detailing the value and exchange of these and other animals through their fieldwork. Tim Ingold, for instance, went into the Lapland and demonstrated how reindeer moved through these economic transitions in his *Hunters, Pastoralists, and Ranchers* (1980). Maria Elena Garcia is currently studying guinea pigs in Andean communities (2010). This looks to be significant as her work should give us a real-time view of the process of commodification, as these little creatures who previously had little value are now finding themselves thrust into the circuit of trading. Guinea pigs are becoming a key exchange commodity.

The next transformation that Turgot identified was with money. The early Roman coins came to bear both the image of a sheep and represented the value of that sheep. A given number of sheep equaled one coin, and that coin was now traded for goods and services. *Pecus* (the word for sheep) transformed into *pecunia* (the

word for money). Exchange-value became the money-form. Sheep thus provided the foundation for the Roman monetary system.

Certainly the etymology of another economic animal, cattle, supports Turgot's thesis. A mixture of the Latin *capitale*, Old French *chatel*, and Middle English *catel*, the word during the feudal period described movable property or wealth.² This wealth could include goods, personal property, or living stock such as cattle. Over time, the word came to be identified, in a more narrow sense, with just beasts held in possession; and, by the turn of the eighteenth century, spelling variances, notably *catel*, *cattel*, or *cattell*, became unified under the modern *cattle*. This transformation signaled the rising value of cattle and their central role in the agricultural revolution. Cattle deserved their own prominent place in the Anglophone language—separate but still connected to its linguistic partner's capital and chattel.

Turgot continues on to describe how sheep formed the basis for the worth of land itself—not the other way around. In other words, the possibilities of production and revenue gained from sheep determined how valuable or not the land was. Fens, for instance, were wastes. Moors too were wastes. Each had to be enclosed and drained to find value—that is, the value of sheep grazing on the converted pasture and producing fine quality wool. This was what improvement was all about and this was how the assessment of land was done. Indeed, whether cattle and sheep in Europe, camels and goats in the East, horses in Tartary, or reindeer in the North, animals provided the superstructure for the world of value (Turgot 2011b, p. 352).

'The money-form', Marx explained,

comes to be attached either to the most important articles of exchange from outside, which are in fact the primitive and spontaneous forms of manifestation of exchange-value of local products, or to the object utility which forms the chief element of indigenous alienable wealth, for example money-form. (1990, p. 83)

In this manner, cattle and sheep developed from a local product or object of use into the driving force of early accumulation. England's first rich men, as Marx notes throughout *Capital*, got that way owing to the buying and selling of these creatures. Smith, for his part, not only traced the creation of wealth directly to domestication but also the origin of inequality. The husbandman's power and status were determinate on the 'increase of his own herds and flocks' (2009, pp. 512-4). Those that did not increase, or had none to begin with, fell behind and the gap between the haves and have-nots began and widened.

But this is where the agreements between Smith and Marx ended. The former thought that value was created by other animals through their 'labouring'. For example, when estimating the profits made from commercial transportation of goods between London and Edinburgh, a person had to consider the means of subsistence required for eight

horses and two men (Smith, p. 18). This was an independent calculation, for the maintenance of other animals was determined just as 'labouring servants'. Yes, horses or cattle could be fixed capital or instruments of husbandry. Yes, horses or cattle could be circulating capital or commodities. Yet, 'the real measure of the exchangeable value of all commodities' is labor (Smith, p. 25). And this measurement had to include the labor of both humans and other animals.

Marx did not see it this way. He argued that 'the value of draught cattle is determined by the means of subsistence needed for their maintenance, and thus by the amount of human labour needed to produce the latter' (1992, p. 458). Cattle might have been the ones who were actually pulling the load but this was only a form of motive power. True value came from those humans who managed the operations of plowing the fields or transporting the goods. Animals did not work. This difference between Smith and Marx in how they saw other animals is not a matter of semantics. Rather it is of central importance to our discussion.

III

In 2007, two books were published which addressed the possibility of other animals as workers and as part of the working class. One addressed my ideas directly and other indirectly. Neither spent any significant time on their critiques—no more than a few pages among hundreds. Nevertheless both books take particular positions that are broadly held within the academic community and therefore they are representative in how such topics—animals, work, and class—are seen and discussed.

The first book is Donna Haraway's *When Species Meet* (2007). 'Working dogs', she recognizes, 'are tools that are part of the farm's capital stock, and they are laborers who produce surplus value by giving more than they get in a market-driven economic system'. Dogs can be employed as sheep handlers, livestock guardians, sled dogs, and guide dogs. 'Working dogs produce and they reproduce, and in neither process are they their own "self-directed" creatures in relation to lively capital, even though enlisting their active cooperation (self-direction) is essential to their productive and reproductive jobs'. This initial self-direction is important to Haraway because it defines for her the category of work. Dogs, she warns, 'are not human slaves or wage laborers, and it would be a serious mistake to theorize their labor within those frameworks'. 'They are paws, not hands'. Instead, Haraway suggests using the theoretical framework of science and technology studies, in particular the ideas of Edmund Russell. Animals are better thought of as living forms of technology: biotechnology (Haraway 2007, pp. 55-6).

The second book is Bob Torres's *Making a Killing: The Political Economy of Animal Rights* (2007). 'In some regards', he begins,

'animals are both like and unlike the working class in Marxian analysis of labor and commodities' (Torres 2007, p. 38). They produce commodities such as eggs, dairy, and wool within a system that extracts their labor power for profit. Their bodies often become commodities, such as meat products or experimental lab subjects. Thus, 'on the one hand, as Jason Hribal argues, animals do perform unwaged labor, and have served a key role in the development of industrial power' (p. 38). But Torres sees two key problems with this way of thinking.

To begin with, 'animals *never* see a separation between "home" and "work" and find themselves within the grasp of productive capital at all times' (2007, pp. 38-9). Humans have this separation between work and life. Even human slaves have some degree of it. Animals do not. The other problem is that the term 'working class' cannot apply to other animals. 'Working class' carries with it a revolutionary potential. Humans resist their exploitation. They unite, plan, and struggle. Other animals might be able to this, as Torres concedes, but only in a qualitatively different form: a form 'necessarily more limited'. 'They are exploited and suffer voicelessly, and we rarely hear their cries'. For these reasons, Torres thinks we need to conceptualize other animals within the role of capital itself. 'As neither exactly like human slaves or exactly like human wage laborers, animals occupy a different position within capitalism: they are superexploited living commodities' (2007, pp. 38-9).

So we have two critiques and two alternative suggestions. Let's start with the first. Some background is needed. September 6, 1962 issue of the *New Scientist*, longstanding magazine of science and technology, opened with an article entitled 'Animals as Factory Workers'. Written by a husband and wife team of animal behaviorists, it argued that animals, especially chimpanzees and pigeons, were an untapped source of cheap labor (Ferster & Ferster 1962, pp. 497-9). These creatures could with some training be introduced into occupational fields that formerly had been dominated by either humans or machines. Chimpanzees, for example, have the ability to perform an assortment of jobs. They could be trained to pick fruit in orchards or to control industrial processes in factories. Pigeons could replace human inspectors in spotting defects in consumer products. Or they could take the place of optical scanning devices in reading signatures on bank cheques.

In summary, the problem of deciding whether to use animal labour or a machine is essentially one of economics: if using an animal is cheaper than using an automatic device, the animal is the obvious choice; if using the machine is cheaper, then the machine is the correct choice. (Ferster & Ferster 1962, p. 499).

Note the separation. Animals were workers. Machines were machines. One replaced the other or vice versa. But they were not the same thing. Times have changed and so has the perspective among those who utilize a heavily scientific and technological frame of

analysis. Today there is no separation. The dominant view taken by scholars who use this perspective is that animals are a technology or a machine equivalent. The work of animals itself is either subsumed into technology as a tertiary category or simply not considered to be important enough to be a factor.

In 2001, William Boyd wrote 'Making Meat: Science, Technology, and American Poultry Production'. It is considered an important article in the field of environmental history. Boyd argues that the lines between nature and technology have blurred. The technological innovations of the twentieth century—intensive confinement, improved nutrition and feeding practices, and use of antibiotics—have literally consumed avian biology. The chicken as an independent organism no longer exists. Rather they have become a form of industrial production that is 'a very efficient vehicle for transforming feed grains into higher-value meat products' (Boyd 2001, p. 632). Chickens have become biotechnology.

Boyd begins his piece with the customary, and cursory nod to Sigfried Giedion. Giedion, whose well-known book on mechanization contained a couple of brief sections on chickens, always held a distinction between the animals and the technology which he forced upon them. The production process, whether for an assembly line or fertilization, was mechanized but the chickens themselves were not. As Boyd summarized the stance, 'interventions in the organic growth process were [seen as] qualitatively different from efforts to subject other aspects of modern life to the dictates of the machine' (2001, p. 631). But this is a stance that Boyd himself eschews.

Giedion might have gotten this particular view from Marx. He too saw a qualitative difference between the use of animals as motive force, whether transporting goods or plowing fields, and the machinery used for changing or shaping matter, such as mechanized textile or ceramic production. Machinery is what drove out horses and mules from their employment in the mid-nineteenth century factory. 'The medieval view', Marx noted, 'was that animals were assistants to man'. 'Descartes,' however, 'in defining animals as mere machines, saw with the eyes of the period of manufacture' (1990, p. 512).

