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MEAT MARKET IN AN ERA OF PANDEMICS AND NEOLIBERALISM

INTRODUCTION

Following the COVID-19 pandemic, livestock breeding systems and animal-based foods production have become central to discussions on how animals are raised and slaughtered, how meat is sold and consumed, and the edibility and non-edibility of different animal species. According to the initial reports in the global media, the epicentre of the outbreak was a 'wet market' in the Chinese municipality of Wuhan. These meat and seafood markets typically sell live wild and domesticated animals and fresh meat, often from on-site slaughtered animals (Moraes, 2021). Exploring these issues drew my attention to the contrast between different models of animal food production and commercialization and the reasons these markets were framed as the epidemiological villains that spread the novel coronavirus (Perrota, 2023).

This debate reconnected me with issues from a previous study in which I compared two meat production networks in Brazil, contrasting the dynamics surrounding a municipal slaughterhouse and an industrial meatpacking plant. I categorized these networks as traditional and industrial, respectively (Perrota, 2016), observing how the industrial model follows techno-scientific knowledge and the current standard sanitary guidelines in Brazil (which are nationally and internationally regarded as best practices). This model operates within a global economy driven by large-scale technology-driven production and an association with major agribusiness producers. These practices differ from 'traditional livestock farming', which is structured around local, small-scale manual production and based on the knowledge and practices of local populations, which may align with official sanitary regulations.

As I discussed in this previous study, the stakeholders in the industrial network—beyond seeing the modes of productive organization as indicating the complex and heterogeneous socionatural processes in transforming cattle into meat—tended to disparage the traditional network as a precarious environment filled with risks and dangers. At the time, sceptical of the claims of health safety from the industrial network, I focused less on the insecurities of the traditional network and more on whether the industrial network functioned in practice as a controlled environment that ensured animal health and the hygienic quality of its produced meat. As a researcher[1], I accompanied the critiques raised by animal rights advocates concerning the treatment of livestock in industrial meatpacking plants. Despite the protocols for animal welfare and humane slaughter, these critics denounced both the inadequacy of the existing regulations and failures to enforce them.

Proceeding from the idea that every disease tells a story (Schwarcz & Starling, 2020), I discuss how the COVID-19 pandemic reinforced the legitimacy and underlying premises of the industrial meat production network by casting wet markets as villains. From expressions of repudiation and disgust regarding the consumption of this meat and how the animals are slaughtered and sold in these markets (Perrota, 2020) to allegations that the coronavirus was a Chinese conspiracy to spread communism (Vander Velden, 2021), the political ideology surrounding COVID-19 was mobilized to boost industrial meat production sectors, associating them with the idea of food safety and quality.

Interrogating the belief that the techno-scientific knowledge and regulatory frameworks informing the industrial network ensure the production of safe meat in stark contrast to traditional markets, we first evaluate the vilification of wet markets as an event that highlighted a wider preexisting dispute between models of animal-based food production. Adopting this approach, this study explores how the industrial meat production network is construed and legitimized as safe. At the same time, I examine how the erosion of various regulatory frameworks supervising the meat production network in the context of a neoliberal society challenges the guarantee of health safety in the industrial production system (Dardot & Laval, 2016). This bibliographic and documentary research included interviews with stakeholders in the meat production network in the Brazilian states of Rio de Janeiro and Maranhão.

MEAT: A QUINTESSENTIAL RISK PRODUCT

According to Rhoda Wilkie (2010), animal domestication dates back approximately 10,000 years. With the advent of these new practices, human societies profoundly changed as they transitioned from nomadic ways of life to a more settled existence around agriculture and shared coexistence with livestock, enabled by 'domesticatory action' (Digard 2012). This process had

intentional and unintentional biological, cultural, and socioeconomic consequences, including the emergence of new diseases. This text focuses on the close relationship between humans and animals and how this proximity contributes to the proliferation of zoonotic diseases. This connection is 'shown by the correlation present between the time of domestication and the number of diseases shared with humans' (Horwitz & Smith, 2000: 82).

Thus, the dawn of agropastoral activities configures the beginning of a new history of infectious disease (Ujvani, 2020). The new dynamics of coexistence between multiple species created the conditions for the emergence of new infectious diseases, primarily due to the increased contact with animals near human settlements (Horwitz & Smith, 2000; Ujvani, 2020; Weiss, 2001). Thus, as Weiss (2001) points out, although the zoological and archaeological literature has only superficially addressed the role of animals as a source of infectious disease, 'changes in animal-human interactions resulting from the process of domestication would have had a marked impact on the incidence and prevalence of infectious diseases in past communities' (Horwitz & Smith, 2000: 77-78). Although the concept of zoonosis first emerged in medical discourse in the late 19th century (Keck & Lynteris, 2018) the new paths taken 10,000 years ago marked the beginning of this new era.

Yet this problematic relationship of proximity between humans and animals is not limited to herds nor even to animals strictly speaking. The inclusion of animal-based foods such as milk and meat in the human diet introduced contact with animal faeces, urine, blood and other secretions, increasing the risk of contamination (Ujvani, 2020). Furthermore, this circulation of beings and substances attracted commensals, such as rodents, to these food sources, turning the presence of these species into yet another source of infection (Horwitz & Smith, 2000). Beyond this direct human-animal contact, interactions between human and animal groups have also contributed to the survival and spread of these pathogens (Weiss, 2001).

