Introduction

This paper examines changes in agricultural practices and technologies, focusing on developments in meat production. There are a number of interlinked processes that will be examined, focusing on the historical development of livestock farming and the impact of these and of very recent developments in animal food production on local, regional and global environments. The current scale of animal farming is intense, and there has been an incredible increase in the populations of farmed animals. In 2003, for example, the United States became the first country to raise over one billion farmed animals in a single year and this was more than twice the number of animals raised for food in 1980 and ten times the number raised in 1940 (Marcus 2005: 5). Since 1980, global meat production has more than doubled, but in the South (where levels of meat and dairy consumption are rising year on year) it has tripled. 60 billion animals are currently used each year to provide meat and dairy products. On current trends, this figure could reach 120 billion by 2050 (MacDonald 2010: 34).

The production of animals and animal feed crops has had a significant impact on localised food production systems, and the intensive production of stock is set to become the model for agricultural development in poor countries. Animal based food is seen as a solution to food poverty and helping to eliminate food insecurity. This paper will suggest however, that the establishment of Western intensive production and the promotion of Western eating habits are more likely to increase social inequalities and insecurities.

Global Markets and Industrial Animal Protein

This section maps the changes in the farming of livestock and the production of animal protein in Europe and North America. It will trace the shift from a localised system of production, through to the specialisation, intensification, integration and mechanization of the livestock industry. As we will see, the operations of local, regional and global networks of relations shaped the development of animal food production, and the production and consumption of meat was an historical process in which systemic relations of species are constituted with and through relations of capitalist colonialism.

From Local to Global: Class, Colonialism and Species

In many pre-industrialised countries, domesticated animals have often been more important as a means of labour power than as a source of food. The work of anthropologist Marvin Harris (1987) for example, has indicated that throughout India, cattle were the principle means of ploughing, provided an important form of transport, and were deployed in various agricultural processes such as winnowing and flour making. Even pigs, whose flesh currently constitutes 40 per cent of global meat consumption, may have been used as working animals due to
their proclivity to co-operate with humans. There is evidence, for example, that pigs were used for threshing and planting grain in ancient Egypt (Masson 2004: 36). In pre-industrial Britain, dogs and horses were also significant sources of power, and oxen were not eaten because of their importance in ploughing (Thomas 1983). This reliance on animals as a source of labour power however, came to a decisive end in Europe with the development of water, wind and steam power.

The rural pastoral still offered in much Western children’s literature, reflects a pre-Fordist model of the farm, such as might have been apparent in Britain and elsewhere in Europe, from the thirteenth to the nineteenth century with most farms being relatively small and mixed; and with a range of animals present, despite regional tendencies. This small scale farming occurred on relatively sustainable pastures. The regionality of the rural landscape was apparent in the different kinds of husbandry and different kinds of products - the growing of different varieties of chickens, pigs, sheep and cattle, and the production of different sorts of animal products - the many local kinds of cheese found in Britain and France, for example. These reflected geographical conditions and constraints, with limited transportation possibilities and the perishable nature of animal foods. In Britain: “this trend has continued up until the present day, with cattle and sheep production favoured in the wetter Western half of Britain, whilst the intensive pig and poultry units tend to be situated in the east, where the cereal crops used to feed them are grown” (Johnson 1991: 33). The seeds of the contemporary globalised animal food system however, were to be found in this period, and were tied to national interests and the domestic demands of the European dominant classes.

The process of colonization involved the development of an internationalised food system, which co-existed with the localised model in European regions. Extensive cattle ranching and sheep grazing on relatively unstable grasslands was the modus operandi of the farming system introduced by European colonization of the USA, South America, Australia and Africa from the sixteenth to the nineteenth centuries. This system involved particular forms of exploitative social relations. On the one hand, there was the use of slave labour, displaced indigenous peoples and unwanted or exploited rural peasannies. On the other, landowning classes of sheep and cattle barons prospered, as did the exchequers of European nations through increased shipping wealth (Franklin 1999: 128-9).