Joel Tarr and Clay McShane, in their *Horse in the City* (2007), argue from the outset that Descartes's perspective was the dominant one in the nineteenth and twentieth century—a perspective which the authors wholly adopt in their book. 'Horses became living machines to be bought and sold like commodities, valued only rarely as natural beings' (2007, p. 18). Even the ASPCA played a part in this. 'While anti-cruelty groups were ostensibly focused on the living side of living machines, many of their policies also served to facilitate the use of horses as machines' (2007, p. 52). This phrase 'living machine' is a reoccurring one and it is, in a way, the thesis of the book.

Tarr and McShane have since softened their stance, allowing for the possibility of valuing horses more as natural beings. In 'The Horse in Nineteenth Century America' (2010), they make a passing suggestion that horses could be thought of and examined scholarly 'as another group of inarticulate urban workers' (2010, p. 229). The authors even begin their essay with a few lines of Brecht's *A Worker Reads History*:

Who built the seven gates of Thebes?
The books are filled with the names of kings.
Was it the kings who hauled the craggy blocks of stone?

Jason Moore has pointed out how the Potosí silver that funded the rise of the Spanish Empire was done on the daily backs of 8,000 llamas and later 100,000 mules (2010, pp. 16-17). The roads to Potosí, an early eighteenth century traveler witnessed, were 'better known by [...] the Skeletons of those that tire out' than by the marks of hooves (Frezier in 1717, cited in Moore 2010, p. 175). We can imagine the roads to Thebes were similarly paved.

Ann Greene's *Horses at Work* (2008) unfortunately passes up such Brechtian possibilities and adopts the former Cartesian approach. Descartes's mechanistic narrative is taken as a given right from the start and horses transform into some sort of middle ground between an energy source on the one hand and a technology on the other. They are referred to as 'prime movers', 'living traction machines', or the plain 'living machines', Agency, Greene makes clear, is reserved only for humans—for only they can have intentionality, the basis for her definition of agency. Work takes intention. Without it, work does not exist. Animals have no intentionality, whether in the past, present, or future (Greene 2008, p. 8). Therefore animals can have no agency. It is with a strong sense of irony then that Greene chose to entitle her book *Horses at Work* and a subsequent chapter, 'Horses as Industrial Workers'. Can work itself be stripped of its agency? Apparently so.

Actor-Network-Theory has long engaged 'nonhumans'. But it defines their agency in terms of social associations, not in their own active ability to create social and historical change. Nonhumans are but 'participants in the course of action waiting to be given a figuration'. Indeed, 'any thing that does modify a state of affairs by making a difference is an actor' (Latour 2005, p. 71). This could include a basket, a hammer, a cat. Thereby, a horse works because of the difference that it makes in the course of some other agent's actions. Horses do not 'determine' their own actions. They cannot be 'intentional' or 'meaningful' (2005, p. 71). Horses work only in the sense that they are worked by humans. Theirs is an agency flipped right-side-up and thusly removed altogether from possibility. Theirs is an agency no more. Horses cannot be the makers of their own history but rather only *trägers* of the network.³ This idea on the part of ANT has been highly influential.

Riding the crest of the wave of this field is Edmund Russell. He calls it evolutionary history and technology is its telos. Russell defines technology as physical products or objects created through useful human arts. These objects can include other animals. 'Organisms become tools when human beings use them to serve human ends' (2010, p. 249). Russell emphasizes five primary categories in this tool or object-making: capture, taming, domestication, breeding, and genetic engineering (2010, pp. 255-8). Within each category, biology and technology merge further together as one. Animals, in this manner, become a form of biotechnology.

This living technology, Russell goes on, can be further conceptualized. 'Thinking of organisms as factories (or machine equivalents)', for instance, can certainly help us in better understanding the fundamentals of production. 'Organisms convert raw materials into products—feed into meat, for example—and then leave the factory as the product itself' (2004, p. 9). This ability, Russell argues, to both convert the product and be the product is a tremendous advantage over machines, which he defines as nonliving physical objects. Organisms and machinery can be equivalents but are different. Living technology can also be thought of as workers. Dogs herd sheep. Camels and horses transport people and goods. Each fulfills a human necessity. Organisms can even be considered an extension of gambling. Cockfighting or dog-fighting arenas are sites where a tool or object is created by serving the needs of the wagering public. Cocks and dogs are literally transformed into a gambling technology.

'Can organisms be technology', as Russell asks? The short answer is yes, they can. They can also be commodities and capital. Human beings have long used organisms as tools, whether oxen to plow the fields or chickens to produce eggs. But the long answer to the question is much more complicated. There are two main problems with this line of thinking. Firstly, modes of production have varied greatly in human societies over the course of the last millennia. And the modes themselves have been expressed in a spectrum of social relationships and cultural values. Work itself has been organized differently within each system respectively. Marx, for instance, demonstrates clearly how the submission of life to work is a very recent historical development and that this development has occurred under a particular constitution of class relations. In contrast, the five categories that Russell employs—capture, taming, domestication, breeding, genetic engineering—generalizes and naturalizes the dictates of his categories retroactively to the whole of human history. It is as if the social relations, cultural values, and modes of production which domesticate a dog are the same as the ones that produce genetic engineering. This gives us the impression that the assorted forms of hunter-gatherer, pastoral, agricultural, and industrial societies have existed with each other harmoniously and ahistorically throughout time.

Let's consider one word: domestication. 'To domesticate' originally meant to make a member of a household. This is an ambiguous definition and one which does necessitate any exploitative, let alone technological, purpose. The meaning of the word did become further detailed over time: to be attached to a home and duties. This could certainly imply work but we don't know the modes, relations, values, or even the species involved. There would evolve a third meaning: to tame or bring under control. This is the one that Russell uses. Interestingly, it was first applied to the Irish in 1641, as they were brought under British imperialist control, and only later to sheep in 1805. In fact, the historical usage of the word, both as a verb and a noun, makes no clear distinction between members of the family, servants, or other animals.

The term 'farm' underwent a similar transition. In Latin, it meant food, provisions, feast, and banquet. In early English, the noun changed to denote a fixed yearly amount of money or money-in-kind collected through rent, fees, and taxes. In the sixteenth century, the noun transformed once again. This time it came to signify a tract of land for cultivation or a farmhouse—a definition much more akin to our modern one combining food and revenue together into a site of production. As for the early verb, 'to farm' was to rent, to take in fees, to make profits. It too would change over time and come to mean 'to let the labour of (cattle, persons) for hire'. Notice again the blurring. Labour included both cattle and persons for hire.

Why the lack of distinction? A social division of labor developed from the early modern into the modern era. It is a division that at once places other animals and humans together into the same labor force but at the same time attempts to create clear separation in duties, tasks, and status. Today this separation is sharp—to the point where the labor of other animals is no longer considered within the same framework as human labor. But centuries ago the separation was not so clear.

William Petty is often considered to be one of the first modern political economists. In his survey of conquered seventeenth century Ireland, he set about calculating. One milch-cow on 2 ½ acres of hay pasture will yield three gallons of milk for 90 days, one gallon for 90 more, ¼ for 90 more, with 90 dry. This should yield approximately 383 gallons per year. One bull should serve 20 cows. Three dairymen can 'labour of milking and looking to' twenty cows. 'One man will look to them and their food' (1970, pp. 52-3). 'One horse', Petty continued, 'plows 10 acres, and there goes 1 man to 3 horses' (1970, p. 58). This was how production should be carried out and how the labor to accomplish the said production should be divided.

But again the lines were not hard and fast yet. Sure, the enclosure of the commons and criminalization of customary rights propelled this into motion, but at first everybody got thrown into the economic pot together pell-mell. Both the cottier woman and cow had to go work on

a farm. This was all new. Before they lived together, now they did not. Before the relationship was one-on-one, now it was not. The mode and pace of production were no longer under their control. Surplus value, once only extracted from the cow, was now being taken from both. Life became reduced to work. Irish culture began to change.

This process went by different names. Liberalism was its technical name. In popular parlance it was called improvement. The definition of civilization was expanded to include it (Caffentzis 1994). And it was the likes of Petty and Adam Smith who were stirring the pot. For Smith, the Scottish highlanders had been defeated and now it was time to put both the stunted cows and people to work for the landlords. Their labor, in turn, should be divided and Smith spelled out how to do it. His recipe detailed the true nature of the social division of labor. Animals were workers. Marx thought that Smith had picked up this crazy idea from the Physiocrats. Perhaps. Turgot, Smith's contemporary, did emphasize 'the assistance of animals to manure the soil and to facilitate labor' (2011b, p. 355). But Marx's suggestion misses a larger point. Smith was just laying out his recipe for liberalism in the most straightforward, materialistic manner.

A century later, however, the stirring had all but stopped. What remained was the social divide and the sharp, deep distinctions brought by it. This is why Marx thought the way he did and why he considered Smith's opinions on such matters to be irrational. Cows and workers were separate things. Today the vast majority of people would agree with Marx. Haraway wags her finger at us and warns not to even approach the divide. Greene tells us that the work that other animals do is not actually work. Russell subordinates the entirety of their labor under and into technology. Therein, technology becomes the agent and the dog or horse is the object to be acted upon. The organism, he teaches, exists only to be modified and industrialized for human needs and purposes.

This takes us to the second problem. There is no understanding that technology under capitalism develops within a very different set of conditions from other forms of production. Technology is often, for example, designed and developed exclusively as a political weapon to be used against workers (Cleaver 1982). For other animals, this has almost always been the case—both before and during capitalism. But the intensity within which technology is developed for such purposes reaches truly obsessive levels under the current socioeconomic system.

