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Biosecurity and the multiplication of crises in the Egyptian agri-food industry

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ABSTRACT

Through a case study of Egypt's agri-food industry this paper examines biosecurity as a set of technologies, institutions, and practices that attempt to govern national agri-food industries and global agri-food trade by marrying a political economy perspective and an analysis of 'nature–society relations'. Consistent with other agri-food industries in the global South, Egypt's agri-food industry has undergone waves of corporate consolidation during the neoliberal period. By detailing the growth of the poultry industry and the endemic spread of HPAI H5N1 (avian flu), this paper presents an argument that the industry grew and consolidated through emergent and recurrent zoonotic and plant diseases, the management of which has been governed in part by biosecurity measures.

Introduction

In early February 2014 in Egypt, following the violent commemoration of the third year of the country's revolution, the Ministry of Health announced death and illness from the H1N1 virus (swine flu). This announcement marked the flu's dramatic re-entry into the country after government culling of the pig population five years earlier, in frenzied anticipation of the highly contagious flu's global March. This was the latest bout of infections of emergent and recurrent diseases during and outside the influenza season. In 2012 a new strain of foot-and-mouth disease ravaged cattle and other hooved animals in the Nile Delta (*Reuters* 22 March 2012; Garrett and Cook, 2012), and half a decade earlier the avian flu (H5N1) made a grand entrance onto the country's poultry complex. Emergent and recurrent diseases have become increasingly virulent during the last couple of decades, and have affected not only animal agriculture but the country's agriculture and food system generally, with real and potential consequences for public health.

At the time of these outbreaks, the Egyptian government and agri-food industry had long been actively participating in the international institutions and agreements that attempt to standardize practices for controlling pests and pathogens within national agri-food industries and in global agri-food trade, particularly since the country joined the World Trade Organization (WTO) in 1995. These biosecurity measures have come to constitute a regulatory framework made up of corporate food retailers' private standards and their third party certifications (e.g. Codex standards, Good Agricultural Practices (GAP)) and the WTO's Agreement on the Application of Sanitary and Phytosanitary Measures ('SPS Agreement') and the resulting International Standards for Phytosanitary Measures (ISPMs) which outline biosecurity protocols for a broad range of species categorised as pests (Phillips, 2013; Potter, 2013). This growing standardization of what food is being grown – and how it is grown, handled, processed and transported – occurred in the context of emerging and recurring infectious diseases globally – what is being debated as a possible 'third epidemiological transition' of the last few decades (Mennerat et al., 2010). A particular way in which the regime has played out in Egypt is through the expansion of reclaimed semi-arid and arid lands for intensified agriculture production. This expansion allowed for distance between farms and from populated residential areas, as well as production in a dry climate and in soil that had not previously been cultivated intensively. In these ways, reliance on reclaimed lands represents a level of biosecuritization for agroexport farms (of namely fresh fruits and vegetables) and industrial animal agriculture (largely for domestic consumption). Industrial farms are built and organized around strict demarcations between the 'inside' and the 'outside' of production zones – what Marsden et al. (1996) refer to as the 'reconstruction of micro-climates' – in order to exert greater control over the production environment.

In this paper I argue that the agri-food industry in Egypt grew and consolidated through emergent and recurrent zoonotic and

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plant diseases, the management of which has been governed in part by biosecure institutions, protocols and technologies. This finding is consistent with the literature on corporate food retail chains that concludes that agribusinesses with the most capital and large agroexporting states that offer sizable subsidies have benefited the most by investing in the required certifications and capital-intensive technologies (Burch and Lawrence, 2007; Busch and Bain, 2004; also see for case studies Hernández et al., 1999; Rosset et al., 1999; Weatherspoon and Reardon, 2003). Rather than offer a purely political economy perspective, which tends to explain the development of this 'biosecurity regime' as a strategy to maintain control and increase the market shares by dominant players within global agri-food trade, I offer a perspective that marries a political economy perspective with an analysis of 'nature–society relations'. In doing so, the intensification of agriculture and food, and the resulting concentrations of local and transnational capital, are theorised as ecological processes – involving the interaction of capital, state, labour, the desert soils, the wind, parasites and so on – that is, the planned as well as the unwanted, unexpected and unintended (Mitchell, 2002).

In the first section I analyse the role of liberalization and privatization policies as well as state development policy in shaping biosecurity protocols and practices within the Egyptian agri-food industry during the last half century. However, I also complicate this purely political economy perspective by intersecting policy measures and their implementation with the epidemiology of H5N1 HPAI (avian flu). By 'following the virus', I emphasize the overlooked role of pathogens within poultry (precursors to H5N1) in the intensification of poultry production. In doing so, agri-food industry growth is characterized by efforts to create increasingly coercive production environments, on the one hand, and multiplying threats to production, on the other hand.