As colonies became increasingly independent, and many drew in burgeoning immigrant populations, the ranching system - exploitative of both land and labour - became the model for an independent national system of production. The environmental impact of this system is well illustrated in the case of Mexico. Spanish conquistadors were followed by colonial pastoralists who assumed control of fertile agricultural land in the central highlands and began grazing sheep, shepherded by African slaves. By 1565, there were two million sheep in the region and by 1581, the indigenous Indians had been decimated by an epidemic imported by the settler community. Fields were turned into densely stocked pastures, which by 1600 had been transformed into thorn desert
In the Seventeenth century, the Spanish and Portuguese imported their native cattle into South and Central America (Velten 2007: 28). This model was adopted in much of the Southern USA from the late eighteenth to late nineteenth century, as US ranchers were seeking to increase profits by serving the expanding markets in Europe and importing cattle from Britain for this purpose. In many cases, diversity was replaced by species homogeneity in the process of increasing profitability. In South America, for example, Spanish colonialism established a ranching system around mission towns and villages in the seventeenth century. The sheep were descendants of the Iberian Churro, which accompanied the Conquistadors. Native American peoples developed and adapted this breed for suitability to rugged and harsh conditions and a relatively successful relations with these animals until the mass slaughter of the Churro sheep by US Federal forces in reaction to drought (Haraway 2008: 98-99). The hardy breeds were replaced by what were regarded as superior European breeds, and have only very recently begun to make a comeback in initiatives around sustainability and support for traditional lifeways.

The demand of the English upper classes for fat-rich beef was an obsession throughout the first half of the nineteenth century, and the breeding methods pioneered in Britain were adopted elsewhere in Western Europe (Ritvo 1990: 45-50). Cattle breeding became an elite obsession, and was represented in popular culture as a form of “patriotic duty” (Rogers 2004: 15). Animals were bred to gargantuan sizes, and fat-rich beef was a quintessential sign of status. This was also expedient for the production industries - rendered cattle fat was itself a lucrative business (Velten 2007: 133-38). This demand, and the profits to be made from serving it, resulted in the ‘cattelisation’ of countries such as Argentina and Brazil, and the replacement of species type in the United States. Jeremy Rifkin refers to this process as the “Great Bovine Switch”, which saw the replacement of buffalo with cattle through the sponsoring of the hunting of buffalo which led to their virtual and almost instantaneous elimination from the Western range lands after thousands of years of successful habitation (Rifkin 1994: 74-76). 30 million buffalo were killed in around 50 years, and this opened the North American prairies to the cultivation of large numbers of cows. Initially, these were the classical Longhorns of the brief ‘cowboy’ interlude. However, the development of ‘homesteading’ in the 1880s and the fencing of the open range enabled by the revolutionary new invention, barbed wire, led to the demise of the Longhorns. Overgrazing and desertification, combined with fencing, kept Longhorn from migrating to find food and avoid drought and severe winter weather resulted in the deaths of millions (Jordan 1993: 80; Velten 2007: 149-50). The Longhorns were replaced by British cattle breeds, such as Devon, Aberdeen Angus and Herefordshire (Velten 2007: 150). This switch from buffalo to cattle was not only a colonialism of species, but a strategic policy underpinning the forced re-settlement of Native Americans on reservations (Hine and Farragher 2000: 317).

The colonial model of meat production was further enabled by the development of refrigerated shipping which made it possible to ship meat to Europe from the USA, South America and Australasia (Franklin 1999: 130). Such
ventures were particularly profitable in South America, primarily in Argentina in the eighteenth century, and in Brazil in the nineteenth (Velten 2007: 153). In addition, meat processing plants were established in order to produce cheap meat products for working class consumption - such as the famous Leibig spread, that was produced at the English owned factory at Fray Bentos in Uruguay (Rifkin 1994: 147). This enabled Europeans to consume greater quantities of meat, but in order to make best use of the potential market in Europe the price had to be minimised by intensifying production and saving labour costs through increased mechanisation, and it is to this that we now turn.