The commercialization of meat—a relatively recent phenomenon—has further amplified the risks of contamination (Campos, 2010; Ferrières, 2002). According to Ferrières (2002), who studied the history of food-related fears in France, a dictionary of commerce—considered a reference in the 18th century—lists animals such as oxen, sheep, and cows, yet meat itself does not appear as a marketed item. This leads the historian to conclude that trade in fresh meat did not yet exist in any significant form. It was only with the growth of urban populations and industrialization and urbanization that a growing demand for meat and its commercialization becomes observable. This new socioeconomic configuration expanded meat supply chains and introduced the issue of food safety—not just of the animals themselves but also of the safety of meat as a consumable product.

However, even in earlier centuries, when this still emerging market focused more on animals than meat per se, the sector already stood subject to regulation. The historian Madeleine Ferrières (2002) observes that 'all animal meat was capable of transmitting disease', highlighting that concerns over meat production and consumption and the relationship between human and animal health are far from recent. Attention to the cleanliness and hygiene of the trade appear as early as 1350 in the wake of the bubonic plague (Ferrières, 2002). From this period onwards, the livestock market and, later, the meat market became subject to regulation from public authorities in the name of public health. As Ferrières explains, regulations to the butchering trade aimed to prevent the indiscriminate sale of any type of meat at any price. Butchers were prohibited from selling cooked meat, for example, since their expertise in butchering could enable them to disguise poor-quality meat. At the same time and for the same reason (i.e., the specialized knowledge involved) other professionals were barred from performing the trade as they were deemed unqualified to ensure the quality of the butchered meat (Ferriéres, 2002).

The legislation included prescriptions on what animals should or should not eat based on the idea that the quality of their own food would ensure the quality of their meat as a source of human feeding. Human blood and fish-based meal were considered dangerous sources of feed for livestock. On this point, it is remarkable how we have abandoned this principle today, even feeding animals with individuals of their own species. In a now-classic article, Lévi-Strauss (2009) discusses how cattle were forced into cannibalism when blood and bone meal from other cows began to be used as feed in intensive farming systems. The practice of making them not only meat-eaters but also cannibals has had serious consequences for human health. The emergence and outbreak of bovine spongiform encephalopathy, otherwise known as 'mad cow disease', was linked to this practice and marked a dramatic moment in the recent history of global food safety concerns.

Returning to the Middle Ages, the most stringent regulations focused on the slaughter of livestock (Campos, 2010; Ferrières; 2002). As earlier as 1450, butchers were required to slaughter animals in the same place where the meat was sold. This period also banned the sale of meat from sick animals unless the buyers were explicitly informed of the fact. Regarding the assessment of an animal's health, one rule survives to this day: while in the medieval period animals had to enter towns on foot, today they must walk off the truck by themselves on arrival at the slaughterhouse. Those unable to do so are unfit for slaughter since they are evidently in bad health. As Ferrières (2002: 50) observes, 'the animals arriving on foot at the heart of the town represented an essential guarantee for the consumer, giving him the opportunity to verify that the animal was healthy, without visible signs of disease'.

As Ferrières also explains, before the advent of modern epidemiology, people relied on intuitive understandings of disease transmission to avoid contamination. In his study of the fresh meat trade in 19th-century Rio de Janeiro, Pedro Campos (2010) similarly investigates issues relating to public health and concerns about the condition of cattle, slaughterhouses and butcher shops. Campos explores the complaints about the emergence of 'germs' and 'fevers', for example, which enabled physicians to make connections between 'the poor conditions of slaughterhouses and the outbreak of diseases' (Campos, 2010: 191). Thus, although the existence of pathogenic microorganisms was still unknown, health issues were attributed to the 'vapours' from slaughterhouses, causing the demands for public authorities to implement measures to close these establishments or locate them elsewhere (Campos, 2010).

Centuries before the invention of the microscope and the development of microbiology, municipal magistrates performed the role of guardians of public health by regulating meat production. Ferrières (2002) and Campos (2010) show the elaborateness and rigor of these regulations. Thus, the connection between 'domesticatory action' and disease and the regulation of economic activities related to trade in animals and meat are far from new.

THE CONSEQUENCES OF THE 'MODERNIZATION' OF LIVESTOCK FARMING

Contemporary societies experience the risks associated with proximity to animals, slaughter and the consumption of meat within a completely different reality, an outcome of the major transformations in livestock farming over the 20th century aimed at its 'modernization' (Moutinho, 2018). According to Nierdele and Wesz Junior (2018), this modernization involved the entry of meat into international trading markets and followed the industrial and technological dominance from central countries. In Brazil, public and private enterprise directed cattle breeding towards meat production by implementing and developing new technical instruments and cattle management tools (Perrota, 2020).

