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Livestock in Evolving Foodscapes and Thoughtscapes

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Humanity's main societal and epistemic transitions also mirror changes in its approach to the food system. This particularly holds true for human–animal interactions and the consumption of animal source foods (red meat especially, and to a lesser degree dairy, eggs, poultry, and fish). Hunter-gathering has been by far the longest prevailing form of human sustenance, followed by a diffuse transition to crop agriculture and animal husbandry. This transition eventually stabilized as a state-controlled model based on the domestication of plants, animals, and humans. A shift to a post-domestic paradigm was initiated during the 19th century in the urbanizing populations of the Anglosphere, which was characterized by the rise of agri-food corporations, an increased meat supply, and a disconnect of most of its population from the food chain. While this has improved undernutrition, various global threats have been emerging in parallel. The latter include, among others, a public health crisis, climate change, pandemics, and societal class anxieties. This state of affairs is an unstable one, setting the conditions of possibility for a new episteme that may evolve beyond mere adjustments within the business-as-usual model. At least two disruptive scenarios have been described in current food discourses, both by scientists and mass media. Brought to its extreme, the first scenario relates to the radical abolishment of livestock, rewilding, a 'plants-only' diet, and vegan ideology. A second option consists of a holistic approach to animal husbandry, involving more harmonic and richer types of human–animal–land interactions. We argue that – instead of reactive pleas for *less* or *none* – future thoughtscapes should emphasize '*more* of the *better.*'

Keywords: livestock, human–animal interactions, veganism, vegetarianism, meat, dairy, health, sustainability

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INTRODUCTION

Animals – and the foods derived therefrom – take up a prominent place in human thoughtscapes. They have been granted important semiotic and epistemic status, as in Lévi-Strauss (1963) dictum that animal species are not all that much 'good to eat' but rather 'good to think (with).' Their position, however, should not be understood as a fixed one but rather as an evolving constellation of meaning (Murcott, 2003; see, for instance, Safina, 2016). In *The Road to Wigan Pier*, Orwell (1937) suggested that 'changes of diet are more important than changes of dynasty or even of religion.' Be that as it may, novel views on food have indeed paralleled moments of deep social transformation. Because animal source foods have always held a key position in human diets, whether eaten in abundant quantities or not, such shifts involve altered human–animal relationships (Leroy and Praet, 2017).

Hominins and other animals have co-evolved intimately. Modern humans (*Homo sapiens*) have spent some 300,000 years as small, mobile bands of hunter-gatherers, situating animals firmly within their localized cosmologies. The eating of animal source foods is therefore tightly coupled to human biosocial evolution (Stanford and Bunn, 2001). After a transition period from foraging to more settled communities, new societal models emerged during the Neolithic era and eventually organized themselves around the concept of domestication (Scott, 2017). Animals, now as livestock, became increasingly more *useful*. As such, they transitioned from a co-evolutionary component of an ecological trophic cascade into a resource that could be handled, controlled, and utilized. During the 19th century, a post-domestic model of human–animal interactions was adopted in the West, in particular within the urban populations of the Anglosphere (Bulliet, 2005). This shift is typified by a far-reaching industrialization of the food chain and public alienation from the everyday realities of animal husbandry. In contrast, animal husbandry worldwide is still mostly situated within rural communities and typified by frequent and intimate human–animal interactions.

This post-domestic model that has since overtaken urban foodscapes is now becoming unstable, as doubts and anxieties about the impact of livestock production on the environment and on human and animal health and wellbeing are accumulating. Although a business-as-usual scenario cannot be entirely excluded, disruption is likely to occur in the mid or long term. This has the potential to redefine the meaning of animal husbandry drastically. Livestock may become either obsolete – which will steer humanity into a novel dietary paradigm – or start playing a role at the forefront of healthy and sustainable foodscapes, thoughtscapes, landscapes, and ultimately socialscapes. All four will be relevant to serve as a foundation for new societal templates, matching humanity's individual and collective needs for the provision of adequate nutrition, societal concord, and purpose.

THE EVOLVING ROLE OF ANIMALS IN HUMAN FOODSCAPES AND THOUGHTSCAPES

Mechanisms of Change

A theoretical model to describe the epistemic transitioning of human–animal interactions has been proposed previously by Leroy (2019). In brief, a historically contingent assemblage of interconnected biosocial needs is assumed (further defined as *strata*), loosely based on Maslow's (1943) theory of human motivation (**Figure 1**). It outlines a deep-seated human dependence on animals and the foods, services, and meaning they provide, including the basic physiological need for nutritional security, the social desire for communal bonding, and the individual urge for status and eudaimonic pursuit. For a detailed discussion of the various needs that are contained in this model, we refer the reader to a previous study by Leroy and Praet (2015).

Figure 1 represents the flux of these needs from the pre-domestic episteme into the domestic and post-domestic ones (cf. Bulliet, 2005). They should be viewed as *emerging* responses to (ecological or infrastructural) change and not as a linear, teleological progression of predictable events. Emergence affects all of a system's elements and causes a 'perpetual transition of nature into novelty' (Whitehead, 1920), until change becomes disruptive and a novel epistemic model emerges. This conceptualization is useful as a heuristic, but should not be seen too restrictively, as hybrid situations can be found within the larger historic mosaic of global sustenance solutions (Scott, 2017). Yet, each model represents a self-organizing structure of meaning and should be approached as such. As meta-stable 'solutions' to historical 'problems,' needs are formed through the constitutive actions of *stratification* and provisionally stabilized by *coding* (in the jargon of Deleuze and Gauttari, 1987).

Over millennia, animals (and the foods derived therefrom) have accumulated a lot of biological, social, and semiotic capital, which is used to stabilize the various strata, at least in a temporary manner. As such, the lower strata reflect a biological desire for nutrition, largely governed by the materialities of genetics and biochemistry (cf. Christakis, 2019), whereas the more supple social needs of the upper strata are stabilized by language and culture predominantly.

The Pre-domestic Era: The Kill as Focal Point of Hunter-Gatherer Communities

The pre-domestic model (cf. **Figure 1**) refers to the needs of hunter-gatherers for animals as essential providers of nutrients, clothing, tools, as well as social cohesion. They have emerged from what Deleuze and Gauttari (1987) named 'machinic' assemblages of *bodies* (carcasses, marrow, nutrients, hands, brains, skin, bone, animals, spears, fire, stone, ochre, etc.) and collective assemblages of *enunciation* (e.g., in dance, song, rite, myth, or painting). For a discussion on how the appearance of scavenging, hunting, and meat eating are to be considered as 'solutions' to (ecological) 'problems' within the hominin record, we refer to Stanford and Bunn (2001) and Andrews and Johnson (2019).