When Fynes Moryson toured Ireland in the mid-sixteenth century, he noted on two occasions when he saw something very odd: large stuffed animals. Women would stuff calfskin with straw to form life-sized figures (1904, pp. 230, 301). These figures were used as decoys for cows, as their calves had been taken away from them right after birth and killed. The smell of the stuffed calfskin, it was believed, lessened the resistance of the mother and thus the milk could more

easily be drawn from them. Surplus is what the Irish women wanted and they made technological innovations to achieve it. Yet, even with this technological usage, Moryson still thought that the Irish were economically backward. The cows were gaunt, wild, and unkempt. Moreover, the cottiers 'watchfully keep their cows, and fight for them as for their religion and life; and when they are almost starved, yet they will not kill a cow, except it be old and yield no milk' (1904, p. 230). To Moryson, this mode of production was conservative and a waste as compared to his liberal view of the future.

Smith would have strongly agreed. His words seemed to glow when pointing out the significant transformative changes that had been brought to Scotland (2009, pp. 164-71). Thirty or forty years before his writings, the country's cattle were a 'stunted breed'—small and skinny. The people were interested in little more than maintaining their families' bare subsistence. The pre-improvement era was one of vast underproduction. But through a focus on breeding, innovations in feeding, and new methods of management, cattle became the key resource for the country and its future. They were laborers you could be proud of.

A vast literature arose in eighteenth century England advocating this transformation. Timothy Nourse, Jethro Tull, Arthur Young, Robert Bakewell, and many more pushed forth new ideas and new methods for agriculture. Nourse called for enclosing of the commons and putting people and animals to work. Tull designed new turnips for feeds, the horse-hoe, and multiple types of drill-boxes. Young dove into the numbers and the how-to of extracting surplus value from labor. He would walk the halls with the bigwigs, talking free-market policy. Bakewell focused on the scientific management of breeding, in particular for sheep and cattle. Behind each of these ideas there stood a primary concern about increasing work: adding new tasks, more tasks, longer tasks, faster tasks, and harder tasks. And the goal therein was the creation of added surplus value. Technology was not working for other animals but rather against them. It would turn their life into nothing but work. I have made this observation elsewhere but it stands to repeating: the agricultural sciences were the first business schools.

If there is an origin to the concept of surplus, it undoubtedly comes from the taking of milk from female mammals: cows, goats, camels, reindeer, and horses. This taking has always been about turning reproduction—the natural function of pregnancy and lactation—into a form of labor from which a surplus of milk can be extracted for other purposes, whether for use or for exchange. Individuals have developed several ways of doing this. They can take whatever milk is left over after the calf is done feeding. They can wean the calf as early as possible to get more. They can kill the calf to get it all. But under capitalism this wanting for more never ends and is never satisfied. It is what defines the system and makes it distinct from all previous modes of production.

The construction of the farm, a 24/7 site of cooperative labor, served in the making of added surplus. New methods of feeding, breeding, and management forced the cow to work harder and brought in more. But these enhancements were only going to get a farmer so much additional milk. Cows also needed to work longer. In order to accomplish this, as these animals have a gestation cycle similar to humans, the overall lactation time had to be extended. This required getting cows pregnant soon after they gave birth. Cows, however, have the ability to resist this process. They can refuse to be impregnated. The development of artificial insemination aided in overcoming this resistance. Cows could now be forced to get pregnant whenever the farmer chose and at a much higher success rate.

Other twentieth century technological advances have been used for similar surplus-adding purposes. High-density dry lots, for example, began in the 1950s and 1960s. First springing up on the outskirts of large cities, Los Angeles, Phoenix, Honolulu, Tokyo, Madras, Baghdad, they are called dry lots because there is no barn, stalls, or pasture. Rather, this industry operates as an open-floor factory with fenced fields of concrete and bare earth. There may, or may not, be shade or wind protection installed for certain periods of the year. The average size of an urban lot is five to fifteen acres. In rural areas, they can grow up to 800 acres. The average number of cows per lot ranges between 500 and 6000. Of the 1.5 million cows in California, more than 60% of them live and labor on high-density lots.

Here, production is both extensive and intensive. Operations are gigantic. Costs are stripped to a bare minimum. The pace is rapid. Efficiency standards are rigorous. There are daily quotas and weekly performance testing. Labor-enhancing stimulators, such as anabolic steroids and bovine growth hormones, are utilized and managed in statistically value-adding ways. The cows work a schedule of 350 days, on and off for 40-50 days. The milking occurs two to three times per day. The process itself runs on an assembly-line, each session taking as little as thirteen minutes. Thousands of gallons of milk are generated on a daily basis, which equates billions a year in revenue. For the cows, however, this kind of lean, mean production has resulted in an annual turnover rate of 40% to 100%. The managerial theory of optimal cow replacement in fact emphasizes and encourages this rate of turnover. Relying on metrics to determine which cows, due to lagging or dropping performance, are to be replaced, sending cows to slaughter after just one or two initial lactation cycles is considered to be a sign of progress.

The latest trend in the dairy industry is sexed semen. Using a complex technological process that sorts X and Y sperm, the eventual sex of a calf can be determined within a near 90% accuracy. You want a female? You get a female. And in this business, that is exactly what a farmer wants. More cows equal more milk equal the possibility of higher profits. Bulls serve little function beyond the occasional sperm

donation—that is, until sperm itself can be synthetically formed. The purpose of sexed semen is to gain a greater control over the reproductive process in order to turn it into a more efficient means of labor. Indeed, all of the technological and managerial advances that we have discussed were designed and developed with one goal in mind: to make cows work harder, longer, and with less resistance.

To our original question: Can animals be biotechnology? The short answer is, yes. But the long answer is, why? Sure, animals can be biotechnology, but there is no reason to accept this as a given point of departure in our thinking. Marx warned us that capitalism seeks to mechanize everything, including all forms of labor, to the point where we become nothing more than a cog in the machine. But instead of heeding his warning, many scholars have come to not only accept this process of mechanization as given but to embrace it. Technological determinism is validated as an ideology and a goal. This determinism, in turn, rationalizes the exploitation of other animals as a technology. They are not cows; they are turbo cows. They are not chickens; they are chickens of tomorrow. It becomes difficult to tell whether we are reading an industrial trade journal or a critical analysis. But maybe there is no distinction. 'In making organisms into tools', Russell triumphs, 'we have joined the evolutionary dance of history'. 'We have replaced what it means to be human' (2010, pp. 258-9).

Margaret Thatcher once told us that there is no alternative. This became the anthem for neo-liberalism and it certainly had its effects in the university. Indeed it is of little coincidence, for instance, that Actor-Network-Theory's inception can be traced to that historical moment when information technology took command and 'network' became the buzz word in every MBA program. Bruno Latour's much subsequent introduction to ANT (2005) was published by Oxford University Press in their Clarendon Lectures in Management Studies, alongside such volumes on corporate governance and managing intellectual capital. Despite its theoretical sophistication, ANT is at its most basic a social science answer to organizational management—where animals become nothing more than a vector in the capitalist network.

But there are always alternatives. The past is filled with them. And the future is never set. In writing the original essay, I sought to provide a historical narrative from below that would invert the dialogue. It was with a warm summer's reading of Blake's *Visions of the Daughters of Albion* that I first came up with my thesis.

Does the whale worship at thy footsteps as the hungry dog?
Or does he scent the mountain prey, because his nostrils wide
Draw in the ocean? does his eye discern the flying cloud
As the ravens eye? or does he measure the expanse like the
vulture?
Does the still spider view the cliffs where eagles hide their young?
Or does the fly rejoice. because the harvest is brought in?

Blake was asking questions about the whale, spider, and fly—questions from their perspective. I was at the time wondering similar ones of my own. Peter Linebaugh asked me what I was thinking. I said that animals were part of the working class. Blake had helped me articulate something that I had not yet been able to fully comprehend. Blake was on my side, and history does come from below. In the next section, we will deal with the second chief criticism of my work and further explore such alternatives.

IV

Bob Torres does not believe that animals are part of the working class. He sees two reasons for this, both of which are broadly held by other scholars. The first is that, while humans see a separation between home and work, other animals never do. They live in the constant grasp of production and capital. Their work is their home. The second is that animals cannot resist their exploitation. They cannot unite, plan, and struggle in a manner significant enough to make change. They are voiceless. Because of these deficiencies, Torres argues that animals are better thought of as super-exploited living commodities.

Regarding the first point, the end game of capitalism has always been about the removal of the separation between life and work—whether for a cow or a person. Human lives are organized around work from the moment we step foot in a school. As we age, any distinction between work and life becomes less and less visible. If the first question asked is your name, the second is almost inevitable: what do you do? Our lives are being defined by the work that we perform. The fact that humans can have a home is not relevant to this separation. Students do homework. Wives do housework. Children are raised. Work is brought home from the office. Many people telecommute from home. There are home businesses. The house itself is often seen, not as a home, but as a means for making profit. If anything, this blurring of life and work points to more similarities than differences in how other animals and humans are treated by capitalism.

There is a larger issue here. Others have brought it up and I think Torres is implying it. How do we define work? The OED considers it an action involving effort or exertion directed to a definite end. This effort can be self-directed or compelled through force. Significantly, there is no historical distinction made between species. Persons, animals, and even machines have been thought to do work. Work-beasts, workhorses, work-mares, work-nags, work-ox, and work-steers were commonly used terms from the fourteenth to the twentieth century. And those terms carried with them the action of work.

But I think we are overcomplicating this. Today most people define work as activities that only humans do. There is nothing surprising here. Hannah Arendt set it up as labor, work, and action: *Animal Laborans*, *Homo Faber*, *Zoon Politikon*. Animals can labor but only

humans can work and have meaningful action. Torres is just doing what he was taught: to exclude other animals. We have already discussed the social division of labor and the repercussions that it had in the creation of this exact kind of thinking. But there is another reason behind it and this has to do with the denial of agency.