With the transformations provoked by the 'modernization of livestock farming', the past few decades configured the era of emergent zoonotic diseases, marked by public health crises and food safety scandals. This might be considered a paradox since the period of greatest technological and regulatory development has also been the most challenging in terms of zoonotic diseases. However, this apparent paradox vanishes when we observe that this period has quantitatively and qualitatively intensified the complexity of human-animal relations. Moreover, once again, this proximity—now on an entirely different numerical scale—has altered the history of human infection because the transformations of livestock farming towards increased productivity and economic efficiency have failed to solve the longstanding

issues linked to human-animal-environmental health, but have instead introduced new ones. From the 1990s onwards, as Fortané and Keck (2015: 3) explain, 'the definition of zoonosis by the term *emergence* focuses on the spread of new pathogens from animals to human populations'.

Today, livestock animals total millions, and a complex sociotechnical network mediates the relationship between humans, non-humans, and the environment (Leal, 2018; Perrota, 2020; Sordi, 2013). Intensive and extensive large-scale livestock farming, medications, and genetic modifications of animals and their feed constitute aspects zootechnical sciences, veterinary medicine, and agronomic sciences develop that shape a reality more prone to the emergence of new diseases (Fortané & Keck, 2015; Grisotti, 2010; Wallace, 2020).

Reflecting on the sociotechnical transformations that constitute the industrial meat production network, the emergence of new pathogenic microorganisms fails to merely constitute a function of human proximity to animals. The possibilities for viruses and bacteria to replicate has multiplied due to the vast number of animals bred to produce food and clothing. As Ujvani (2020: 13) explains, 'the intensity of mutations will increase as the number of viral copies rises'. The problem of contagion thus intensified over the 20th century, continuing into the present, since 'the higher the number of animals domesticated by humans, the greater the chance of us being affected by new and unknown viruses' (Ujvani, 2020: 12). As we shall see later, this quantitative change runs in parallel with qualitative transformations related to how animals are born, raised, and die within the industrial production regime.

Thus, the issue involves multiplied replication in a context that rapidly transforms animal organisms and the environment, precisely what enables more aggressive and lethal viruses and bacteria to become more capable of surviving in human beings. As such, '[h]igh throughput, a part of any industrial production, provides a continually renewed supply of susceptibles, the fuel for the evolution of virulence' (Wallace, 2020: 91). Thus, while the conditions leading to the emergence of new infectious diseases are related to the increase in the number of domesticated animals and the widespread interspecific circulation of microorganisms, the 'modern' conditions of animal production have promoted other facilitators, including the fact that herds have become genetic monocultures, creating a gateway for the replication of viruses and bacteria (Wallace, 2020).

As Natacha Leal (2018) discusses in her research on the production of zootechnical breeds in Brazil, at the end of the 20th century, over 80% of cattle were either Zebu or Zebu-crossbred. From the late 19th century, Zebu cattle imported to Brazil from India served to meet the demand for frozen meat (stimulated by the globalization of this market) and to 'genetically improve' cattle. Informed by technical and economic directives to modernize livestock farming, Brazilian herds became the focus of improvement

strategies, including the identification and characterization of specimens and new breeding and crossbreeding technologies (Leal, 2018). Thus, other cattle species in the country became extinct or at risk of extinction.

Attempts to standardize agropastoral practices have followed the specialization of beef cattle farming around a single breed. The stakeholders in this socioeconomic activity (each with distinct motives for pursuing this objective) positively view this drive towards uniformity. Stakeholders connected to animal welfare, for example, argued in one interview that 'standardising practices is essential for everyone to consume high-quality meat, as the animals will all be in a healthy condition and fully vaccinated'. The economic perspective values cattle uniformity because it facilitates commercial transactions between industrial meatpacking plant owners and cattle breeders. In an interview, the owner of a small slaughterhouse in the state of Rio de Janeiro explained this to me:

> A good-quality steer—meaning a castrated Nelore steer weighing 18 *arrobas* and theoretically a high fat content and good meat—is today worth R$148,00 (...). Now, with females, it's more complicated. In the case of females, we have to see the cattle first, then we assess them and pay around R$135,00 to R$140,00. (...) Females don't have a very uniform standard, so it's tricky to buy one without seeing it first. If I have 200 fat Nelore steers at 18 *arrobas*, you can't really go wrong buying them over the phone. But if there are 200 cows for sale, then it's an issue—I have to go there and take a look.

The adaptation and expansion of the Zebu breed throughout Brazil, along with the efforts to standardize agropastoral practices, have followed technical-scientific guidelines to ensure economically efficient, safe and sanitary practices. As one animal health inspector explained: 'Whether we like it or not, regulation is essential, otherwise one producer will say, "I like to do things this way" while the other says, "I prefer that way". So, we regulate and supervise the whole business to attain the level we're aiming for'. Yet contradicting the optimism of standardization, we observe, as per Rob Wallace (2020: 91), that the '[g]rowing genetic monocultures of domestic animals removes whatever immune firebreaks may be available to slow down transmission'.

Associated with these transformations is the expansion in agricultural land to cultivate other commodities, such as soybeans and maize, to feed livestock in Brazil and abroad. Brazil is one of the largest global producers and exporters of these grains, possessing one of the largest cattle herds in the world. Its land area spans about 851 million hectares, just under half of which—351 million—is occupied by agricultural establishments, according to data from the Brazilian Institute of Geography and Statistics 2017 Agricultural Census. Its data show that 45% of these establishments are dedicated to pasture, almost 158 million hectares. Another 45 million hectares

are allocated to soybean and maize cultivation. In other words, slightly over 200 million hectares are directly or indirectly associated with livestock production. Urban expansion and population growth further exacerbate this territorial pressure on forested areas.