In the second section, the direct relationship between intensification and the multiplication of crises (Latour, 1993) provides the theoretical framework for mapping poultry industry restructuring. In response to (human and non-human) risks to production, the industry built a value chain of concentration and control 'at the top' (over breeders) and of sub-contracting (of broilers) to other operators[1] 'at the bottom'. This value chain – and parasite ecology, or the relations between parasites, hosts, and the (production) environment, that constitutes the chain – explain how following the avian flu's outbreak in Egypt in 2005–06 biosecure industrial poultry within Egypt and beyond acted as a vector of the virus and yet was largely saved from its global march. Most human illness and death from the virus has been linked to live bird markets and backyards/'cottage' poultry, and the standard retinue of government responses to the outbreak undermined smaller-scale operators while benefiting agribusiness. The social scientific literature on H5N1's global march and endemic spread interprets the resulting concentrations of capital in national poultry industries as an outcome of state-class alliances or a reflection of 'biopolitics' (Foucault, 2008), the modern form of power that values certain lives over other lives. However, this conclusion misses the significance of the ecology of the value chain, which effectively saved 'working capital' while making vulnerable birds and people in live bird markets and 'backyards'.

Agriculture and food system change, biosecurity and the multiplication of crises: a review of the literature

There are two bodies of literature on agriculture and food system change that address both the intensification of agri-food systems worldwide during the neoliberal period and 'nature' in one way or another. The first much larger body of literature addresses the effects of agriculture and food system change 'on the environment' (e.g. deforestation, biodiversity) (Barndt, 2002; Buttel, 1997; Islam, 2014; Longo, 2012; McMichael, 2012; Van der Ploeg, 2009). A second smaller body analyses agriculture and food system change through a lens on 'nature–society relations' (Murdoch et al., 2000; Marsden et al., 1996; Moore, 2012; Sneddon, 2007; Weis, 2013). There is some grey area in-between,[2] but a main difference between the two bodies of literature is between understanding nature 'as an *effect* of power' and nature as co-constitutive of change (Castree, 2002: 121). An analytic of nature–society relations attempts to demonstrate not only the social construction of nature but the co-production of nature and society (Moore, 2011), while an analytic of human action on nature tends to keep social systems distinct from the 'natural world' (Castree, 2002: 121). A basic ontological point is that humans and the social world cannot be separated from the natural world.

In this paper I am concerned with marrying an analysis of nature–society relations with a political economy perspective. More than a decade ago Castree (2002) argued for the mutuality of actor network theory (ANT), which has been at the forefront of nature–society analyses, and eco Marxism, which heralded the 'greening' of critical political economy, because, simply put, many nature–society relations are distinctly capitalist. More than this, a theoretical point is that bringing together a nature–society analysis with a critical political economy perspective is a way to re-think capitalism. Following Moore (2011, 2012) and the World-Ecology school, I am concerned with theorising how capital accumulates through (rather than on) nature.

I offer that 'biosecurity' provides a useful lens for addressing this theoretical question. 'Biosecurity' is an umbrella term for the technologies, governance mechanisms, institutions, and discourses that have emerged during the last couple of decades to manage and explain the knowns and unknowns (e.g. invasive species, zoonotic diseases, etc.) that are impacting and potentially threaten economy and society. Hinchliffe and Bingham (2007) note three different uses of the term 'biosecurity': attempts to manage the movement of agricultural pests and diseases (exemplified by quarantine); attempts to reduce the effects of invasive species on so-called indigenous flora and fauna (e.g. border controls); and attempts to protect against the dangers of purposeful and inadvertent spreading of biological agents (e.g. the US Bush administration's building of a line of defence against biological threats). While biosecurity as a general practice of securitization based on distinctions between 'inside' and 'outside' (Nerlich et al., 2009) may be considered a defining technology of the modern era, the onset of global governance and corporate dominance coupled with the biological turn in the War on Terror (Cooper, 2006) has turned biosecurity into a hegemonic technology in the 21st century (Enticott, 2008).

Political economy approaches within the literature further highlight a tension between the WTO's free trade architecture and biosecurity's elaborate set of protections and restrictions (Potter, 2013). In agriculture and food, at least, this tension has resulted in a 'disease free' bubble of wealthy countries that use the WTO trade rules to maintain their privilege (Law, 2006). Following this literature, I explore what has made the creation of 'disease ridden' small-scale poultry and 'disease free' industrial poultry possible on a worldwide scale. Also, I follow closely the

[1] By operators I refer to poultry producers who may own medium- to large-scale farms but whose total production is much smaller than the dominating corporations within the poultry industry.

[2] For example, it is debatable if Weis (2010) goes beyond nature–society dualism with the concept of 'biophysical contradictions' within industrial agriculture. This concept intends to capture the cycle of problems that arise from biological simplification and standardization (e.g. soil erosion, emerging and recurring pathogens) and perpetual short-term 'fixes' or 'biophysical overrides' (e.g. fertilizers, insecticides). This concept begs the question – and it is a historical question – of how the need for biological simplification and standardization arose in industrial agriculture.