**Industrialising Meat**

Intense profitability was enhanced by the ability of manufacturers to extract ‘products’ from animal bodies. In writing of Chicago’s famous Union Stockyards in the early years of the Twentieth Century, the novelist Upton Sinclair (1982) described the way in which animal slaughter impacts on everyday life as the many ‘lesser industries’ that are maintained by the slaughterhouse make profit out of every part of the animal. Slaughter is but one element of the incredible disassembly process in which animals are made into shoe polish, glue, soap, fertiliser and hairbrushes in addition to fats, oils, meat and leather. William Cronon (1991) argues that the Chicago stockyards, which opened in 1865, were a crucial element in a complex network of technologies, agricultural practices and products. The railway network both facilitated and extended the transport of cattle to the yards and animal products out of them. Rail networks and the development of refrigerated carriages enabled connections between the productive elements of the meat industry (grain farmers, farmers of ‘livestock’), and the stock yards and their associated businesses. These innovations were also a key factor in overcoming traditionally seasonal patterns of supply.

The early meat factories of Chicago have become the model for production in the developed world. The social composition of the workforce is also little altered (apart from the use of child labour) with the continued use of migrant workers and those with few skills and other job prospects, in one of the most hazardous and poorly paid of occupations (Marcus 2005: 229, Nibert 2002: 66-69, Torres 2007: 45). There are high levels of injury and death for workers in slaughterhouses and meat cutting plants and a cavalier attitude to both the health and safety of the workforce, and to diseased meat. The journalist Charlie LeDuff wrote an article based on his observations at a pig slaughter and processing plant which was published in the New York Times in 2000. He describes a deeply segregated place in which different communities (blacks, Mexicans, Indians and whites) all have different work stations, are segregated in different roles, and practice self segregation in locker rooms and the cafeteria as well as the local bars away from the factory (LeDuff 2003: 184). The interviews of slaughterhouse workers conducted in the United States by Gail Eisnitz made clear that slaughterhouses were not just places of fear, neglect and extreme cruelty endured by ‘meat’ animals, but places in which human beings are brutalised (Eisnitz 1997: 85).
the USA, 100,000 cattle can be killed in every 24 hours (Rifkin 1994: 154). The pace of the slaughter line and conveyer belt meat cutting means that turnover of staff is high despite significant levels of local unemployment around ‘meat plants’. The monotony is such that “You hear people say, ‘They don’t kill pigs in the plant, they kill people’” (LeDuff 2003: 185).

Similar conditions can be found in contemporary Britain. The overwhelming majority of the animals killed for food are killed in privately owned slaughterhouses, and most butchering takes place in large packing factories which are constantly searching for labour through agencies and pay workers poorly. The work in both slaughterhouses and packing factories is physically arduous – moving stunned animals in order to shackle them, operating power saws, unloading frozen carcasses at an incredibly fast pace, or seeing a carcass chopped, wrapped and boxed, all in twenty minutes. In the packing factories, operatives do not have any particular feelings about cutting up dead animals – as one put it: “we could be doing anything really. Well, anything really boring”. The monotony of the labour is such that “every day lasts a lifetime”. Boxing the cut meat is generally seen as the worst task: “it drives you mad. Literally. The ‘freak show’ that’s what we call it. ‘Cause they all look like freaks when they come out of there” (interviews, meat cutting operatives, London). Slaughterhouse and meat packing workers are poorly paid for long hours, and for tedious, dirty, repetitive work using dangerous tools. They often work in excessively hot or cold temperatures, and sustain injuries from animals, other workers and their own errors in a pressurized environment in which speed is of the essence.