This ongoing deforestation has extinguished species, disturbed or destroyed habitats and increased our proximity and that of our livestock to the remaining wild animals and microorganisms in forests. This set of consequences creates conditions that favour the circulation of germs between domestic and wild animals, increasing the likelihood of microorganism mutations that can be transmitted between humans and animals.

Again, another significant factor that has made the past decades not only an era of catastrophes (Latour, 2020; Stengers, 2015) but also an era of emerging infectious diseases (Fortané & Keck, 2015) concerns the way in which human and non-human circulation has increased over the period. As I have discussed in a previous study on the COVID-19 pandemic (Perrota, 2023), zoonotic contagions reveal stresses between different types of boundaries—whether between humans and animals, domesticated and wild animals, viruses and animals, countries or even states and municipalities. Thus, while authors such as Tim Ingold (1994) and Bruno Latour (1994) argue for fluid limits between humans and animals, others, such as Ulrich Beck (1985) and Manuel Castells (1999), have discussed the fluidity of borders between nation states. Given these distinct modes of conceiving boundary fluidity, the global circulation of live animals via food supply networks following the movement of people, plants, goods, and microorganisms, increases the likelihood of viral mutations that cross the barriers between species and increase the circulation of viruses and bacteria (Fortané & Keck, 2015; Grisotti, 2010).

Thus, if 'the periods of colonization and imperialism took bacteria to distant lands' (Ujvani, 2020: 164), globalization, accelerated by transformations related to the processes of urbanization, industrialization, and the 'modernization of livestock farming', has also potentialized the impacts of zoonotic diseases, leading to epidemics and pandemics with high human mortality rates. The COVID-19 pandemic alone caused the deaths of over 7 million people worldwide by 2024 (*Número*, 2024).

CONTROLLING THE UNCONTROLLABLE

The combination of large-scale livestock farming and genetic monocultures, deforestation-linked extensive farming and increased human proximity to wild animals in globalized markets has generated serious epidemiological costs (Wallace, 2020) despite the introduction of wide-ranging sanitary regulations. We now experience a multiplication of health crises due to diseases animals transmit to humans. As above, the 1990s saw the outbreak

of bovine spongiform encephalopathy in the United Kingdom. In the following decade and the early 21st century, a swine flu epidemic emerged along the Mexico-United States border. An avian influenza outbreak originated in Asian countries, later reaching the United States and Northern Europe. The COVID-19 pandemic emerged in 2020. Concerns about contagion have inevitably increased given the sheer number of serious cases involving the emergence and spread of zoonotic disease over such a short timeframe, prompting the development of new measures to prevent and control these diseases.

In her research on disputes over health legalization relating to artisanal cheeses made from raw milk, Cintrão (2016) explains that, after 2003, the pressure increased for the 'implementation of food control programs at national, regional, and local levels, deemed essential to ensure the health safety and quality of food sold in international trade' (2016: 41). Although Cintrão's research focuses on cheese production, when conceived in terms of animal-based foods in general, her analysis helps us to observe that health concerns not only persisted but also grew throughout the 20th century.

The new sanitary mechanisms following the emergence of the microbial theory of disease transmission in the 19th century have today been complemented by technical, scientific and political efforts to contain emergent infectious diseases. Brazil implemented a series of state-led regulations regarding cattle in the 20th century, including vaccination programs for diseases such as brucellosis, tuberculosis, and foot-and-mouth disease. Meatpacking plants are also subject to inspections to ensure sanitary certification. In March 1952, the country signed Decree 30.691, approving the Regulatory Framework for the Industrial and Sanitary Inspection of Products of Animal Origin, its first hygienic-sanitary code (originally comprising 952 articles) that remains in effect today.

By these kinds of measures, the medical-sanitary revolution promised the eradication of infectious diseases. Likewise, the discovery of antibiotics inspired the belief that humanity would triumph in the war against 'invisible enemies' (Grisotti, 2010). As Grisotti notes, vaccines created the expectation of no deaths from infectious diseases or indeed even any cases. Undoubtedly, 'the knowledge that microorganisms cause infectious diseases, followed by the discovery of their transmission mechanisms, helped in the fight against epidemics' (Ujvani, 2020: 169). The techno-scientific discourse that followed the industrial network persuaded us that meat would no longer be an inherent object of risk par excellence. Since then, changes linked to industrialization and sanitary safety have become instituted as the path that the entire meat sector must follow.

The discourse has shifted to contrasting modern production with what was deemed traditional production, often by assumptions that disparage the latter (Cintrão, 2016; Perrota, 2016). As mentioned, this model centralizes

production and homogenizes practices involving human relationships with animals and the environment regarding productive efficiency and sanitary safety. Thus, a singular vision has emerged concerning what cattle breeders and cattle farming should become and, simultaneously, what they should cease to be. This model is then replicated as the only legitimate option in economic and sanitary terms.