Bernard Mandeville began his intellectual journey in denial. He was an adherent of Descartes and wrote his dissertation in support of the French philosopher. Animals had no reasoning abilities, had no language, and had no agency. Animals and machines were indistinguishable in these respects. But Mandeville would eventually come to reject this ideology. He would, in fact, take a stance on the opposite end of the spectrum. Animals, he came to argue, had a wide variety of abilities. They could reason. They could communicate. They could work. They could even resist. 'All Horses', Mandeville explained,

[A]re ungovernable that are not well broken: for what we call vicious in them, is, when they bite or kick, endeavour to break their Halter, throw their Rider, and exert themselves with all their Strength to shake off the Yoke, and recover that Liberty which Nature prompts them to assert and desire (Mandeville 1988, p. 270)

But 'what you call Natural, is evidently Artificial, and belongs to Education: no fine-spirited Horse was ever tame or gentle, without Management' (1988, p. 270). It is education, management, and the rule of law which put and keep others in line. Indeed, 'take the Foals of the best-bred Mares and finest Stallions, and turn an hundred of them loose, Fillys and Colts together, in a large Forest, till they are seven Years old, and then see how tractable they will be' (1988, p. 270). Horses, Mandeville recognized, are active participants in the process of work. This is why they need education to be governable and productive. 'Vice proceeds from the same Origin in Men, as it does in horses; the Desire of uncontroul'd Liberty, and Impatience of Restraint, are not more visible in the one, than they are in the other' (1988, p. 270). Work requires a significant degree of force.

Temple Grandin has made quite a living, and acquired a spot of fame, out of controlling and restraining this desire for liberty. She is an efficiency expert—the same kind that is employed, and dreaded, in any business or corporation. She is to cattle what Frederick Taylor and Elton Mayo were to humans. Cattle can resist the production process, whether working in the corrals, feed-yards, or slaughter factories. They can purposely slow down, struggle, kick, jump, and escape. This resistance causes disruptions and slows down the production line. Struggling can also cause self-inflicted injuries, such as bruising, which significantly decreases the value of their bodies as an eventual commodity. To combat this, Grandin's career has focused on creating technological designs and managerial techniques that lessen this resistance and thereby increase the overall efficiency of production.

Part of the argument of 'Animals are Part of the Working Class' was that animals could resist their exploitation. I chose to use the term 'resistance' because these particular actions on the part of other animals, sometimes violent in form and other times nonviolent, are intentional and aimed squarely at circumventing human designs and gaining autonomy. Resistance is not an exclusively human trait. I took this idea a step further in another article, 'Animals, Agency, and Class' (Hribal 2007). Here I argued that the resistance of horses and mules to their work, whether in the factories, in the streets, or on large farms, was a primary factor in their replacement by machines. 'Of all the great motive forces handed down from the period of manufacture', Marx reasoned, 'horse-power is the worst, partly because a horse has a head of his own, partly because he is costly and the extent to which he can be used in factories is very limited' (1990, p. 497). This is the independent streak that Mandeville identified. Horses are beings who can make their own choices and carry out their own actions. Agency is not an exclusively human trait. And this was one of the three factors that led to their historical redundancy.

Jocelyne Porcher and Tiphaine Schmitt delve into the issue of agency in their ethnography of a French dairy farm, 'Dairy Cows: Workers in the Shadows?' (2012). Instead of focusing on the farmer and the gears of production, they looked at the 60 cows who lived there and what they did on a daily basis. What the authors discovered was that the cows were active, subjective participants in their work. They understood and cooperated with the rules and tasks of the farm. They learned new routines. They figured out how the milking robot functioned. They had working relationships between themselves. They strategized ways to get around the rules and tasks.

Some cows purposely and repeatedly slowed the pace of their own work. Some blocked the entrance to the milking robot to slow the pace of everybody's work. Some would feint ignorance at commands. Some would pretend to go in one direction but then turn to go in another. Some would hide from the farmer. Some cows would not move until being reprimanded to do so. 'Ordinarily their work is invisible', the authors note. 'Animals' collaboration at work', however, 'is visible when it is not obtained' (Porcher & Schmitt 2012, p. 6). The work does not get done if the cows don't do it.

But Porcher and Schmitt do not take this far enough, for these cows are doing more than just collaborating in work. They are resisting. They are carving out a space for their own choices. They are shaping work and making it their own. In *Fear of the Animal Planet* (2010), I demonstrate how captive animals are deciding for themselves the how, what, who, and why of their daily tasks and lives. Sea World and its orcas, for instance, are often engaged in a struggle over the control and direction of the performances. How long will the performances last? What tricks will be done? Who will do the tricks or not? What will the payment be for the performance? Both sides are attempting to direct the process. Both sides are claiming ownership of it. Work is a

socioeconomic relationship with two sides and it is essential that we look in both directions.

Manuel Yang once pointed out to me that Marx called his book *Capital*, and not *Working Class*, because Marx wanted to show workers how capital looks on its own terms, from its structural characteristics, and we had to wait for the subsequent non-orthodox practitioners of historical materialism to invert it from below to see the other side of the struggle. The problem occurs when scholars do not recognize this. When there is no inversion, capital becomes all-powerful. Agency does not exist. The subject itself disappears. This is the fundamental problem with the discipline of animal studies.

The CAFO Reader: The Tragedy of Industrial Animal Factories (2010) is an impressive collection of essays. It takes on the vulgarities of the growing operations of concentrated animal feeding and thoroughly details the contemporary methods of exploitation. However the stress of the book is so overwhelmingly on the alienated nature of industrialized work that it reduces animals to little more than a commodity. To repeat, there is nothing wrong in thinking that animals are commodities because that is exactly what they are from the perspective of the capitalist circuit of production. But there is another side to the process of accumulation. Labor-power is what gives the commodity its value.

Consider 'meat'. Flesh, muscles, bones, fat, this is the physical form. Meat is not this. Rather, meat is the commodity composed of the physical form and created through labor-power. The primary suppliers of the labor-power are chickens, cows, and pigs. The secondary suppliers are the humans who manage the operations and collect the profit. If you are buying a piglet, you are purchasing her future labor-power: whether to produce commodities or reproduce more labor power. Producing meat is as much work as guiding the blind or pulling a carriage. Smith did not choose a horse as his example of a laborer. He chose a cow.

Meat is how the Nobel Prize winning economist Ronald Coase got his start. He co-authored a series of articles in the 1930s on the pig-cycle. The cycle was a two-year period of rising prices followed by a two-year period of falling. The British government was concerned and formed a commission to look into the problem to see if anything could be done to break the cycle. Coase focused on three aspects: labor-power, means of subsistence for labor-power, and reproduction of labor-power. The greater part of the costs, he found, were incurred a month or two prior to the sale of the bacon-pigs (Coase & Fowler 1940, p. 286). And the feed-stuffs equaled 75 to 95% of the total cost of production for baconers (Coase & Fowler 1935, p. 150). We should point out that there was a division of labor applied in this industry by the 1930s: porkers, baconers, and sows. The first worked for about four months before slaughter as pork; the second for seven to eight months before slaughter as bacon; and the third for an average 2½

years serving as reproducers. Coase wanted to reduce the time of work for baconers, who ate more as they became older and thus incurred more costs for their means of subsistence. The committee had already broken down the types and costs of foodstuffs in order to lower the expense. But Coase had a problem because he did not have a way to get the pigs to work harder and faster than they already were. Science and technology had not yet caught up with his plan.

Moving on, Coase next considered reproduction. Owners and managers were concerned with how long a sow should be allowed to work reproductively. The general opinion was somewhere around the fourth litter but the Ministry of Agriculture and Fisheries advised to keep 'her as long as she will produce profitable litters' (Coase & Fowler 1937, p. 67). But this concern was not overly important to Coase. He argued that production and reproduction needed to be considered seamlessly within the same formula. There was an 'under-capacity' of labor for both sows and boars (Coase & Fowler 1935, p. 147). Coase thought that the gestation period was the hinge for changing this capacity but again the technological means evaded him from working at this approach any further. His suggestion ultimately was that the industry needed to create a unified system of scientific management to keep the correct balance of reproductive and productive labor. This would provide protection against fluctuations in both factory output and expectations of the owners themselves.

Meat takes work and the shifting definition of the word itself certainly reflects this. The issue that I have with Melanie Joy's idea of carnism (2011), the invisible belief system that conditions us to eat meat, is the same one that I expressed ten years ago about Nick Fiddes (1992) and his thesis of meat as an enduring natural symbol. Fiddes relied on the shorter OED for his definition of 'meat', thereby ignoring the significant historical changes that have occurred within the meaning of the definition itself. Joy repeats this same mistake.

Meat has expressed different social relationships and different modes of production over time. In ancient Rome, for instance, *uisceratio* meant sharing a meal. The grammarian Servius began changing this at the end of the fourth century, adding to the meaning the distribution of flesh (Corbier 1989). The English definition underwent its own similar transformation. Meat went from being a meal, which may or may not contain flesh, to an industrial means of profit. Adam Smith complained that in the pre-improvement era sheep were often killed just for fleece and tallow. Cattle were killed just for hide and tallow. This was underproduction. Meat, as an exchangeable commodity, needed to be created and the labouring cattle were just the ones to do it (Smith 2009, p. 69). When Turgot posed the question 'Shall he kill an ox to make this pair of shoes?', he had an eye towards the future (2011a, p. 7). But in his home country, this would take a while. Eugen Weber has described how meat in France was not exploited as 'the chief source of cash profits' until the mid-nineteenth century (1976, p. 117). The country's peasants, like their counterparts in England, ate

remarkably little flesh. Often the only animals killed were old or sick. Their value lay in other forms of labor: plowing, manure, and milk and eggs. This was a subsistence-based economy. It would be purposely destroyed, although not without resistance, and the consumption of meat did double by the beginning of the twentieth century. Nevertheless this history, and the many alternatives and shifts within it, still remains. Joy and Fiddes fail to consider this history. Meat is not invisible, nor enduring, nor natural. And it is certainly more than a symbol or a type of food. Meat is hard work.