To obtain a functional human community capable of generating (food) security, stabilization of the individual needs of its members into a collective one was achieved by smoothening intraspecific aggression. According to Burkert et al. (1987), the latter was redirected from the clan onto the prey in the interest of the objective of the hunt. The kill serves as a focal point around which social behavior is coordinated, a process that involves ritualistic and transactional activities. Although the prey remains fundamentally 'food to be taken,' the killing is a *dark event* to the human psyche, evoking horror and guilt layered with significance (Leroy and Praet, 2017). Ritual serves as the creative channeling of anxiety – to give back what was taken – whilst anthropomorphization blurs the borders between the animal and human, between prey and predator. Animals act as insiders *and* outsiders to human communities, a status that also typifies that of the shaman. The need for communal bonding, with all its cultural and spiritual connotations, not only

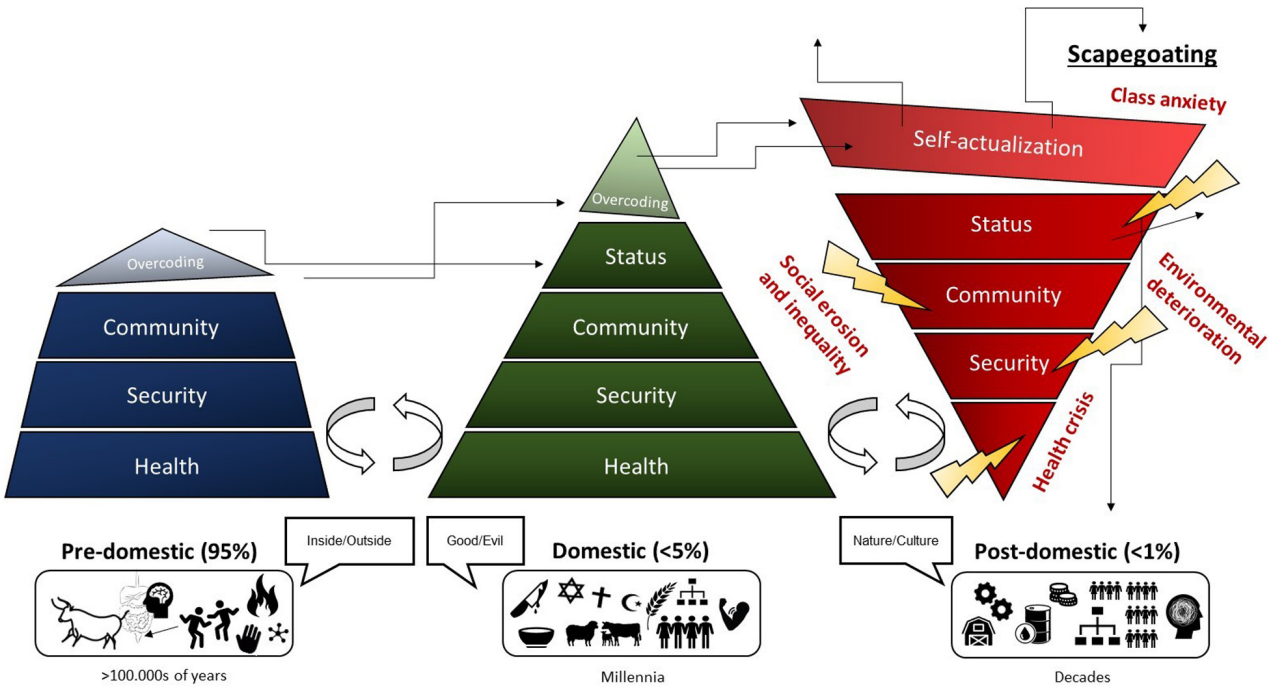

FIGURE 1 | Schematic overview of the transitioning of biosocial needs for animals in human foodscapes and thoughtscapes.

entails cooperative benefits and risk minimization (Wilkinson and Pickett, 2010; Leroy and Praet, 2015), but also meets a mental requirement through the collective fulfillment of an *Unschuldskomödie* (Burkert et al., 1987).

The Domestic Era: Livestock and the Construction of Hierarchy

As the Mesolithic came to an end, a flexible model of hunting, fishing, foraging, agriculture, and animal husbandry appeared, for instance in the Mesopotamian wetlands (Scott, 2017). A disruptive moment was reached some 6,000 years ago, likely due to ecological constraints, which led to settling, resource accumulation, and the formation of the political state. A novel bureaucratic, tax-driven, and cereal-dependent system of domestication (of both humans and animals) engendered an increased hierarchy and the formation of elites (Scott, 2017; Christakis, 2019). In parallel, human–animal interactions evolved from reciprocity to dominion (Leroy and Praet, 2017). Animals were used to confer social status; for instance, during the ritualized act of sacrifice (**Figure 1**). It has been speculated that the first collection of meat and milk was for ceremonial rather than nutritional purposes, developing unanticipated benefits (Bulliet, 2005). The collection of milk in skin bags for libations may then have led to the discovery of dairy products. In addition, animals were mobilized for the plowing and fertilization of cropland, the utilization of otherwise infertile lands, and the myriad of other functions that followed their new role as livestock. Because the reliance on ritualized sacrifice in Neolithic societies is a recurrent element that appears to have left persistent traces in the cultural blueprint of human civilization, its role in human–animal interactions deserves a closer look.