In addition, fewer and fewer waste products become ‘waste’ as increasingly food can be ‘reclaimed’. This has been dependent on the development of various new processes which enable the extraction of even greater profits from the bodies of animals. From the mid nineteenth century, the meat industries of the United States and Europe (in particular, Germany) began to use by-products from slaughter houses such as fertilizer, glue, buttons, combs, felt, margarine and glycerine (Nibert 2002: 49). Today, the food industry has particularly benefitted from new chemical and mechanical interventions. For example, the filling of many processed meat foods involves ‘mechanically reclaimed meat’ – bone slurry, connective tissue and so on. The practice of ‘reclaiming’ meat has significantly contributed to industry profits, as waste is minimised reducing costs, and money made out of parts of animals that twenty years ago, would have been discarded (interview, Smithfield Meat Market, London).

The profitability of processed meat products has been reliant on other developments in the technology of distribution, primarily the development of car culture and transport infrastructure. From the 1940s, the development of the road network in and between cities and the increased availability of the motorcar across the social spectrum, enabled the development of fast food and its distribution at road side restaurants. There is a particular geography of processed meat. The McDonalds corporation from its very beginning, has analysed road networks and potential developments in citing its outlets (Ritzer 1999, 2004: 219) and new sites are selected almost automatically with the use of geographic
information systems (Schlosser 2002: 66). The cycle of technological
development and food innovation shapes food choices and fashions as can be seen
with the invention of the microwave oven and the development of ‘ready meals’,
often reliant on processed meat products – a fast food for the home (see Fine,
Heasman and Wright 1996: 206).

Technological developments do not only concern networks and outlets of
distribution, but the slaughter of animals itself. In the recent past, slaughter and
butchery were closely linked. In Britain, before 1945, butchers usually had a
slaughter-room ‘out back’, and older men within the contemporary industry tend
to see such ‘old-fashioned’ ‘family’ butchers as men of skill that form part of a
romanticized past of the meat trade. Animals would be killed by being battered
over the head with a pole-axe - a hammer with a hook on the end (interview,
slaughterhouse manager, Romford, Essex). Within the slaughter business, the
technologies of killing are usually seen to have improved in terms of animal
welfare. Yet the main changes in slaughter technologies were about maximizing
profit across different branches of the industry and not concerned with animal
welfare. For example, the introduction of pre-slaughter stunning was primarily for
the purpose of speeding the slaughter lines and improving meat quality (Burt
2006: 127). Such standardization has little effect upon issues of animal welfare;
the main concern of European regulations and directives are concerned to
eliminate bad practice in the area of food hygiene (MAFF 1991).

Brave New Farm

By the 1920s, the US was leading the way in the mechanization of animal
agriculture and millions of diversified small family farms had been replaced by
specialist, large, corporate enterprises. Important in this transition was the
development and use of tractors, replacing mules and horses in plowing and
hauling. Technological innovation led to the development of a grain surplus in the
US which in turn, promoted the use of cheap grain by expanding meat producers
(Nibert 2002: 102-3). Despite this, prior to the 1950s in Europe and America,
most farms were family owned or rented and family run, rather than corporate,
and many farming practices, though larger in scale, remained similar to those
deployed a century before. From the 1950s, one of the most important
technological developments was the confinement of chickens for both eggs and
meat and this was a means of significantly increased ‘efficiency’ and thus profit.
Such farming maximizes land use through intensive housing and minimizes
labour time as animals are in situ and fed automatically. The saving of labour
costs has been dramatic. In the US, one person may manage up to 150,000 laying
hens (Mason and Finelli 2006). Whilst not all animals adapt to being permanently
incarcerated:

Particularly “advantaged” by these developments have been pig
and poultry, especially chicken, due to the “high conversion
efficiency of these species”…The number of days taken to fatten a
bird to 4lb declined from sixty to thirty-nine days between 1966
and 1991 and the amount of feed has fallen from 9lb to 7.75lb. (Fine, Heasman and Wright 1996: 207-8)

Technology has been crucial in this process. The discovery, for example, that vitamin D supplements in chicken feed enabled animals to be housed without any access to natural light, made indoor chicken-meat production a possibility (Mason and Finelli 2006: 105). Whilst the bodies and minds of chickens endured intensely overcrowded, barren and polluted conditions, the post-war boom in the chicken business, particularly in the US, attracted the attention and investment of large pharmaceutical companies which developed treatments for diseases and ‘unwanted’ chicken behaviour.