Yet, even those who recognize this history, do not necessarily provide us a perspective from below. Nicole Shukin's *Animal Capital: Rending Life in Biopolitical Times* (2009), Barbara Noske's *Beyond Boundaries: Humans and Animals* (1997), and Timothy Pachirat's *Every Twelve Seconds: Industrialized Slaughter and the Politics of Sight* (2011) are three examples of this. Shukin states from the outset that her goal is to reveal the 'historical contingencies' between animals and capital. Shukin spends a fair amount of time analyzing Marxism and its views on commodity fetishism. She dives into Fordist and post-Fordist modes of production. But her emphasis is so one-sided with its emphasis on the supremacy of capitalism that the other side completely disappears. So instead of breaking free from the capitalist circuit, or, as she puts it, 'animal become capital, capital become animal', she reproduces it (2009, p. 16). At one point, Shukin explains how commodities obtain their value from human labor. I kept waiting for her to acknowledge the same for other animals, but she never did.

Noske's book is filled with impressive and interesting analysis. Originally published in 1989, it should be deemed a classic. She examines the history of domestication and production under capitalism. She coins the term 'animal industrial complex'. She chops at the so-called discontinuities—language, cognition, tool-use—between humans and other animals. Yet the author succumbs to the same problem. Noske is so intensely focused on alienation and devaluation that she leaves herself no way out. 'Basically we face a dilemma in that there seems to be no option to imposing upon animals either object status or human subject-status' (1997, p. 157).

Pachirat begins his book with the story of six cattle. They had escaped from an Omaha slaughter facility in 2004. Five of the cattle were captured and eventually sent back to the facility in a trailer. One cow, however, refused to comply, would not enter the trailer, and was shot dead in the streets by city police. This should have opened up rich grounds for discussion, as such escapes by cattle are not unusual, but instead Pachirat shuts it down and disallows their agency. He labels the cattle's action a 'conceptual escape', something that is not even real (2011, p. 4). Following the path of Foucault, he positions these factories as places that hide the work of killing. Steve Striffler (2007) took a similar approach with his book on the chicken industry. These are ethnographies that turn animals into objects.

Pachirat's book ends in the index with cattle listed as mere 'body parts'.

I find these arguments to be both bewildering and frustrating. They are bewildering because the circuits of capitalism are exposed. The issue at hand—animals as products or commodities—is made clear. Pronouncements are made: 'we need to stop thinking of animals in this way'. But then we are told that animals are super-exploited living commodities. They are frustrating because this is the acceptance of defeat. It is denial of alternatives. It is the rejection of agency. Commodities, like capital, are dead. It is the labor of other animals that injects them with their value that is living. It is the struggle of other animals against that labor that is vibrant.

I spent a year working on this essay. The majority of the time was expended on reading a vast historiography that has grown forth over the past decade. When I started my doctorate in 1998, the field of 'animal studies' did not exist. Today you can't shake a stick without hitting some professor pontificating about it; and nearly every disciple and department now has its practitioners. Yet given the university slavishly follows trends as few others, I can't say I am surprised. There are already too many introductions to the field. The edited collections are never-ending. As I tore through many of the volumes in fifteen minutes or less, all I can say is that their effort would have been better channeled elsewhere. The sharp elbows have even come out as academics are jabbing and jockeying for position as official spokesperson of the field. From my seat in row twenty in the upper tier of the stadium, I dare say watching this popularity contest has been most entertaining. A reading of Kent Flannery's wonderfully mean-spirited parable 'The Golden Marshalltown' (1982) is definitely warranted for all parties involved. Don't worry about its focus on archaeology as the parable applies to animal studies in spades. But commentary aside, if there was one trend I noticed above all in my reading, it was the presence of this schizophrenia attitude regarding animals and agency.

The postmodernists, holed up deep underground in their safe and conservative lair, speak of agency only in strange tongues. Some have tried to change their identity to posthumanists or postpastoralists, but they remain just as quixotic and unapproachable as ever. The literary theorists confuse representation with participation. There is the use of STS and ANT and we have already discussed it. Those that take a strict Marxist methodology have not fared any better. For instance, Lawrence Wilde (2000), Katherine Perlo (2002), and Mary Murray (2011)—each building off the work of Ted Benton (1993) especially—have argued that Marxism can be used in support of the 'underdog'. Unfortunately, the underdog and its agency get so buried under the verbiage and power of capital that they disappear from view. A few scholars have begun taking a more frontal approach to the question of agency, although their results thus far have been disappointing. The best example of this is the collected

volume *Animals and Agency* (2009). Therein, actual animals barely exist and their agency even less so. One of its essays in particular, Traci Warkentin's 'Whale Agency: Affordances and Acts of Resistance in Captive Environments', had such rich opportunities. There is so much resistance happening among captive orcas. Yet Warkentin somehow avoids engaging it. Her essay, in spite of the title, contains essentially no actual resistance on the part of the orcas.

Ultimately, we have to ask again why this is happening. Why do authors say ad nauseam that we must now write from the animals' perspective but then turn around and fail to do it? Why are people having such a hard time coming to terms with animals and agency? And why is this problem coming from both above and below? Technocrats, liberal academics, and animal liberationists are equally guilty in this regard. The answer lies in the wages of humanness.⁴ These are wages that are *both* economic and psychological. Work and agency are identities constructed around humanness. They denote status and privilege. They are venerated by humanity. And they are perhaps the last boundaries to be crossed. When scholars approach this issue and begin to question it, they become deeply conflicted and that conflict plays out in different ways. Some will only speak of the issue in tongues. Some will be vague and inconclusive. Some will demand more theory. Some will fetishize it. Some will dance around it. These are defense mechanisms, each serving to protect the identity and status of the human involved. Indeed, Haraway's and Torres's arguments are not so much denunciations of other animals as they are declarations of the authors' own humanness.

In the original essay, I provided a brief history of the word 'anthropomorphism'. I felt that this was necessary for two reasons. The first was to show how the contemporary definition is very recent in its creation and not at all empirical in its background. Anne Larsen, for example, provides support for this thesis. In the early nineteenth century, entomologists engaged in a multi-decade long campaign of ideas (1993, pp. 90-127). Entomologists were, at the time, largely disliked by the general public. They were thought to be cruel and their profession unnecessary. Other zoologists hid behind hunting and sport to justify their mass killing of birds and other creatures for scientific study. Entomologists, however, did not have that kind of cover. They had to develop their own particular arguments to sway public opinion. Most interesting among them was their evolving position on pain. In the beginning of the century, entomologists admitted that insects felt pain and that they tried to make the insects' death as quick as possible for this reason. But soon that argument changed. They would come to say that insects probably do not feel much of any pain because insects are tough little creatures and are hard to kill. Thinking smartly, entomologists even added a bit of theology to buttress their new argument. God, they reasoned, shows mercy to the smallest of his creation and therefore worrying about the possibility of pain for insects is just not necessary. Why is this shift in position so interesting? Because the change represents a calculated

public relations move on their part—not an empirical advancement in the study of insects and pain. Entomologists were protecting their reputation and profession.

The second reason why I provided a history of the word was that I wanted to try, as best as possible, to preempt doubts. I knew that the readers of *Labor History* were going to be thinking about this right from the very moment they saw the title of the essay. Anthropomorphism has become a mantra, a modern socio-cultural belief that has taken on religious veracity. I am always being accused of violating its codes and these accusations have come from all disciplines and directions. Biologists and conservationists have indicted me of it. Animal studies scholars have indicted me of it. Cookbook vegans have indicted me of it. The problem, however, is that there was no burning bush. Being anthropomorphic is most certainly a crime, but it is a crime against humanity not empiricism. Declarations of anthropomorphism are protests for the unique social status and culture value of humans.

It is not a matter of semantics: the usage of commodity vs. worker. The former is a view from above—a view from the perspective of capital. The latter is a view from below—an inversion of the perspective of capital. The former, ultimately, sees other animals as objects. The latter sees them as subjects. Recognizing other animals as workers is not a justification of or for their exploitation. Rather it is an acknowledgment of what they do and of the history that they have made. I once reposed the question: ‘Who Built America?’ My answer was that horses, oxen, cows, pigs, and chickens did. Their labor has been just as important in the building of this country as the work of humans. True, other animals are not human slaves or waged laborers. True, they are forced into this situation. But this does not make their labor any less value-producing, any less significant, any less a form of work. The unpaid labor of animals has been the foundation upon which human labor has been built. It has provided the structural conditions for the rise of capitalism. It is the driving force behind modern society’s productivity.