The transition from foraging to settled agriculture increased the amount of people that could be supported per hectare of land from 10^{-4} to one person per hectare (Smil, 2019). When the 'natural' size limit (±150; cf. Dunbar, 1998) of hunter-gatherer bands was exceeded, a need for more hierarchy surfaced to prevent destabilization of the social order. Whereas desire for status is not all that pronounced in the rather egalitarian context of hunter-gatherer communities, mostly involving 'costly signaling' by hunters, its importance increased in settled, larger, and more structured societies. In the latter, status is built around resource accumulation (e.g., ownership of animals for plowing; Kohler et al., 2017). What was a gift of nature became incorporated in a property regime, while the concept of 'nature' evolved into that of 'natural resource' (Scott, 1998). In contrast to the elites, the lower classes had little access to animal foods, resulting in malnutrition (Smil, 2019). At the same time, in these centralized agricultural systems, power was administered through the visible language of record-keeping systems based on grain as both material foodstuff and numerical abstraction (Scott, 1998). Grain – as a commodity that could be stored for indefinite periods of time and as the basis for concepts related to numeracy – anchored the power of elites through record-keeping and the distribution of staple foods (Schmandt-Besserat, 1986). Here, we see how control of the food system as a form of authority does not merely reside in the control of food, but also in the symbols related to food and their place in thoughtscapes. Hierarchical centers, such as the Roman Empire or the Zhou dynasty, portrayed the eating of meat and dairy as

'barbarian.' Such discourse was meant to maintain crowds within state boundaries, as the agroeconomic grain-and-manpower core was the basis for the generation of wealth (Scott, 2017).

Strong social heterogeneity requires highly effective mechanisms for stabilization. According to Girard (1986), the problem is reinforced by *mimetic desire*. In the words of Girard: 'Man is the creature who does not know what to desire, and he turns to others in order to make up his mind. We desire what others desire because we imitate their desires' (Burkert et al., 1987). It may not so much be inequality as such that is corrosive to group cohesion but the display of wealth (Christakis, 2019). Elites attract venerating imitators ('be like me, value the object'), which are then rejected ('do not be like me, it is mine') (Burkert et al., 1987). In the absence of apotropaic rituals, this results in intraspecific aggression, retaliation, and endemic violence. The latter can be stopped only by a pacifying act of 'final killing,' which relies on the scapegoating and sacrifice of a surrogate victim. A scapegoat needs to meet certain requirements; it must be recognized as the guilty Other and be unable to retaliate. By redirecting aggression upon the victim, difference is dissipated while dramatized rituals displace guilt and mask the arbitrariness of the act (Burkert et al., 1987). Ritual sacrifice functions as a mechanism to dispel crisis caused by societal class struggle and other anxieties (e.g., the uncertainty of harvest success), thus contributing to a community's symbolic systems. It is relatively clear that animal sacrifice and scapegoating became a widespread practice, but much less so if animals acted as a late substitute for humans. René Girard takes a hard position by surmising that human sacrifice was 'the first symbolic sign ever invented by hominids, instrumental in the transition from an undifferentiated human–animal past' (Girard et al., 2008). Be that as it may, the scapegoating and ritual killing of animals have entrenched themselves as statutory practices in the mythological and religious schemes of early human civilizations (cf. Bakker, 2013), with enduring results over the next millennia.

The Post-domestic Era: From Zoophage to Sarcophage

Although the domestication template for human–animal interactions displays a vast amount of cultural and practical diversity throughout history, its dominion-based premises have remained relatively robust until the use of fossil fuels in the 19th century (Scott, 2017). Deep societal change took place during the post-domestic shift, particularly so in the Anglosphere and later also becoming more widespread in Europe and other parts of the world. Besides such historical elements as the role of meat in class struggle (Horowitz et al., 2004), the transition can be ascribed to modernity's disruptive infrastructural and technological innovations, allowing a surge in meat supply to meet the demands of urbanizing populations (Leroy and Degreef, 2015).

Thus, basic (food) security became almost self-evident in the middle and upper classes of Western societies. With foodscapes reaching abundancy, a search for new purpose-offering challenges was initiated. Within the biosocial needs complex, the post-domestic 'self-actualization' level reflects an urge for identarian expression and related habitus and aesthetics (**Figure 1**). The further one moves up the social ladder, the more one achieves a sense of self-confidence to do so (Wilkinson and Pickett, 2010). Although the desire for in-group solidarity and status are still latent and continue to be a source of anxiety, they manifest themselves in novel ways whereby the eating of meat is used to opinionate on tradition, hospitality, and/or identity. As such, display of the type and quantity of meat one eats (or does not eat) still conveys information about one's economic and cultural capital (cf. Bourdieu, 1984), but can also signify genuine intellectual investment (Leroy, 2019).

The removal of livestock from civic life and the introduction of domestic pets went hand in hand with a novel set of practices and discourses. Upon demand by the bourgeoisie, explicit references to raw animality, including birth, copulation, and death, were suppressed; livestock was blamed for corrupting the youth so that its 'monstrosities' (blood, gore, and smells) had to be removed from public life (Bulliet, 2005). This illustrates not only the West's expanding views on what constitutes trauma (Haslam, 2016), but also points to a *pharmakos*-type 'ban,' outside the city walls and into the slaughterhouses, a process starting in the 19th century (Leroy and Degreef, 2015). The pharmakos (φαρμακός) refers to a human scapegoat in ancient Greece, chosen based on 'ugliness' and sacrificed as a means of purification or atonement for the community (Burkert et al., 1987). The scapegoat was tortured, driven out of town, and possibly killed.

Although intimate and daily human–animal interactions with livestock are still the norm in rural communities worldwide, including the family farms of the West, the situation is very different in the most intensified parts of animal agriculture (McCance, 2013). With most of the butchering of animals now being concealed or abstracted, the post-domestic and urbanized public is left in a state of disconnect and quasi-denial (Rothgerber, 2019). While animal source foods were reduced to the status of commodities in a general process of de-ritualization and de-mystification (Bulliet, 2005), humans transitioned from *zoophage* ('eater of animals') to *sarcophage* ('eater of meat') behavior (Leroy and Praet, 2017). The post-domestic crisis, described below, seems to be adding a novel and pejorative category of meat eaters to the global thoughtscape: the *necrophage* ('eater of death').

THE POST-DOMESTIC CRISIS

Post-domestic Sensibilities to Animal Killing

The post-domestic model retained its metastable functionality until recently. In the current age of mass media-based (dis)information (cf. Leroy et al., 2018), the unprepared model is put to the test. As the disconcerting acts of animal killing and butchering are no longer incorporated in a sound cultural framework, their impromptu display has become problematic (Leroy and Praet, 2017). When meat is seen as a 'corpse' and death as a 'contaminating essence,' physical discomfort and disgust are the result (Testoni et al., 2017). This is particularly the case for the young urban generations that are, historically speaking, probably the ones most disconnected from praxis. According to Bulliet (2005), the disappearance of exposure to scenes of slaughter

and animal copulation from childhood experience has created post-domestic sensibilities, especially in post-World War II generations. Meanwhile, animals have been anthropomorphized and *cutified* in popular culture. This evolution is a product of bourgeois pet-keeping culture, which evolved into a mainstream practice (about two-thirds of the American households now keep pets and spend more than sixty billion dollars a year on their care; Christakis, 2019). Fantasy is put in the place of real-life carnality, so that viscerally powerful encounters with either sex or slaughter during later stages of life may lead to shock. Petracci et al. (2018) mention examples of outrage when the public is confronted with the butchering of rabbits, cute animals *par excellence*. Such profound disengagement understandably leads to distress when emotionally upsetting scenes of slaughter and butchering are shown to a public that has grown accustomed to purchasing packaged, processed, and often pre-prepared and ready-to-eat foods in metropolitan retail (Leroy and Degreef, 2015).