Animal bodies themselves have been intensely modified to ensure suitability for industrial conditions and thereby enhance profit:

In 1946, the Great Atlantic and Pacific Tea Company…launched the ‘Chicken of Tomorrow’ contest to find a strain of chicken that could produce a broad-breasted body at low feed-cost. Within a few years poultry breeders had developed the prototype for today’s ‘broiler’ – a chicken raised for meat… (Mason and Finelli 2006: 106)

Following the successful intensification of chicken-meat and chicken-egg production, the 1960s saw the development of intensified and highly automated systems for growing other birds, pigs, cattle and sheep. Key to success were automated feeding and watering systems, and for indoor raised animals, the elimination of bedding and litter through development of different kinds of food conveyance systems, cages, stalls, pens, forms of restraint and slatted floors over gutters or holding pits. Intensification has been applied to animals raised outdoors, and the cattle ‘feedlot’ of the US is the strongest example of this. Feedlots are fenced in areas with a concrete feed trough along one side and were developed in the context of depleting soil through overgrazing and surplus corn production, from the early years of the Twentieth Century. With nothing else to do, and stimulated by growth promoting hormones, contemporary feedlot cattle eat grain corn and soya, which may be ‘enhanced’ with the addition of growth promoting additives such as cardboard, chicken manure, industrial sewage, cement or plastic feed pellets (Rifkin 1994: 12-13). Slightly less barren and automated are the cattle ‘stations’ predominant in Australia and Central and South America. Here, cattle compounds are simply moved around when land becomes over-grazed (Velten 2007).

The estimated global figures for animal killing are enormous. For example, 50 billion chickens and 1.3 billion pigs are slaughtered annually (CIWF 2009, CIWF 2010). This scale of production has only been enabled with the adoption of intensive farming methods, and incredible profits are made from intensive farming in terms of the personal wealth of the owners of animal agriculture companies and their investors (Marcus 2005: 5, also Torres 2007: 45). On the other hand, the costs of animal products have remained relatively constant due to
efficiency savings of scale, and the ‘improvements’ in animal breeding which have enabled animals to be fattened to slaughter weight in almost half the time it took in the 1950s. The number of farms has thus been dramatically reduced. For example, in the United States, the number of pig farms fell by more than two-thirds between 1992 and 2002 (Marcus 2005: 9). Conditions of work in factory farms bear similarities to those in slaughterhouses and packing plants – extremes of temperature, occupational and infectious diseases, in addition to long hours and poor pay.

According to the United States Department of Agriculture, only 2 per cent of factory farms produce 40 per cent of factory farmed ‘meat’ (Williams and de Mello 2007: 21). Such enormous operations are part of the corporate giants of the US such as Cargill, ConAgra, Smithfield and Tyson Foods which are now ‘vertically integrated’ operations - that is, they own the breeding facilities, feedlots and indoor production units, slaughterhouses and packing facilities. Whilst production has increased and labour costs have been squeezed, soil and ground water have also been damaged by the enormous monocrops for animal feed, and by the hazardous amounts of waste generated by agricultural animals and the draining and contamination of irreplaceable groundwater stores (Gellatley 1994: 175-76). It is to this environmental and broader social impact that we will now turn.