In the essay, ‘Jesse, a Working Dog’ (2006), I wrote about the service dog industry. It seems to be one of the faster growing industries in the US. Retirees, returning soldiers, and the chronically unemployed have all gotten into the business of training and selling dogs for work. There are numerous foundations, such as Hollywood producer Sam Simon’s, that supply service dogs to help the blind, deaf, and those in need. It is an industry cloaked in a vision of goodwill. When people see the dogs at work, their heartstrings pull. But the point of Jesse was to invert that perspective. This is an industry that taps into a vast reserve army of labor drawn from shelters and pounds. This surplus population, in turn, serves as a means for accumulation. Whether these businesses are nonprofit or for profit, a lot of money is being made from the unwaged labor of these dogs. My question was, what do the dogs get out of this deal? In other words, if you do the work,

don't you deserve something for it? That phrase 'put out to pasture' is not an accurate one. The reality is the knacker's yard—the final stop in the capitalist circuit of production. My argument was that some of the money, which the dogs are producing, should go back to them in the form of a pension fund. So when their working days have ended, the dogs do not have to rely on charity to survive. They get their deserved retirement.

PETA's recent court challenge on behalf of Tilikum was unsuccessful. Recall that PETA had brought a lawsuit against Sea World for violating the rights of its orcas under the thirteenth amendment of the US constitution, which abolished slavery (but allowed its continuance for prisoners). The presiding federal judge dismissed the case citing 'the only reasonable interpretation of the thirteenth amendment's plain language is that it applies to persons and not to non-persons such as orcas'. 'Both historic and contemporary sources reveal that the term 'slavery' and 'involuntary servitude' refer only to person' ('Whales not slaves because they are not people' 2012). The judgment was not surprising. But what if the PETA's attorneys had explained how Sea World orcas go through rigorous training and perform 365 days a year? What if they had demonstrated through the tax records how much money the parks make through these performances? What if they had maintained that Tilikum's continued acts of resistance prove that he most certainly is taking an active stake in this lawsuit? What if they had asked the judge to consider these facts and whether or not Sea World should have to pay for the retirement of older orcas? If PETA had done this, would the outcome of the case have been any different? Perhaps. But we cannot even begin to move our arguments in that direction when the starting point of our thinking is in fact the end point. Living commodities and lively capital are twenty-first century versions of livestock. They are ideas that reaffirm other animals as property and a natural resource. When we devalue their work or dismiss it altogether, we are reinforcing the very idea that other animals have no agency and are separate from us. Animals are not voiceless. Rather we are silencing them. We are denying our true class relations.

V

Cows, chickens, pigs, and horses seemingly have nothing in common. They are not the same species. They have different cultures, social relationships, method of communications, means of governance, etc. But they do have something quite in common. They have long been members of the same class. They work for humans, who extract a surplus from their labor for the purposes of use, exchange, and/or accumulation. They are treated as property to be bought and sold. They are not waged. These are animals that have to often work collaboratively to perform their required functions and duties. But they can also collaborate to resist their work. This is most significant because these collective actions, both at work and against it, are the self-recognition and self-making of a class relationship. These animals

are a working class to which humans have been joined periodically throughout history. And its membership has extended to slaves, women, children, and beyond.

In Frederick Douglass's descriptions about his days trapped in slavery, he often drew himself right up next to other animals. 'When purchased, my old master probably thought as little of my advent, as he would have thought of the addition of a single pig to his stock!' (1969, p. 73); 'Like a wild young working animal, I am to be broken to the yoke of a bitter and life-long bondage' (Douglass 1969, p. 207). Indeed,

I now saw, in my situation, several points of similarity with that of the oxen. They were property, so was I; they were to be broken, so was I; Convey was to break me, I was to break them; break and be broken— such is life. (1969, p. 212)

But Douglass was not alone in making these recognitions, as such thinking was routine among African-American slaves: Mary Prince, James Roberts, Henry Box Brown, William W. Brown, Martha Browne, William Hayden, Aaron, Leonard Black, Moses Grandy, Henry Bibb, Isaac Johnson, Harriet Jacobs, Josiah Henson, John P. Parker, Henry Williamson, and the list goes on. The African-American slave narratives are full of such direct, matter-of-fact analysis. These narrators spoke about being treated in the same manner as the mules were treated—as a form of property, as a stock, as a tool. They wrote about being perceived in the same manner as oxen were perceived—as inferior, unintelligent, and soulless. They complained about having to work in the same manner as horses had to work—without recognition, without adequate food and water, without breaks, without wages. As Isaac Johnson was taught early on, 'you must understand you are just the same as the ox, horse, or mule, made for the use of the Whiteman and for no other purpose' (2000, p. 26).

The narrators described being transported alongside sheep—on ships, boats, wagons, and chain-droves. They described being auctioned alongside cows—displayed, examined, sold, and separated from their families. 'The cattle', Moses Grandy recalled, 'were lowing for their calves, and the men and women were crying for their husbands, wives, or children' (1996, p. 44). Grandy would lose four of her children in this fashion. The narrators described being housed with pigs—in barns, shacks, and sheds. They described being controlled and punished like dogs—with the tail of a whip, point of a rod, and end of a rope.

When William W. Brown (1969, p. 52) wrote that 'at these auction-stands, bones, muscles, sinews, blood and nerves, of human beings, are sold with as much indifference as a farmer in the north sells a horse or sheep', was he analogizing flippantly? When Harriet Jacobs (2003, p. 76) said that women 'are put on a par with animals' for 'they are considered of no value unless they continually increase their owner's stock', was she playing loose with her comparisons? No,

Brown and Jacobs were describing an actual historical reality: their class experiences. Josiah Henson acknowledged that once,

I was sent on some hasty errand that they might see how I could run; my points were canvassed as those of a horse would have been; and, doubtless, some account of my various faculties entered into the discussion of the bargain, that my value as a domestic animal might be enhanced. (1969, p. 55)

William Hayden recognized that slavery turned him 'into a beast of burden—racked with toil, persecuted with stripes' (2001, p. 91). Leonard Black knew that society had 'prostituted them to the base purpose of his cupidity, and his baser beastly passions, reducing them to mere things, mere chattels, to be bought and sold like hogs and sheep!' (2000, p. 51). John P. Parker understood that his people '[...] were sold south like their [master's] mules to clear away their forests' and that he himself was 'an animal worth \$2000' (1996, pp. 41, 61).

Significantly, the word 'slave' has had an almost strictly human definition. What began as spoils of war became human property. Yet within the above narratives and their thick description we get a different perspective. Slavery is being seen and redefined from below. What these African-American writers are telling us is that slavery is a socioeconomic system wherein humans are placed into the same working class as other animals. This recognition, however, did not equate to solidarity. There was often a sharp animosity expressed in these narratives. Former slaves complained bitterly that certain animals, horses in particular, received a treatment equal to or even better than themselves. This is a highly debatable point but it does demonstrate, quite distinctly, the wages of humanness. The former slaves did not want to recognize the work of cows or horses as a form of work. They were using these comparisons to horses, sheep, and cows as a means to separate themselves and boost their own status and privilege as members of the human race. These statements were, at the same moment, a keen recognition of an existing class relationship and the rejection of it. They were declarations on the part of the writers for their humanness.

In a recent *Huffington Post* piece (2012), Soraya Chemaly takes issue with a bill that was being debated in the Georgia State Legislature which would have made it necessary for some women to carry stillborn or dying fetuses through delivery. Advocate Representative Terry England reasoned cows and pigs on the farm had to do it; why not women too? I am not sure what made Chemaly angrier: the possibility of women losing further control of their reproductive rights or being compared to a cow. 'I don't like being bred by state compulsion like Mr. England's farm animals. **I have a MORAL OBJECTION to being treated like an animal and not a human**' [her emphasis]. 'You presume to consign my daughters and yours to function as reproductive animals'. 'Women are different from farm animals'. 'I am not a beast of burden'. While I get her objections, Chemaly is clearly missing a point. England was not saying that cows

and women were the same. Rather he was placing women into the same class as cows.

When I submitted my original article a decade ago to *Labor History* for review, one of the commentators was positive that I had made a mistake regarding a quote from Daniel Defoe. I said that when Defoe remarked about the 'flesh markets' he was referring to the locations of the buying and selling of cows. The reviewer believed that Defoe surely meant the occupation of the selling of sex—human sex. The reviewer was wrong. Trading in flesh would eventually come to mean the latter but not yet.

Today it is its sole definition, although the overlap remains. Sex workers in Bangladesh are currently being forced to take a continual regiment of *oradexon*. It is steroid that 'increases their appetite, making them gain weight rapidly and giving the appearance that these poorly nourished teens are in fact healthy and older' ('Bangladesh's 'teenage' brothels hold dark steroid secret' 2012). This over-the-counter drug fattens them up for customers. Nobody likes having sex with a half-starved girl. The steroid was first developed for cows. Farmers found that it fattened them up very quickly and successfully for the market. If the steroid worked for cows, someone must have thought, why not for little girls too? It is hard not to see the irony here but there is much more to it than that.

The history of the verb 'to stock' can teach this to us. There is the definition that we know: supplying and providing living or dead stock. There is the one that we probably don't: to impregnate, or stock, a domesticated animal. There is the next step: to leave a cow 'unmilked in order that she may make a good show at market'. A wet cow got a better price than a dry one. Finally there is class: 'Nurses who have not a good supply of milk will, occasionally, be found to adopt a practice commonly employed with milch cows when brought to market'. The job of the nursemaid, like the cow, was to keep her breasts well stocked. When we talk about the labor of reproduction or the struggle over the control of the female body, we are really talking about much more than an issue of gender. Class is the place where gender and species meet.

Feminism today seems to be divided into three camps. There are those like Chemaly who react strongly and negatively when placed into the same class as other animals. They do not like it. They do not want to be in it. They refuse to even recognize that it exists. But the Georgia State legislation proposed to go through with it anyway. Dairy cows did not have reproductive rights. Women should not either. Cows and women, as Representative England revealed, are in the same class. Chemaly took this as a serious threat. This legislation not only presented a challenge to women's control over their own reproduction but to women's very status of humanness. As Sherry Ortner repeatedly pointed out in her influential 'Is Female to Male as Nature Is to Culture?' (1974): women may occupy the middling ground

between nature and culture but they are still human. This latter fact is most significant and many women cling to it. Chemaly believes that she has nothing in common with farm animals.