This situation typifies the English-speaking world in particular, especially the United States, United Kingdom, and Australia (Bulliet, 2005). Nonetheless, similar trends are emerging in 'carnivore' Latin America (Argentina, Brazil, Uruguay, Chile, and Colombia), where amorphous hamburgers are overtaking the traditional steaks and asados and, with that, the explicit references to living animals. The fact that the Anglosphere leads this evolution may be linked to the fact that it also displays the strongest suppression of traces of pre-domesticism (Bulliet, 2005), which according to Shepard (1998) leads to an unbalanced mindset. Ancestral traits include all-age access to scenes of butchery, birth, copulation, and death, little accrual of property, absence of domestic animals, and immediate access to the wild and solitude. Shepard (1998) argues that a pre-domestic thoughtscape is a far cry from the post-domestic attempts to 'associate feminism, vegetarianism, and animal liberation in [a] historical or anthropological framework.' This is, of course, a very idiosyncratic view on humanity bound to generate controversy. As stated by Bulliet (2005): 'in post-domestic circles there is a war being fought over who defines the nature of primal humanity. The question of separation is embedded in that war, and meat eating is its prime battlefield.'

Societal Anxieties Related to Urgency and Collapse

The current livestock system is depicted as one that casts a 'long shadow' over society (cf. Steinfeld et al., 2006), with strong overtones of urgency and collapse (Pelletier and Tyedmers, 2010). The contextual contingency of animal husbandry on good or bad practice is often narrowed down to a societal narrative that presents it as intrinsically harmful (Leroy and Hite, 2020). Plant agriculture, equally leading to both harmful *and* benign effects, is mostly off the hook. Although presented as part of the solution for a sustainable food system by some (e.g., Gerber et al., 2013), animal production is portrayed as a 'problematic' or even 'evil' act by others (GRAIN/IATP, 2018; Halligan, 2018), whereby its potential for improvement is being downplayed. The crisis is said to be the harmful yet calculable result of unhealthy Western diets and their unsustainable production methods (Poore and Nemecek, 2018; Swinburn et al., 2019; Willett et al., 2019). Societal tissues are degrading (Wilkinson and Pickett, 2010), whilst traditional foodscapes shift to dietary individualism (Rozin et al., 2011; Fischler, 2013); what was once taken for granted suddenly looks problematic, including the provision of reliable nutrition. In the United States, for instance, nine of ten inhabitants are now identified as 'metabolically unhealthy' (Araújo et al., 2019), and the United States is moving toward an even worse public health status (Ward et al., 2019).

There are indisputably significant concerns with the global status of animal production (Steinfeld et al., 2006). Yet, it is remarkable that much of the debate – including the scientific one – is placed along a plant–animal binary (Leroy and Hite, 2020). Plants, such as whole grains, legumes, and nuts, generally represent a virtuous dietary choice, whereas animal foods (red meat in particular) are said to be destructive to both human health and the planet. Much of this discourse is rooted in societal dynamics, including the impact of class anxiety and the moral urge to *eat right*, in pure, natural, and civic ways (Biltekoff, 2013; Veit, 2013; Finn, 2017; Hite, 2019). A Garden-of-Eden image of vegetarianism (Sánchez Sábaté et al., 2016; Testoni et al., 2017), which was shaped in the 19th century by Bible Christians, Grahamites, and Seventh Day Adventists, led to claims that meat is impure and provokes carnal lust. Notions of impurity gained traction in both vulgar and professional dietary discourse during the 20th century, as the superficial narrative moved away from the spiritual and sexual to the medical and environmental (Banta et al., 2018; Leroy and Hite, 2020).

The first edition of the 1977 US Dietary Goals – which influenced all future national public health nutrition policy, both in the United States and elsewhere – specifically called for reduced meat consumption. At the time there was no scientific evidence to justify such a recommendation, but then as now, moral and environmental concerns were overlaid with justifications from weak observational evidence (Hite, 2019). This helped to create a specifically Western 'healthy user bias,' shaping the results of subsequent observational studies that have been used to portray meat as unhealthy. Health-motivated people tend to restrict meat because they were told to do so by health authorities, thereby creating an artifact in the outcomes that are further used to amplify the original message. The fact that this is a cultural lifestyle effect can be deduced from the finding that the associations between meat eating and disease often disappear or invert when measured in a non-US context (Leroy and Cofnas, 2020; see Dehghan et al., 2017 for examples of how animal foods are linked to better health when non-Western populations are surveyed). A recent comprehensive quality assessment of the evidence showed that the current recommendation to reduce meat consumption in order to prevent chronic disease is based on weak evidence with (very) low certainty (Johnston et al., 2020). Meat, still, has an important role to play in healthy diets (Provenza et al., 2015, 2019).

Activation of the Scapegoat Mechanism

Post-domestic subjects become inevitably frustrated when their search for self-actualization reaches its limits and common challenges are lacking (Harinam and Henderson, 2019). At

the same time, inequality and income gaps with the elites accumulate (Piketty, 2014), compromising the underlying desire for status (**Figure 1**). Competition over prestige then results in intergroup hostility and prejudice toward outer-groups (Christakis, 2019). The impact of this devastating trend on societal dynamics and wellbeing cannot be overstated (Wilkinson and Pickett, 2010). Although plebeian reactions are often driven by insecurity associated with primary needs (e.g., yellow vests-type movements), middle classes are instead exposed to class anxiety and respond through virtue signaling. Finn (2017) has shown that this typically includes 'moral eating' and the eulogizing of vegetarianism.