To describe this process of homogenization of animals and human-animal landscapes, Anna Tsing (2019) uses the expression 'machines of replication', while Rob Wallace (2020) refers to the process as 'pastoral infestation'. Both formulas serve to capture the economic model of animal production that transforms living beings into resources, removing them from their lived worlds. Animals and meat become commodities and, as we have seen, standardization becomes a central criterion in the belief that this ensures high-quality animal-based products.

However, as we can observe, while the mass production of meat by large-scale cattle breeders and processing factories can access national and international markets by following sanitary guidelines for their production and distribution, these measures fail to prevent new problems arising precisely due to large-scale production and extensive circulation. Fortané and Keck (2015), for example, discuss the reformulation of control regulations for animal populations and meat in response to diseases such as influenza and bovine spongiform encephalopathy, introducing new ways of monitoring animals, meat, and viral mutations.

But beyond this, meat produced on a large scale and distributed nationally and internationally incur in epidemiological costs. In an interview, the owner of a meatpacking plant in the state of Rio de Janeiro pointed out the negative aspects of the meat transported from Pará to Rio de Janeiro:

> Cattle come from Pará; the truck takes two days to get here, with two drivers, the refrigeration is excellent—the technology has improved a lot—but it's still a steer slaughtered seven days earlier (...) So, [the meat] starts to turn greenish, it starts to darken and to look unappetizing. So, the supermarkets do what we call 'peeling': they start removing these unappealing parts so the appearance is better for the customer to purchase, and this entails a significant loss. This is even done more than once a day sometimes.

As his testimony indicates, the industrial production regime also increases human vulnerability to health issues stemming from the consumption of animal-derived products transported thousands of kilometres from their point of origin. As one example of this problem, the entire country witnessed the 'Poor Meat' operation in the Brazilian media. In 2017, this Federal Police investigation found that executives from major meat processing companies and public officials engaged in the fraudulent approval of food unfit for consumption. Agents were offered bribes to issue certificates for

adulterated food, ignoring irregularities in the food products. In 2020, executives and auditors were criminally convicted for corruption, adulteration and the use of unauthorised processes or substances (G1 PR, 2020).

Although humanity considers itself not only to be supported by modern science but also redeemed and liberated by medical knowledge, events such as these can be perceived as a substantial blow. The same 20th and 21st centuries that witnessed a sharp decline in cases of bovine tuberculosis also endured two pandemics: the Spanish flu in 1918 (caused by the influenza virus) and the COVID-19 pandemic in 2020, as well as many other aforementioned epidemics. Along these lines, while Schwarcz and Starling (2020) argue that we remain vulnerable despite so much technology, we could even say that it is precisely because of technology that we have become susceptible to old and new problems. Contrary to the idea that the bacteriological discoveries of the 19th century would minimize or control infections, we have witnessed precisely the opposite: the emergence of new diseases as we further the transformations we caused in animal organisms and the environment.

Thus, as Horwitz and Smith (2000: 77) discuss, while such transformations have increased the quantity of food, they are also associated with 'marked changes, often deleterious, in the pattern of human disease'. The assumption that the 20th century would witness the eradication of infectious diseases failed to materialize itself. The promises that modern medicine and sanitation would curb the risks of new epidemics disregarded the unforeseen consequences of the profound transformation in the relationship between humans, humans and animals, and the environment that has unfolded since the 20th century, including the development of techno-scientific activities to enhance a logic of industrial production for animals and food. Rather than freeing us from contagious threats, therefore, the emergence of zoonoses, as Keck and Lynteris (2018) argue, appears as a type of event for which contemporary societies must be prepared.

Despite this panorama, and even after the COVID-19 pandemic, modernization continues to be extolled along with the notion of progress characteristic of the agropastoral practices championed by science and the state, in parallel with the discrediting of 'traditional agropastoral practices'. Faced with these new challenges, we continue to believe that 'everything we ruin, technology will be able to fix' (Bensusan, 2020: 21) while science, the market and the state remain sceptical about the existing limits surrounding the control of pathogenic microorganisms, their transmission and mutations. Although researchers state that '[w]hile we cannot predict the nature of the next epidemic, we can be confident that it will happen' (Weiss, 2001: 957), we continue to gamble on the ability to control mutations and contagions and, therefore, on the industrial meat production network as the direction to ensure animal health and food safety.

CRISES IN THE REGULATORY ROLE OF THE STATE

The trajectory of meat until its arrival in the refrigerators of butcher shops and supermarkets—including the ways in which cattle are raised and slaughtered—takes place with the operation of an abstract system, as Giddens (1991) formulated in his debate on ontological security. The conception of embryos, breeding, slaughter, and meat processing occur via a complex infrastructure of engineering, veterinary medicine, animal husbandry, agronomy, nutrition, genetics, and so on. As consumers, and recognizing that meat configures an object of risk par excellence, we place our trust in expert systems and feelings of ontological security insofar as we not only lack knowledge of these diverse processes and their regulatory measures when purchasing or consuming animal-based foods, but we also fail to reflect on them.