Then there are those feminists who have taken a more reflexive approach to examining their relationship with other species. If control over reproduction serves to undermine the status of women, as de Beauvoir argued, then they wondered why its effect on cows or sows shouldn't be considered. This was common ground. Carol Adams, Ingrid Newkirk, Sue Coe, Marti Kheel, among countless others have engaged in thinking about it. They have shaped their lives and everyday practices around it. Women have made the animal advocacy movement into the force that it is today. There are still boundaries that many remain resistant to cross, notably agency and class, but this is beginning to change. At a Midnight Notes collective in the summer of 1999, I told Silva Federici I thought that animals were part of the working class. She did not have to think about it long before replying: 'Yes, they are indeed'. Silva encouraged me to continue my work and pushing at those boundaries—just as her work, together with Mariarosa Dalla Costa and Maria Mies, was pushing at mine.

Finally there are those feminists putting us into the same working class. At the conclusion of *Industrializing Organisms*, the volume editor Susan Schrepfer asks: 'If animals are technologies, are not humans as well?' (in Russell 2004, p. 266). This question is posed not so much in a critical manner but with a certain sense of inevitability—an almost wishful inevitability. Such an attitude is not particularly unexpected, given evolutionary history's narrow, teleological definition. If organisms are reduced to technologies, what prevents one set of humans from reducing another set of humans to technologies? Nothing. It is the next stage in history: *Homo Faber Faber*. 'Perhaps, then', as Edmund Russell averred, 'the future of industrialization lies in becoming ever more biological rather than less' (2004, p. 9). Yet, at the very same time that we are being placed together into the same class with other animals, stern warning is given. Remember Haraway's parting words: 'But they are not human slaves or wage laborers, and it would be a serious mistake to theorize their labor within those frameworks'. 'They are paws, not hands' (2007, pp. 55-6).

Jeremy Bentham liked to use the term 'hands'. It kept a sizable distance between him and those who were to be exploited. It allowed for hierarchical relations. It silenced the subject. Hands are abstract. They can be an object, a symbol, a unit of measurement. Jeremy and his brother Samuel thought a lot about hands and how to use them. Samuel was the engineer in the family. He designed the Panopticon. He invented a variety of machines. Samuel, long before Frederick Taylor, saw technology as a tool to introduce piece-work, incessant work (a twenty-four hour shift), and a structured wage-form.

Technology was promising in its service to strip workers of self-direction and self-organization (Linebaugh 1992, pp. 396-401).

Jeremy was more of the policy-wonk and he had a particular interest regarding policies about 'non-adult hands'. Poor children, he argued, should be put to work. Work taught them morals. The golden rule of his poorhouse was the Earn First Principle. First you work, then you eat. These children needed to learn that life was a privilege and that work allowed for 'continuation of existence' (1962a, pp. 385-95). Work sets one free. But there was another reason why Bentham was so interested in children. They could be worked together with animals.

An old blind horse, an ox, perhaps even an ass, will turn a wheel, a little boy will serve for driving, and the keep of beast and boy together will perhaps not exceed the keep of one man, certainly not equal that of two. (1962b, p. 145)

Indeed, their congealed labor—hooves and non-adult hands—could bring in much higher rates of profits. Bentham definitely saw the advantage in putting the two together into the same working class.

David Nibert's *Animal Rights, Human Rights* (2002) has demonstrated the connections between the oppression of humans and other animals. But what he sees as entanglements of oppression, I see as a class. An entanglement is something twisted together into a confusing knotted mass. Class is the fact that we are in this together. This relationship has been expressed historically in three ways. The first was Adam Smith and the rest of those designing the social division of labor. The second we have just discussed: those theorizing their labor and treatment within the framework of working animals. When people complain that they are being treated like a mule, they are not being disingenuous or inaccurate. They are making a class statement. They may not fully understand it. They may not like it or want to have anything to do with it. Nevertheless they are expressing a reality. They are members of the working class. The third are those who reverse the framework. Marjorie Spiegel's *The Dreaded Comparison* (1997) is a classic example of this. Slavery is the framework within which the exploitation of other animals is examined. There is currently a strong aversion towards using this methodology. It is negatively deemed as 'appropriation'. The suffering of humans should not be compared to the suffering of animals. It is inappropriate, demeaning, and opportunistic to do so. The problem here, whether for those using the method or those critiquing it, is that class relationship is not being made explicit, and, when it is not, ethnocentrism settles into position.

In 1999, I attended a lecture in Pittsburgh by a Holocaust survivor. He was a slave for Daimler-Benz during the war. Manuel Yang, Jeff Howison, and I were writing a historical pamphlet about this corporation for the workers at Jeep so we were interested in hearing his thoughts. During the discussion period, a person asked the speaker if he saw his experience as comparable to the history of slavery in the Americas. The speaker slammed his fist to the table and

angrily shouted 'No!' The ocean of grey-haired survivors that surrounded me in the audience nodded their heads in agreement. There was no comparison. Later someone brought up the genocide of the indigenous Americans and this is when the shit hit the fan. People were screaming. Dozens of metal canes were being swung in the air. To the survivors this was appropriation. Jewish suffering was unique. The enslavement of Africans or killing of Native Americans simply could not be compared to the Jewish experience. For me, the most interesting part of the night came at the very beginning. The speaker was describing how he was loaded into a boxcar for transportation to a camp. He then mentioned that he was not unfamiliar with the experience, for his family's business was loading cattle into these same cars for transport to their slaughter. He did not see the irony; nor did anyone else. I should have brought it up at some point in the night but did not for fear of being clubbed in the head with a cane. Yet his experience was more than just irony. It exposed a class relationship. We need to start making this explicitly clear.

In its existing form, our conception of class is not adequate. It is much broader and more complex than we have previously understood. Recognizing this fact is a first step in moving forward with the development of new ideas and approaches. There are difficulties ahead. We cannot, for instance, have critical dialogues with other animals. We cannot organize politically with them in the traditional sense. The relationship may not provide the levels of reciprocity that we are used to. This is all true. But these challenges can be overcome. Some individuals have already started the process in earnest and in depth. Agnese Pignataro has called for a political project between the species based on the ideas of class, empowerment, and solidarity (2009). Sue Donaldson and Will Kymlicka have designs for an engaged political citizenship with working animals (2012). Having these conversations is not the same thing as ventriloquism. I have dealt with such charges in the essay 'Understanding Class and Species' (Hribal 2011). Nor is it the same thing as paternalism. Rather, by placing other animals squarely into our larger discussions, as fellow workers who produce, resist, and actively shape the world, we are including them in the future. This is a question of solidarity.

There are important ongoing discussions occurring across the globe about the future of the commons. Missing from those talks, however, is where and how other animals, in particular our fellow members of the working class, fit into this. Across the US, there are currently wild horses in Utah, wild cows in Georgia, wild macaques in Florida, wild sheep in Hawaii, wild burros in California, wild goats in Southern Illinois, and wild pigs in Pennsylvania. Yet these animals are not wild; they are autonomous. These are maroon communities. The term 'maroon' comes from the Spanish *cimarrones*, referring to escaped cattle. It would come to be applied to escaped slaves but that was, again, later. Some of these maroon communities are old, stretching back decades to centuries; some are young and their culture is just forming. These once domesticated creatures have found a way to

survive and persist on a commons of their own making. These commons represent a viable alternative to the present, an alternative of animals' own choosing, direction, and purpose. This is not just a theory; it is practice. And it will be occupying my work for the next several decades. Others are welcome to join me. Animals have had a long, deep understanding of the commons. We should be learning from them and figuring out how we fit into the future together.

Jason Hribal edited John Oswald's *The Cry of Nature*, a classic document of revolutionary liberation from 1791. His latest book is *Fear of the Animal Planet: The Hidden History of Animal Resistance*, a collection of incendiary stories about real existing class struggle between humans and other animals. After receiving his Ph.D. in history at the University of Toledo, he has taught writing across the curriculum in Harlem, Palo Alto, and Skokie.

Notes

¹ This turn of phrase is taken from E.P. Thompson's 'The Moral Economy Reviewed' (1993).

² All definitions are taken from the longer Oxford English Dictionary.

³ There is in ANT an apparent and considerable theoretical overlap with Althusser, although I could see why its practitioners would want to keep their attributive distance from a guy who strangled his wife to death. See E.P. Thompson's 'The Poverty of Theory' (1978) for criticism of Althusser and his ideas.

⁴ This is a concept adapted from David Roediger's *The Wages of Whiteness* (1999).

References

Cleaver, H 1982, 'Technology as political weaponry', in R Anderson et al. (eds.), *Science, politics, and the agricultural revolution in Asia*, Westview Press, Boulder.

'Bangladesh's 'teenage' brothels hold dark steroid secret' 2012, *Reuters*, 19 March.

Bentham, J 1962a, 'Tracts on poor laws and pauper management', in *The works of Jeremy Bentham*, ed. J Bowring, Russell & Russell, New York.

———1962b, 'Panopticon', in *The works of Jeremy Bentham*, ed. J Bowring, Russell & Russell, New York.

Black, L 2000, *The life and sufferings of Leonard Black, a fugitive from slavery*, University of North Carolina, Electronic Edition, <http://docsouth.unc.edu/neh/black/black.html>

Boyd, W 2001, 'Making meat: science, technology, and American poultry production', *Technology and Culture*, vol. 42, no. 4, pp. 631-64.