In a remarkable transvaluation of values, the meat-causes-harm narrative is used to invert what was historically seen as representing strength, life, sensuality, abundance, hospitality, taste, and normality, into deterioration, death, infertility, debauchery, selfishness, disgust, and abnormality (Leroy, 2019). Due to the moral crisis within the bourgeoisie, absolute standards of excellence become less active than the belittlement of non-conformists and 'oppressors' (either real or imaginary). Feelings of *ressentiment* (cf. the psychology of the Master-Slave question; Nietzsche, 1887) also trigger introspection, leading to an ascetic regimen of self-surveillance and the cultivation of the quiet virtues of the herd (patience, obedience, cooperation, and perseverance). In such a context, primal instincts, appetites, and vitality are portrayed as sinful signs of a flawed 'animal' nature (Conway, 2015).

Given the rise in social tensions, an activation of mob behavior and scapegoating mechanisms does not come as a surprise (Girard, 1986). The naming of a surrogate victim creates a unifying narrative and the abolishment of *difference*. Mobs are typically characterized by deindividuation (Christakis, 2019). Usually, the pharmakos concept also entails that of the *pharmakon* (*φάρμακον*; i.e., what is poison *and* cure). Potential scapegoats not only need to match the pharmakos/pharmakon criteria, but also need to stand out due to the differentiating peculiarities and stereotypes that construct the common 'Other' (Girard, 1986). Livestock, with its longstanding role as societal insider/outsider, is an obvious candidate. All this is evocative of Hathor, an Egyptian fertility goddess with an earthly presence as dairy cow *and* a blood-thirsty demon unleashed by Ra to punish humans for their sins, toppling cities and tearing up fields. Cattle provide nourishment and build soil but are also depicted as causing disease and ecosystem destruction due to overgrazing and methane belching. Humans are sinful for indulging in meat and dairy, which are portrayed as unnecessary luxuries. Moreover, animal source foods have been portrayed as a pharmakon in mass media over the last decades (Leroy et al., 2018), being both healthy *and* unhealthy, so that their peculiarities can readily be converted into the monstrosities of the pharmakos, contrasting with the homogenic purity of the mob. References to blood, manure, cow farts and belches, 'chicken periods,' and 'milk pus' aim at collapsing the play of meaning to the 'livestock is harmful' side of the binary.

As a result, eating animal source foods is increasingly presented as an immoral search for luxury and pleasure and as a selfish act undermining societal prosperity. The post-domestic crisis thus opens the door to outrage culture (Harinam and Henderson, 2019), whereby the mundane (*in casu* eating) becomes a calamity in the face of crisis. On a more positive note, this may help to overcome the existential problem of Western complacency by offering challenges that create group solidarity and generate new meaning. Future 'scapes', whether they aim at abolishing or creatively re-defining the role of livestock, will have to address this point (**Figure 2**). In any case, when it comes to a search for healthier societal foundations, a return to communion, commensality, and conviviality may well be one of the most powerful options that we have at our disposition (Wilkinson and Pickett, 2010; Halpern, 2012; Fischler, 2013).

THE CASE FOR A GREAT TRANSITION: THE ABOLISHMENT OF LIVESTOCK AND ITS IMPLICATIONS

A Radical Response to a Moral Crisis

A conflict between foodscapes and thoughtscapes has become evident to those post-domestic subjects who are no longer able to robustly align the historical 'need' for animal foods with the requirements for animal rearing and killing (Benningstad and Kunst, 2020). Selective exposure to the most graphic and problematic examples of today's industrial livestock production have amplified this effect and resulted in a mental crisis. Such scenes focus on concentrated animal feeding operations, the debeaking of poultry and tail-docking of pigs, fast-track mass-slaughter packing facilities, etc. (McCance, 2013). The issue has become more acute even during the last decade due to animal rights campaigns on social media, Netflix movies, and supportive celebrities (Jallinoja et al., 2019). A radical response to this crisis, at least on a theoretical level, would consist of the *abolishment* of hunting and animal husbandry, leading to institutionalized veganism, rewilding of agricultural land, and the end of 'speciesism' (Deckers, 2016). In principle, this offers opportunities to actively readdress humanity's biosocial needs (**Figure 2**), including the use of 'plant-only' eating to potentially achieve health improvement (Kahleova et al., 2017) and nutritional security (Shepon et al., 2018) and to promote feelings of social belonging and self-identity (Jallinoja et al., 2019), often on a spiritual basis involving 'purity' or other transcendental values (Testoni et al., 2017). Status aspirations can be met through virtue signaling or similar social distinctions, such as access to 'cruelty-free sex' (Potts and White, 2007) or claims on the authenticity of one's vegan lifestyle (Greenebaum, 2012).

The Great Food Transformation: What's in a Name and Where Is It Coming From?

As unlikely as this may still have appeared in the late 20th century, the prospect of a (near-)vegan global society is now a respectable part of the conversation in influential circles, among certain media (Leroy et al., 2018), celebrities (Doyle, 2016), academics

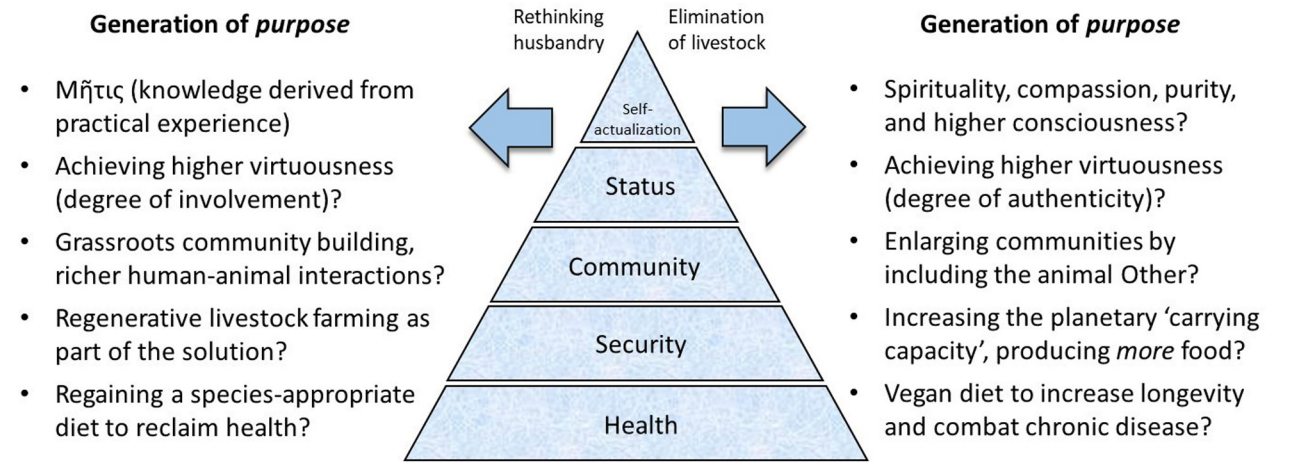

FIGURE 2 | Fulfillment of biosocial needs through reimagined human-animal interactions, according to two potential scenarios for future foodscapes and thoughtscapes.