An important aspect of this abstract system refers to the state, which performs a central role as a regulatory and supervisory agent. Moreover, Domingues (2024) discusses how epidemics and the growth of the state are interconnected processes insofar as only governmental agents can implement quarantines and vaccinations. Hence, in Giddens' terms (1991), we choose based on 'trust' and a 'tacit acceptance' that health safety protocols guarantee the production of quality meat. The idea that meat is a regulated product reinforces our faith in expert systems. The seal of the Inspection Service—operating at federal, state or municipal level—provides the basis for our trust that we are consuming a safe product. This seal derives from state regulations that mandate the presence of inspectors in meatpacking plants to daily monitor hygiene standards and facilities, as well as the condition of the livestock on arrival, their slaughter and finally, the carcass. Just as we have no worry about climbing stairs, the idea goes, so we should be unconcerned about eating meat carrying the Inspection Service seal. In this context, the notion of 'inspected meat' becomes—or should become—synonymous with 'good-quality meat'.

However, in the context of the industrialized and globalized production of livestock and meat, aligned with hegemonic economic and political sectors, we can observe changes pertaining to the role of the state as a guarantor of compliance with health regulations within the neoliberal logic. In other words, if a guarantee of the safety of this market depends on state action, this raises the question of how such regulation functions within a rationality that tends to structure and organize the actions of governments towards the increased deregulation of the economy (Dardot & Laval, 2016).

Thus, while public oversight of the livestock and meat market considerably grew over the 20th century in parallel with the increasing complexity and expansion of this production network, the neoliberal rationality governing public policies for nearly a third of a century has also

affected the market, determining global economic relations, transforming society and reshaping subjectivity (Dardot & Laval, 2016).

Since the 1980s, as these authors discuss, the new neoliberal norm has established market competition as the supreme and universal rule of governance. The race for exports, the conquest of foreign markets and the attraction of investments created a context of competition that permanently 'reformed' institutional and social systems. 'States themselves became key elements in this intensified competition, seeking to attract a great share of foreign investment by creating the most favourable fiscal and social conditions for capital valorization' (Dardot & Laval, 2016: 199). This is where deregulation or a 'new ordering of economic activities' enters the equation, as Chamayou (2020) suggests.

In this context, we may be witnessing something of a reversal as deregulation of the meat and livestock market runs counter to the history of this activity in the West, insofar as deregulation aims, for example, to remove basic inspection and oversight mechanisms from public authorities. Notably, this process is unfolding precisely during the growing spread of zoonotic diseases associated with agribusiness (Wallace 2020). However, far from a reversal, this phenomenon can simply refer to another development in the tension between public health and the objectives of economic regulation that have historically characterised the meat market.

The debate on neoliberalism among these authors obviously extends beyond Brazil, but the country forms part of this political-economic history. In recent years, we have observed significant deregulations in the sanitary and labour spheres, particularly in meatpacking plants, meaning that a level of safety that was never fully achieved in the past is now facing significant upheavals. One such situation relates to the approval of Law 14.515 of 29 December 2022, which regulates the system of self-regulated sanitary inspection by agribusiness. This law establishes self-regulatory programs managed by companies in the sector by private agents. It weakens the role of agricultural oversight by the Ministry of Agriculture, Livestock and Supply. Previously, auditors constituted a permanent presence (as mandated by law and required by import markets); the new legislation, however, now allows companies to hire their own veterinarians to perform this task.

Although approved, the bill was the subject of disagreements and even a public hearing. According to a report published in *Senado Notícias* (Agência Senado, 2022), those defending the law spoke of new, 'more agile and modern' and 'less onerous' inspection and auditing mechanisms, concluding that this measure would be better for 'ensuring product quality'. Opponents saw the bill as a risk to public health; not only would state auditors no longer be needed, but the bill also repealed 11 legal provisions establishing penalties or sanctions for non-compliance with legislation.

In the context of the discussions surrounding this bill, the Minister of Agriculture at the time, Tereza Cristina, stated in an interview with a news website that 'not everything can be placed on the government's shoulders (Zaia, 2019). We can interpret this remark as evidence of a neoliberal shift in the relationship between the state and the meat market as the former begins to guide its actions towards deregulation rather than control to meet the interest for larger profits. At a general level, Dardot and Laval (2016) wonder how to explain this suicidal race to find the champion of austerity. More specifically, we can think about the particularities of this race in the meat market.

In response to this international competition, which also manifests itself at the national level, the meat production network has worked to increase the volume and speed of production. This pressure is compounded by a context in which the meatpacking sectors complain about shrinking profit margins (Bouças, 2024). Given this situation, economic agents must employ strategies to increase profits. Small-scale establishments not only face greater difficulty in increasing their production volume and achieving higher gains, but also suffer the effects of larger producers. The owner of one small slaughterhouse complained about this competitive dimension, remarking that 'agribusiness in the state of Rio suffers greatly from the influx of produce from other states', and explains that one of the strategies to which they resort is reducing the number of employees: 'so we are surviving like this, through creativity, increasing efficiency, reducing the workforce and the remaining employees are working more'. Workers face an overload that includes the responsibility to meet the pace of production while complying with a range of procedures in the meatpacking plant (from the arrival of the cattle to the preparation of the carcass).

The concern with reducing production costs, combined with deregulation, raises public health issues, particularly questions related to working conditions in these plants.