Food Colonialism, Intensive Production and the Environment

Industrialised agriculture, including the production of ‘food’ animals, and the crops needed to ‘grow’ them, has been seen as a solution to food poverty. There are moves to ‘democratise’ diet, by encouraging Western intensive agriculture, particularly of the stock-filled variety, in regions of the South. However, according to the Worldwatch Institute’s State of the World Report (2004), citing UN Food and Agriculture Organization data, one of the most serious risks to the global environment is the expansion of intensive animal agriculture in Asia, South America and the Caribbean. Industrialised animal agriculture is claimed to be a driving force behind all of the contemporary and pressing environmental problems that we face – deforestation, water scarcity, air and water pollution, climate change and loss of biodiversity (CIWF 2002); in addition to issues of social injustice.

New Colonialisms of Species

Projected population increases, combined with projected demands not just for food, but for meat rich diets, have been seen likely to result in the decimation of remaining tropical and temperate forest, savannah and grassland in the Southern hemisphere by 2050 (World Bank 2001). Such demand has led to corporate interventions, and the development of intensive animal agriculture in developing countries is currently proceeding apace.
Many US firms invested heavily in beef production in Central America in the 1970s and 80s and multinational corporations such as Cargill and Ralston Purina provided the technological support structure for the development of the Central American beef industry – from semen to grass seeds. Land reorganisation and the development of corporate farm enterprises, alongside the displacement of peasant populations are “transforming an entire continent into grazing land to support the rich beef diets of wealthy Latin Americans, Europeans, Americans and Japanese” (Rifkin 1994: 193). The most dramatic example is Brazil, whose government adopted a programme to convert the rainforest into commercially productive land in 1966, resulting in significant investment from US based multinational companies in the Brazilian interior and the transformation of the Brazilian economy into the preeminent beef exporting nation. This is, in Rifkin’s words, a new incarnation of “cattle colonialism” (1994: 199). Brazil and Mexico have devoted increasing amounts of their agricultural production on producing soy and sorghum to feed cattle, rather than corn, to feed people, and earning considerable export revenue as a result, contributing considerably to food insecurity (Lappé and Collins 1979: 11; Gellatley 1994: 154).

Robert Williams has argued that beef has contributed more economic and political instability in the region than any other export crop; for whilst sugar, coffee or bananas have clear and geographically bound limits, “cattle could be raised just about anywhere” (Williams 1986: 158). This has created a new agricultural frontier in the region, and politically empowered the cattle ranching elite, which in states such as Guatemala in the 1970s and 1980s were supported by repressive military governments inflicting displacement through extreme violence, on indigenous peoples (Faber 1993). In addition, the World Bank (2001) has estimated that “since the 1960s, about 200 million hectares of tropical forest have been lost, mainly through conversion to cropland and ranches, the latter especially in Central and South America”. Whilst this region has been the most profoundly affected, rain forest has been cleared in South East Asia for the growing of animal feed—such as the growing of tapioca in Thailand for sale to European Union countries. In Haiti, one of the poorest countries in the world, communities have been displaced to mountain slopes with poor soil; while much of the best agricultural land is used for growing alfalfa to feed cattle from Texas (Gellatley 1994: 152-60).

In addition, increased demand for cheap meat has led to the establishment of indoor production systems in poorer countries. In India, home to the greatest concentration of cows in the world, the population of two hundred million cattle are still afforded the sacred protection in Hindu dominated states to the extent that killing cattle is regarded as a serious crime and the government maintains old-age homes for at least some of those too ill or old to roam the streets (Velten 2007: 77, and extensively, Harris 1987). Other species however, have been more open to the Westernisation of farming practices. Battery systems for laying hens and the growing of chickens in broiler units are now widespread throughout the Indian sub-continent. Whilst these intensive methods have been promoted by agribusiness as a solution to current levels of malnutrition and hunger, the eggs
and meat produced can only be afforded by social elites in poorer countries. The eating of meat and animal products is, in most parts of the world, seen as a form of desirable privilege and a mark of status and wealth. Such agricultural systems use huge amounts of scarce water, provide very few avenues of employment and make products largely exported to rich countries (such as the Gulf States).