(Deckers, 2016), and entrepreneurs[1], who wish to make plant-only eating 'permanent, instead of just a passing trend' (Flink, 2018). A societal tipping point is being aimed at, particularly so within the millennial and younger generations. The concept of tipping point implies that a majority opinion in a population can be reversed by a small fraction of proselytizing agents, when growing beyond a critical population threshold of about 10% (Xie et al., 2011). Current levels of veganism are still low (1–4%), although vegetarianism is able to reach a 10%-representation among young females and is often looked upon sympathetically by flexitarians (Jallinoja et al., 2019).

To reach enough critical mass, the influencing of policy makers is essential (Anonymous, 2020). Pleas for a 'Great Food Transformation' could create such momentum (Lucas and Horton, 2019). Although tolerating minor fractions of animal foods, its so-called Planetary Health Diet also approves of a vegan variant. The diet was designed by the EAT-Lancet Commission (Willett et al., 2019), which argues, together with its close affiliates (e.g., the World Resources Institute, WRI), for hard policy interventions. The latter potentially include a severe tax on meat (Anonymous, 2018; Springmann et al., 2018) or its banning from menus (Ranganathan et al., 2016; Vella, 2018).

Despite being heavily criticized for its scientific and pragmatic premises (e.g., Bloch, 2019; Gebreyohannes, 2019; Mitloehner, 2019; Provenza et al., 2019; Torjesen, 2019; Tuomisto, 2019; Zagmutt et al., 2019, 2020; Leroy and Cofnas, 2020), the EAT-Lancet diet has backers in prominent positions, such as the World Business Council for Sustainable Development (WBCSD, 2020a), the United Nations (e.g., Un News, 2019), and the World Economic Forum (WEF; e.g., Whiting, 2019). The EAT network is supportive of food multinationals that display a particular interest in the 'plant-based' and vegan market (cf. Gretler, 2018; Wood, 2018; Kowitt, 2019) and industrial players with even more extreme anti-livestock agendas, such as Beyond Meat and Impossible Foods. The latter two companies envisage the *elimination* of animal foods from the human diet by the year 2030–2035 (Levitt, 2017; Garcia, 2019) and have received the 'highest environmental honor' from the UN Environment Programme (UNEP, 2018); Impossible Foods also won the UN's Global Climate Action Award (UNFCCC, 2019). The founder of Impossible Foods has stated that the company plans 'to take a double-digit portion of the beef market within 5 years' so that it can 'push that industry, which is fragile and has low margins, into a death spiral.' Next, it will just have to 'point to the pork industry and the chicken industry and [. . .] they'll go bankrupt even faster' (Friend, 2019). Not directly linked, yet characteristic for this mindset of tech-fixing, is the following quote from the United Kingdom-based think tank RethinkX (2019), looking into a 'new operating system for humanity' through disruptive technological interventions: 'By 2030, demand for cow products will have fallen by 70%. Before we reach this point, the United States cattle industry will be effectively bankrupt. By 2035, demand for cow products will have shrunk by 80–90%. Other livestock markets such as chicken, pig, and fish will follow a similar trajectory.'

Recently, a Global Commons Alliance (GCA[2]) was constituted, consisting of the EAT foundation and several of its allies (WBCSD, WEF, WRI, and UNEP), as well as various business platforms (e.g., the Natural Capital Coalition, We Mean Business Coalition, and Ceres). The GCA is tightly associated with the Food and Land Use Coalition, which proposes – among other measures – a >90%-decrease of red meat for Australians by 2050 (Navarro-Garcia et al., 2019), as well as with the business-linked C40 Cities initiative. The latter reported dietary exclusion of meat and dairy as one of its 'ambitious targets' (C40 Cities, 2019a) and has obtained approval from the mayors of fourteen global cities, aiming for the achievement of the Planetary Health Diet for their citizens by 2030 (C40 Cities,

[1]http://veganleaders.com

[2]http://globalcommonsalliance.org

2019b,c). The mayors' political influence will be mobilized and business actions activated, such as the promotion of 'plant-based hamburgers, [adjustment of] supermarket or web designs, such as vegetarian sections, [use of] household smart devices to give consumers live feedback about their dietary choices, [and the request for employers to remove] meat within the premises they own or manage, such as canteens or food courts, or by not allowing employees to expense meat-based meals.'

The conditions of possibility for such a radical yet far-reaching design can be discerned from the past record of its main participants. EAT's founder, the Stockholm Resilience Centre (SRC), is a joint initiative of Stockholm University, the Beijer Institute, and the Stockholm Environment Institute (SEI). The SEI was named after the UN's 1972 Stockholm Conference on the Human Environment, organized by Maurice Strong. As an oil and mineral businessman and a promotor of 'business solutions' to the environmental crisis, Strong also was instrumental in the foundation of the WBCSD, prior to the Earth Summit in 1992 (WBCSD, 2020b). This formed the basis for a global management elite wishing to approach the environmental crisis as a profitable enterprise, thereby co-opting leading NGOs (Chatterjee and Finger, 1994). To enable a high modernist society governed by technological principles, a 'sustainable development' ideology was required. In 1995, SEI joined the Tellus Institute in setting up a Global Scenario Group in support of so-called Great Transitions toward a novel, 'planetary phase' of civilization[3]. The Tellus Institute counts the founder of WRI amongst its Associate Fellows and co-founded yet another corporative platform[4]. This framework was used to feed the Global Environment Outlook series from UNEP, and the work has since been continued by the Great Transition Initiative (GTI). The Great Food Transformation is therefore to be considered as one of the Great Transitions, not only based on the denomination but also on the actors promoting it.

The GTI often has an outspoken esoteric dimension, as in its commentary on the 'Great Unraveling' and the spiritual side of the Earth Charter (Rockefeller, 2015). This is in line with the eco-spiritual legacy of Strong (Chatterjee and Finger, 1994), who besides being a businessman also founded the Manitou Foundation[5] and was close to the Lindisfarne Association, both icons of the New Age movement. In fact, many of the global managers in Rio's Earth Summit system were members of the New Age church (Chatterjee and Finger, 1994). All this to indicate that one possible outcome of the post-domestic crisis is indeed fundamentally *de-territorializing*.