Brown, W 1969, 'Narrative of William W. Brown: a fugitive slave', in *Four fugitive slave narratives*, Addison-Wesley Publishing, Reading.

Caffentzis, G 1994, 'On the Scottish origin of "civilization"', *Common Sense*, 16, pp. 65-86.

Chemaly, S 2012, '10 reasons the rest of the world thinks the US is nuts', *Huffington Post*, 15 March, http://www.huffingtonpost.com/soraya-chemaly/womens-reproductive-rights_b_1345214.html

Coase, R & Fowler, R 1940, 'The analysis of producers' expectations', *Economica*, vol. 7, no. 27, pp. 280-92.

—1937, 'The pig-cycle in Great Britain: An explanation', *Economica*, vol. 4, no. 13, pp. 55-82.

—1935, 'Bacon production and the pig-cycle in Great Britain', *Economica*, vol. 2, no. 6, pp. 142-67.

Corbier, M 1989, 'The ambiguous status of meat in ancient Rome', *Food and Foodways*, vol. 3, no. 3, pp. 223-64.

Donaldson, S & Kymlicka, W 2011, *Zoopolis: a political theory of animal rights*, Oxford University Press, New York.

Douglass, F 1969, *My bondage and my freedom*, Dover Publications, Toronto.

Ferster, M & Ferster, C 1962, 'Animals as factory workers', *New Scientist*, 15, pp. 497-9.

Fiddes, N 1992, *Meat: A natural symbol*, Routledge, London.

Flannery, K 1982, 'The golden Marshalltown: A parable for the archeology of the 1980s', *American Anthropologist*, vol. 84 no. 2, pp. 265-78.

Frezier, M 1717, *A voyage to the South-sea and along the coasts of Peru in the years 1712, 1713, and 1714*, J Bowyer, London.

Garcia, M 2010, 'Super guinea pigs?', *Anthropology Now*, vol. 2. no. 2, pp. 22-32.

Grandy, M 1996, *Narrative of the life of Moses Grandy*, University of North Carolina, Electronic Edition,
<http://docsouth.unc.edu/fpn/grandy/grandy.html>

Greene, A 2008, *Horses at work: harnessing power in industrial America*, Harvard University Press, Cambridge.

Haraway, D 2007, *When species meet*, University of Minnesota Press, Minneapolis.

Hayden, W 2001, *Narrative of William Hayden, containing a faithful account of his travels for a number of years, whilst a slave, in the South: written by himself*, University of North Carolina, Electronic Edition, <http://docsouth.unc.edu/neh/hayden/hayden.html>

Henson, J 1969, 'An autobiography of the Reverend Josiah Henson', in *Four fugitive slave narratives*, Addison-Wesley Publishing, Reading.

Hribal, J 2011, 'Understanding class and species: a lesson from Thaddeus Russell', *Counterpunch*, 27 June, viewed 4 October, 2012, <http://www.counterpunch.org/2011/06/27/understanding-class-and-species/>

—2010, *Fear of the animal planet: the hidden history of animal resistance*, Counterpunch, Petrolia.

—2007, 'Animals, agency, and class: writing the history of animals from below', *Human Ecology Review*, vol. 12, no. 1, pp. 101-12.

—2006, 'Jesse, a working dog: These dogs deserve a day off, perhaps two days', *Counterpunch*, 11-13 November, viewed 4 October, 2012, <http://www.counterpunch.org/2006/11/11/jesse-a-working-dog/>

—2003, 'Animals are part of the working class: A challenge to labor history', *Labor History*, vol. 44, no 4, pp. 435-54.

Imhoff, D (ed.) 2010, *The CAFO reader: the tragedy of industrial animal factories*, Watershed Media, Berkeley.

Ingold, T 1980, *Hunters, pastoralists, and ranchers: reindeer economies and their transformations*, Cambridge University Press, New York.

Jacobs, H 2003, *Incidents in the life of a slave girl: written by herself*, University of North Carolina, Electronic Edition,
<http://docsouth.unc.edu/fpn/jacobs/jacobs.html>

Johnson, I 2000, *Slavery days in old Kentucky: a true story of a father who sold his wife and four children*, University of North Carolina, Electronic Edition, <http://docsouth.unc.edu/neh/johnson/johnson.html>

Joy, M 2010, *Why we love dogs, eat pigs, and wear cows: introduction to carnism*, Conari Press, San Francisco.

Larsen, A 1993, *Not since Noah: the English scientific zoologists and the craft of collecting, 1800-1840*, PhD thesis, Princeton University, Princeton.

Latour, B 2005, *Reassembling the social: an introduction to actor-network-theory*, Oxford University, New York.

Linebaugh, P 1992, *The London hanged: crime and civil society in the eighteenth century*, Cambridge University Press, New York.

Mandeville, B 1988, *Fable of the bees*, Vol. II, Liberty Classics, Indianapolis.

Marx, K 1992, *Capital*, vol. II, Penguin Classics, New York.

—1990, *Capital*, vol. I, Penguin Classics, New York.

McShane, C & Tarr, J 2010, 'The horse in the nineteenth-century American city', in D Brantz (ed.), *Beastly natures: animals, humans, and the study of history*, University of Virginia Press, Charlottesville.

—2007, *The horse in the city: living machines in the nineteenth century*, John Hopkins University Press: Baltimore.

Moore, J 2010, "This lofty mountain of silver could conquer the whole world": Potosi and the political ecology of underdevelopment, 1545-1800', *The Journal of Philosophical Economics*, vol. IV, no. 1, pp. 58-103,
http://www.jasonwmoore.com/uploads/Moore_Potosi_and_the_Political_Ecology_of_Underdevelopment_2010.pdf

Moryson, F 1904, 'The itinerary of Fynes Moryson', in C Falkiner (ed.), *Illustrations of Irish history and topography, mainly of the 17th century*, Longmans, Green, and Co., London.

Murray, M 2011, 'The underdog in history: serfdom, slavery and species in the creation and development of capitalism', in N Taylor and T Signal (eds), *Theorizing animals: re-thinking humanimal relations*, Brill, Leiden.

Nibert, D 2002, *Animal rights/human rights: entanglements of oppression and liberation*, Rowman and Littlefield, Oxford.

- Noske, B 1997, *Beyond boundaries: humans and animals*, Black Rose Press, Montreal.
- Ortner, S 1974, 'Is female to male as nature is to culture', in M Rosaldo and L Lamphere (eds), *Woman, culture, and society*, Stanford University Press, Palo Alto.
- Pachirat, T 2011, *Every twelve seconds: industrialized slaughter and the politics of sight*, Yale University Press, New Haven.
- Parker, J 1996, *His promised land: the autobiography of John P. Parker, former slave and conductor on the underground railroad*, W.W. Norton, New York.
- Perlo, K 2002, 'Marxism and the underdog', *Society and Animals*, vol. 10, no. 3, pp. 303-18.
- Petty, W 1970, *The political anatomy of Ireland*, Irish University Press, Shannon.
- Pignataro, A 2009, 'La question animale: un débat à ouvrir dans le mouvement anticapitaliste', *Contretemps*, September, <http://www.contretemps.eu/interventions/question-animale-debat-ouvrir-dans-mouvement-anticapitaliste>
- Porcher, J & Schmitt, T 2012, 'Dairy cows: workers in the shadows?', *Society and Animals*, vol. 20, no. 1, pp. 39-60.
- Roediger, D 1991, *The wages of whiteness: race and the making of the American working class*, Verso, New York.
- Russell, E 2004, 'The garden in the machine: towards an evolutionary history of technology', in S Schrepfer & P Scranton (eds.), *Industrializing organisms: introducing evolutionary history*, Routledge, London.
- Russell, E 2010, 'Can organisms be technology?', in M Reuss & S Cutcliffe (eds.), *The illusory boundary: environment and technology in history*, University of Virginia, Charlottesville.
- Shukin, N 2009, *Animal capital: rendering life in biopolitical times*, University of Minnesota Press, Minneapolis.
- Smith, A 2009, *The wealth of nations*, Thrifty Books, Blacksburg.
- Spiegel, M 1997, *The dreaded comparison*, Mirror, New York.
- Striffler, S 2007, *Chicken: the dangerous transformation of America's favorite food*, Yale University Press, New Haven.

Thompson, EP 1993, 'The moral economy reviewed', in *Customs in common: studies in popular culture*, The New Press, New York.

———1978, 'Poverty of theory: or, an orrery of errors', in *The poverty of theory and other essays*, The Merlin Press, London.

Torres, B 2007, *Making a killing: the political economy of animal rights*, AK Press, Oakland.

Turgot, A 2011a, 'The formation and distribution of wealth', in D Gordon (ed.), *The Turgot collection*, Ludwig von Mises Institute, Auburn.

Turgot, A 2011b, 'On universal history', in D Gordon (ed.), *The Turgot collection*, Ludwig von Mises Institute, Auburn.

Warkentin, T 2009, 'Whale agency: affordances and acts of resistance in captive environments', in S McFarland & R Hediger (eds), *Animals and agency: an interdisciplinary exploration*, Brill, Leiden.

Weber, E 1976, *Peasants into Frenchmen: the modernization of rural France, 1870-1914*, Stanford University Press, Palo Alto.

'Whales not slaves because they are not people, judge in SeaWorld case rules' 2012, *Reuters*, 9 February.

Wilde, L 2000, "The creature, too, must become free": Marx and the animal/human distinction', *Capital and Class*, vol. 24, no. 3, pp. 37-53.