**The Politics of Meat**

In the aftermath of the Second World War, European states and the US set out to reduce malnutrition and hunger amongst their own populations with the promotion of cheap meat and other animal products. Rising levels of meat and dairy consumption became associated with social progress, as meat was not only an historic marker of status in the West, but seen as necessary for good health. This was also promoted internationally by the United Nations, which, in the 1960s and 1970s, emphasised the necessity of increasing animal protein production and making such food increasingly available in poor countries (Rifkin 1994: 131). It is difficult not to conclude that such initiatives were strongly influenced by Western governments driven by the corporate interests of the multinational corporations based in their territories. Such initiatives ignore that pulses and grains have been the most common sources of protein across the globe, and that the ability of developing countries to feed their own populations successfully was significantly compromised by the replacement of staples such as corn, millet and rice, for monocultures to supply the livestock feed industry.

In the 1980s and much of the 1990s, the Common Agricultural Policy of the European Community/European Union also encouraged intensive animal farming through systems of grants and subsidies which explicitly favoured the equipment and buildings of intensive production rather than improvements to land in which animals might be raised (Johnson 1991: 181). More recently however, the UN Food and Agriculture Organization report, *Livestock’s Long Shadow*, concluded that animal agriculture is a greater contributor to global warming than the combined effects of all forms of transportation (Steinfeld et al 2006). The deployment of Western agricultural models and the spread of Western food practices have significant implications for the environment in terms of undermining bio-diversity, localised pollution, soil damage, rainforest depletion, and contributing 18 per cent of all greenhouse gases. The technologies of animal agriculture have made meat production incredibly profitable and also incredibly resource hungry and wasteful. Considering the resources involved in breeding and growing a single beef cow, journalist Michael Pollan argues: “We have turned what was once a solar-powered ruminant into the very last thing we need: a fossil-fuel machine” (Pollan 2003).

It may be that with apparent concern about climate change demonstrated by international organisations and the incontrovertible evidence of the role of animal farming in contributing to environmental hazard, national and international policy proclivities will shift. We have also seen increased public awareness in the West about issues of farm animal welfare. States, international organisations and even
agribusiness corporations have deployed animal welfare arguments and combined them with ideas about meat quality in order to instigate moves such as the banning of battery cages and sow tethers and gestation crates within the European Union. Yet at the time of writing, the complex international system of animal agriculture seems set to expand. The feedlot system is being exported to beef farming beyond the US, as is the practice of intensive dairy farming where cattle are kept permanently inside, in small stalls. Western intensive models, promoted by the agribusiness giants are set to transform farming in some of the poorest countries in the world, just as they have transformed much of central and South America in the latter twentieth century.

Conclusion

The food we eat is politically constituted. This paper has mapped the economic and political trajectories of the development of the modern animal food industries. It has argued that developments in technology have been crucial to these processes, but both technological development and food production and consumption are developed through institutions and practices which are historically situated and socially produced. These are importantly shaped by systemic relations of social power - capitalism and colonialism - that are evident in the historical development of apparently modern and modernizing societies. It has been argued that these systems of social relations continue to shape the trajectories of animal agriculture. The production of animal derived foods also has significant environmental legacies - from the development of the American prairies through the ranching of cattle (or ‘hoofed locusts’) in the nineteenth century, to the water hungry and water polluting factory farms which currently spread increasingly across the globe. The intensive production of stock is being adopted as a model for agricultural development in poor countries. Yet animal based food is not part of a solution to food poverty. Rather, the establishment of Western intensive production and the promotion of Western eating habits have increased social inequalities and will have disastrous consequences for both the security of human communities in some of the poorest parts of the world and the lives of the huge numbers of those non-human animals raised for human food.
References