Potential Implications for Societal Well-Being

The authoritarian Great Food Transformation, and its reliance on hard policies, 'business solutions,' and social-engineering (cf. Ranganathan et al., 2016) is just one pathway to a predominantly 'plant-based' or even 'plants-only' future. More fluid and spontaneous transitions are theoretically possible yet – in our opinion – implausible. As it is unlikely that they would be endorsed by all members of society, it seems inevitable that such sweeping change would have to rely on an institutionalized 'vegan project' that outlaws animal products (cf. Deckers, 2016; a publication supported by one of EAT's main funders, the Wellcome Trust).

As demonstrated by Scott (1998), such high-modernist, top-down planning attempts usually are highly schematic and unscientifically optimistic, expressing rational order in terms of utilitarian simplifications, neatness, and visual esthetics (cf., the Planetary Health Diet or the Planetary Boundaries). Diversity and complexity are reduced to a set of categories to facilitate descriptive summaries, comparisons, and aggregations. As shown in Section "The Great Food Transformation: What's in a Name and Where Is It Coming From?", the carriers of such plans are capital entrepreneurs (e.g., WBCSD members) who rely on state interventions to realize their schemes of commodification. While state benefits relate to enhanced appropriation, monitoring, and control, global capitalism acts as what is arguably the most powerful driver of homogenization. Successful implementation requires a prostrated civil society, which can be made receptive by a general sense of urgency and crisis. Scott (1998) argues that this gives rise to 'progressive' elites who repudiate the past and wish to implement utopian designs, holding particularly sweeping visions of how science may increase control over nature.

Restrictive interventions come, however, with serious trade-offs. In the case of a Great Food Transformation, this includes a repression of dietary freedom and cultural expression (Torjesen, 2019), a complication of other areas of life beyond nutrition (cf. Greenebaum, 2012), and the potential undermining of livelihoods, societal development, environmental resilience, and human health. This article is not the place for a detailed elaboration, but the radical removal of livestock from food systems is likely to fundamentally compromise all these aspects (for context, see for instance FAO, 2018), without necessarily reducing animal suffering (Bobier, 2020; Leroy et al., 2020) or offering game-changing food security or environmental benefits (Peters et al., 2016; White and Hall, 2017; Leroy et al., 2020). Nonetheless, we wish to illustrate our concerns by expounding briefly on the potential harmful effects on human health.

Although theoretically able to meet all nutritional needs when supplemented, vegan food supply risks being less robust (White and Hall, 2017). This is particularly the case for low- and middle-income countries (Hulett et al., 2014; Domínguez-Salas et al., 2019; Adesogan et al., 2020), but also for vulnerable populations in high-income countries (cf. Koebnick et al., 2004; Phillips, 2012; Fayet et al., 2014; Tang and Krebs, 2014; Cofnas, 2019). Moreover, the nutritional challenges for mid-century relate to the provision of high-quality protein (biological value) and a list of micronutrients and other compounds (e.g., DHA, choline, and taurine) that are only or most easily obtained from animal foods due to either higher levels or better bioavailability (Nelson et al., 2018; Leroy and Cofnas, 2020).

It is all-too simply assumed that animal and plant foods are interchangeable on an agricultural (e.g., with respect to land use) as well as a nutritional level (Leroy et al., 2020). As stated by George (1994): 'The assumption that humans can be

[3]https://greattransition.org

[4]https://www.corporation2020.org

[5]http://www.manitou.org

healthy on vegan diets posits a paradigmatic *normal* human as an herbivore [whereas] real people are not interchangeable with a presupposed *ideal* human.' Those abstractions are based on a paradigmatic human, who is male, and are not meaningful when accounting for the increased nutritional needs, especially for high-quality protein sources, of women during pregnancy and nursing. Abstraction into uniform (male) homogeneous citizenship, as assumed by the Planetary Health Diet, is a typical symptom of high modernism meant to facilitate administration and control (Scott, 1998). Such ideas typically originate in societies that represent only a minority of the global population, being 'Western, educated, industrialized, rich, and democratic' (WEIRD; Christakis, 2019).

Along those lines, the need for fortification, supplementation, and medical supervision will favor the industrial food system, not unlike the need for chemical fertilization in animal-free agriculture. The global corporations that provide such solutions in support of the Great Food Transformation and that have partnered with EAT, attest to just that. According to Chatterjee and Finger (1994), multinationals and their supportive institutes such as the World Bank and WEF are already among the 'worst examples of the Northern development strategy' and 'biggest contributors to cultural and environmental destruction in the South.'

Transformational Effects on Foodscape and Thoughtscapes

High modernism is myopic to anything that does not fit its scheme as a commodity or productive asset, bracketing all that remains as ritual or sentimental values (Scott, 1998). Whereas animal husbandry is portrayed as archaic and inefficient, futurists often emphasize the superiority of high-tech approaches. One illustration is the notion of *Food-as-Software*, whereby foods could be 'engineered by scientists at a molecular level and uploaded to databases that can be accessed by food designers anywhere in the world' (RethinkX, 2019). The option of *in vitro* meat is another example (Stephens et al., 2018). Such 'solutions' will eventually be controlled by an industrial complex that is intrinsically antagonistic to all residues of traditional farming, cooking, and eating. Although whole-plant dietary solutions are in principle possible (provided they are supplemented with limiting micronutrients), it is worrying that the most loudly marketed alternatives for animal foods are ultra-processed products fabricated from low-grade materials, such as starch, (soybean) oil, and protein isolates. Processors emphasize symbolic rather than nutritional value, by exploiting a consumerist demand for 'cultural' capital via (lifestyle) branding (Baudrillard, 1970; Ulijaszek et al., 2012). More independent and wholesome vegan approaches will have a low chance of success without financial, political, and logistic support, will have difficulties in feeding the world population, and likely will not be endorsed by the public.