In 2021, the Brazilian media reported an outbreak of brucellosis—a bacterial disease—among workers at a large meat processing company in Mato Grosso (the same company that, in the third quarter of 2024, would see a 571% increase in profits when compared to the same period the previous year, attaining a net profit of R$3.84 billion) (Rizério, 2024). Occurring from 2013 to 2015, contamination by the bacteria, which can be transmitted from cattle to humans, results in intermittent fevers, muscle pain, and fatigue and can attack organs such as the heart and liver. The outbreak stemmed from violations of breeding and slaughtering regulations from the farms to the meat processing plants. As media reports highlighted (G1 MT, 2020), due to insufficient oversight, farm breeders had bypassed mandatory vaccination rules by purchasing the brucellosis vaccine. They presented the purchase invoice to obtain the document that enabled cattle to be transported to

the slaughterhouse but then discarded the vaccine without administering it to the livestock. Contact with blood, faeces, and viscera during slaughter exposed workers to contamination, especially when they use no personal protective equipment.

The issue of contamination among meatpacking plant workers resurfaced during the COVID-19 pandemic, when these establishments became epicentres for the spread of the new coronavirus. This problem gained national attention and was widely reported by news channels, as well as being a focal point of analysis in scholars from various fields. In a study analysing the southern Brazilian states, Heck et al. (2020) used the term 'super-spreaders' to describe the process by which meatpacking plants caused high numbers of infections in the initial months of the pandemic. The fact that meatpackers spent their days in enclosed, crowded spaces with cold temperatures and poor air circulation, combined with the absence of mask usage, contributed to the rapid spread of infections. However, these establishments were not only responsible for internal outbreaks but also played a role in spreading the new coronavirus to inland areas. Some workers commute daily between neighbouring municipalities, meaning that the infections within the meatpacking plants caused external transmission, spreading the virus across municipalities (Beck et al., 2020). While Chinese wet markets were immediately closed (Neves, 2020), the meatpacking plants continued their operations since they were categorized as essential services at the beginning of the pandemic. The activities of some of these establishments were only suspended after the high numbers of officially reported cases.

In May 2020, two months after the pandemic was declared, the Brazilian Federal Government released a document with over 70 recommended measures to be followed by workers to prevent the virus from spreading in meatpacking plants (*Governo*, 2020). However, considering the situation of these workers, who already operate in an environment with high workloads, handling sharp tools under mental and physical stress and obliged to comply with a series of sanitary and safety obligations, they also incurred the burden of preventing COVID-19 infections due to even more numerous sanitary measures. Thus, it became clear that, while the state political investment in deregulation prioritizes 'more agile and modern measures', it also imposes an additional burden of regulations on workers, holding them accountable for becoming sick if they fail to effectively comply with sanitary regulations.

Conceiving the spread of diseases solely in terms of virology, declaring that meatpackers must strictly follow protocols to prevent infections means reducing health problems to an industrial failure to be 'Taylorized', as Rob Wallace (2020) defines it. Thus, the industrial production model not only maintains its legitimacy, but also conceals the problematic aspects surrounding the deregulation of a historically regulated market, while failing to guarantee solutions to problems linked to human, animal and environmental health.

During my research that resulted in a study contrasting the industrial meatpacking plant and the municipal slaughterhouse, I heard detailed explanations from a food engineer I interviewed about the difference in meat quality between these establishments. The engineer set out from the premise that meat from the slaughterhouse would be 'uninspected and precarious', whereas the meat from the industrial meatpacking plant would be 'inspected and regulated'. Nonetheless, the engineer—a former employee of the industrial plant—emphasized, based on her own experience working in the facility, that, depending on the professionals in these establishments, regulations might fail to always be followed in full. Meatpacking plant procedures depend on three key stakeholders: the public auditor, the production manager, and the quality manager. The engineer then described the tension between the production and quality sectors, stressing that the production manager's decisions can prevail over others, leading to the non-compliance of sanitary rules and increasing the risk of contamination and even accidents:

> There is the production manager, the quality manager and the SIF (Federal Inspection Service). First and foremost comes the SIF because they oversee everyone working there. What does the production manager want? To produce. Irrespective of whether it's right or wrong. The quality control manager wants quality because if anything goes wrong, who's to blame? He'll take all the blame, right? The production manager doesn't take the blame because who oversees quality control? So, in the end, I've seen cases where the production manager influences quality control; they form a partnership and do things in a balanced way. But, of course, if they have to help with production, it will influence quality control, the slaughtering procedures, everything—the time the cattle arrive at the plant, the rest period—it ends up influencing it heavily. So, in the end, it really depends on the involved professionals.

Exploring this scenario, I believe a dialogue can be established with Milanez et al. (2019), which highlights the connections between the collapse of the mining company Vale Dam I in Brumadinho (Mato Grosso, Brazil) and the strategies that company used to reduce its operational costs. The authors discuss how, in the context of the increasing financialization of the company and, consequently, growing pressure for higher returns to be transferred to shareholders, the strategy of Vale shifted towards reducing operational costs. As they explain, this shrunk the systems that could ensure that extractive operations were performed at safe levels.

Likewise, strategies to reduce operational costs in pursuit of higher profits neglect the risks of disease in the meat market, the consequences of which are seen and felt by us all. Thus, we cannot lose sight of the effects of this context of liberal governance on the fragility of a system that depends on the strict enforcement of surveillance in an extensive and diverse network with countless protocols to be followed—and yet has never eliminated all the risks associated with meat production; on the contrary, it has introduced others.

FINAL REMARKS

According to Ferrières (2002), faced with the economic interests of the Parisian bourgeois butchers, the French king oscillated between protecting and exploiting the meat market, in certain situations worrying more about the generated wealth than the quality of the distributed produce. Her argument shows how tensions in the meat market between safety and profit and concerns about contamination, are far from new. However, what we can take as specific to our contemporary moment is that, despite all the problems of the industrial meat production network, fears regarding sanitary issues and their relationship to human and animal health focus on 'traditional practices'. Amid accusations about the lack of quality protocols in these markets and the premises relating to the technical safety of meat following modern protocols, the risks in the industrial production of animal protein remain ignored.

Although studies such as that by Rob Wallace point to a connection between agribusiness and pandemics; this production network claims in its own defence that the control of animals and their production stages ensures the legitimacy and quality of what they produce and, more importantly, the way they produce it. However, it is precisely this pretension of control over the life and death of animals that, in addition to contagions, has given rise to a variety of zoonotic diseases. In this scenario, Fabiano Escher and John Wilkinson (2019) argue that traditional markets configure a scapegoat for agribusiness, depicting them in moral terms as a source of risk and danger (Perrota, 2023). Note that the Wuhan wet market was shut down despite no definitive proof that it was the initial point of the emergence and spread of the new coronavirus. By contrast, industrial meatpacking plants, although hotspots for contamination, remained open save for a few temporary exceptions.

Thus, practice shows that the classificatory distinction portrays industrial meat production as safe and 'unregulated traditional production' as a source of risk is unsustainable. In fact, the spread of zoonotic diseases is a serious issue that ignores geopolitical borders and follows global/industrial and local/artisanal food production systems. The claim that meat consumption in wet markets explains the COVID-19 pandemic ignores these other risks and contradicts the scientific view that zoonotic diseases have multiple causes. It is thus impossible to leave out issues such as the socionatural transformations due to changes in agriculture and food processing practices and concerns related to climate change and population growth (Weiss, 2001).

The meat production network established over the 20th century and into the present under an industrial, techno-scientific, capitalist, and neoliberal order claims to solve two problems: scarcity and contamination. However, rather than ensuring quantity and quality, this production system renders other logics and modes of production unfeasible, is susceptible to fraud, favours

the expansion of large-scale production among a small number of producers, and changes organisms and the environment, entailing new health risks. Thus, it is worth considering to what extent confidence in the industrial regime is overvalued. Setting out from the premise that meat constitutes a political commodity (Ferrières, 2002), the claim that only one model is hazardous implies a power dynamic that legitimizes the industrial system at the expense of all others. Pursuing this debate aims to question the status of ontological security attributed to the industrial regime. Such an assertion calls on us to consider solutions that avoid relying on making the market converge on an industrial system that continually configures a source of risks and dangers.

NOTE

1 At the time of the fieldwork of this study, I was carrying out research for my PhD dissertation, titled *Humanidade Estendida: a construção dos animais como sujeitos de direitos*, which I submitted in 2015.

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MEAT MARKET IN AN ERA OF PANDEMICS AND NEOLIBERALISM

Keywords
Meat market;
Quality;
Moral economy;
Traditional practices;
Modernization of livestock production.

Abstract

Following the COVID-19 pandemic, systems for breeding livestock and producing animal-based foods have become central to discussions on how animals are bred and slaughtered, the ways in which meat is sold and consumed, and the edibility and non-edibility of different animal species. Addressing this theme, this study explores the legitimacy of modern meat production market and the idea that it constitutes a safe model in public health terms. Contrasting this model to the traditional market, this study aims to examine how the industrial and technical-scientific production of animal-based foods cultivates trust despite failing to eliminate the risks and dangers associated with meat production and creating new ones. This study also discusses how these risks and dangers have become more complex under neoliberal systems of governance.

MERCADOS DA CARNE EM TEMPOS DE PESTES E NEOLIBERALISMO

Palavras-chave
Mercado da carne;
Qualidade;
Economia moral;
Práticas tradicionais;
Modernização da pecuária.

Resumo

Com a pandemia da COVID-19, os sistemas de produção animal e de alimentos de origem animal entraram na ordem do dia a partir de discussões a respeito de como são realizadas as atividades de criação e abate dos animais, de que maneira a carne é vendida e consumida, além de uma discussão sobre a comestibilidade e não comestibilidade das diferentes espécies. Em vista dessa temática, esse artigo busca discutir sobre o lugar da legitimidade do chamado mercado moderno da produção da carne, no que diz respeito a perspectiva de que seria o modelo seguro do ponto de vista sanitário. Trata-se então de pensar, em contraste com o chamado mercado tradicional, como o modelo marcado pela produção industrial e tecnico-científica constrói confiança ainda que não tenha eliminado os riscos e perigos da produção da carne, mas ao contrário, cria novos. E como tais riscos e perigos se complexificam a partir da governança neoliberal.

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