Thus, ambitious 'veganization' of society not only risks leading to a foodscape dominated by (high-tech) industrialized nutritionism, but also to a problematic and conflictive thoughtscape. Adding to the ecofeminist claim that meat eating is an expression of a Machiavellian culture-over-nature, mind-over-body, and masculine-over-feminine power play (Singer, 2017; Mertens et al., 2020), we argue that a vegan society may as well result in *more* emphasis on the nature/culture binary (Leroy et al., 2020). Granting human-like privilege to non-human animals would merely enlarge the sphere of individuals that are positioned *outside* nature and *above* the non-conscious sphere (Plumwood, 2004). This would fail to recognize ecological embeddedness of both human and non-human animals, entailing ecological risk. Agriculture would need to be fenced off to avoid pest control. As such, an even stricter compartmentalization of wildlife (Nature) and urban life (Culture) would be obtained (Leroy et al., 2020). In a radical setup, this could lead to purifying intrusions in the Nature compartment through genetic engineering of carnivores into herbivores (Verchot, 2014) or by phasing out wildlife via sterilization, whilst residual animals would be confined to parks (Moen, 2016) or pet status. Rather than a nature 'red in tooth and claw,' some may even prefer a world *without* animals (Moen, 2016) or a transhumanist evolution into a *bodiless* future with digitalized minds (Gyurko, 2016).

Based on these lines of reasoning, and although we are agnostic about the optimal global levels of animal foods, we advance the argument that a radical, far-reaching vegan response to the post-domestic crisis will not lead to more balanced or ethical food- and thoughtscapes. Despite the alluring prospect of a common societal project, it risks creating frustration and harm rather than revitalizing humanity's biosocial needs. Moreover, tackling a crisis based on assumptions of corporate-driven eco-efficiency (e.g., *in vitro* meat) may lead to disastrous cultural consequences (Chatterjee and Finger, 1994) and future healthscapes.

TOWARD A NEW LIVESTOCK REVOLUTION

More Than Efficiency Gains

The environmental impact of global animal husbandry, even if real and problematic, can still be largely mitigated (Gerber et al., 2013). Although not always well perceived by society, some consider it unwise to argue against *intensification* as a principle, considering the pressure created by population growth and the climate change crisis (Steinfeld and Gerber, 2010). Moreover, as an umbrella concept, it encompasses both sustainable and unsustainable practices (Horrigan et al., 2002; Tittonell, 2014). This does, however, not imply that future scenarios need to develop solely along a productivity rationale without considering other constraints or uncovering more revolutionary pathways to change. In fact, an excessive focus on efficiency leads to systems' fragility (Schiere et al., 2012), which has clearly been demonstrated during the COVID-19 pandemic of 2020, and may entail some of the problems mentioned in Section "The Case for a Great Transition: The Abolishment of Livestock and Its Implications." Most importantly, it would be unable to fully address the fears, hopes, and needs of society. Considering the current epistemic flux, the change in paradigm will have to run

deeper. The development of richer human–animal interactions, that move away from the livestock-as-commodity mindset, needs particular attention.

Toward Healthier Food- and Landscapes

In the wider search for more robust approaches to animal husbandry, the potential of a fresh outlook on pastoralism is particularly acclaimed because of its role in ecosystem services and health, including biodiversity, water retention, nutrient cycling, soil improvement, rural development, and animal welfare (Gerber et al., 2013; Provenza et al., 2015; Gregorini et al., 2017; Massy, 2017; Mottet et al., 2018). The major feed used in such systems – forage plants (grasses, legumes, herbs, forbs, and trees) – is unsuitable to humans and derived from pasturelands, grasslands, and rangelands, which are natural and semi-natural, as well as artificial ecosystems that are – in most but not all cases – impractical for cropping (Mottet et al., 2017). Grazing animals in particular generate a range of services to the ecosystems that go beyond the farm or particular landscapes they inhabit (Leroy et al., 2020). They offer, for example, socioecological wealth and resilience, help to preserve high-value habitats, regulate vegetation growth and structure, recycle nutrients, and sequester carbon (Provenza et al., 2015, 2019; Proença and Teixeira, 2019).

Pastoral livestock production systems are nevertheless subject to critique and societal pressures, as they are said to distract from more intensive livestock farming that would lead to higher yield and lower greenhouse gas (GHG) emissions, including a shift from ruminants to monogastrics (Steinfeld and Gerber, 2010). This claim, however, needs to be scrutinized, as pastoralism not only provides wealth and nourishment to societies, but also provides other valuable ecosystem services, as stated above, and has the potential to obtain a neutral carbon balance (Assouma et al., 2019). Moreover, the opening of pastoral lands to rewilding needs careful consideration (Manzano and White, 2019), as it would ultimately lead to an increase in other methanogenic animals that do not significantly contribute to human nutrition and livelihoods (i.e., wild ruminants and termites). Although current domesticated ruminants produce large amounts of CH_4, this may be comparable to historical wildlife (Hristov, 2012; Zimov and Zimov, 2014), with wild herbivores being less efficient in feed conversion (Manzano and White, 2019).

Even if landscape abandonment may well appeal to a Western eulogization of 'Nature,' it will not necessarily ameliorate climate change effects. Furthermore, reductions in GHG emissions due to intensification parallel increased fossil fuel use compared to extensive options. This is not trivial, as livestock-derived CH_4 in natural carbon cycles differs fundamentally from CO_2 mobilized from fossilized carbon; as long as herd sizes and dry matter intake do not increase, the former will not result in global warming, in contrast to the dramatic accumulating effects of the latter long-lived GHG (cf. Allen et al., 2018). Although total global livestock emissions have been estimated at 14.5% based on life cycle analysis, this is driven largely by local inefficiencies, deforestation, and the generation of feed (Leroy et al., 2020). Instead of focusing on an uninformed and *reactive* divestment in animal husbandry and pastoral livestock production systems, due to perceived harms that are based on deceiving aggregate numbers and reductionist metrics (e.g., CO_2-eq per kcal), there is still large potential for such promising and *active* strategies as silvopastoralism, regenerative agriculture, improved animal health, and managed grazing.

Considerable progress can be achieved for monogastrics, by focusing on their potential for recycling food waste and leftovers (Mottet and Tempio, 2017; Van Zanten et al., 2018; Uwizeye et al., 2019), as well as for ruminants, by adjustment of the grazing management and taxonomical and biochemical dietary diversity of ruminants at individual and herd level (Gregorini et al., 2017), improved channeling of waste streams, and better integration in the circular bioeconomy (Fairlie, 2011; Teague et al., 2016; Stanley et al., 2018). Rather than losing grasslands to annual agriculture and biofuel production, this includes working *with* the carbon storage potential of grasslands and rangelands, the added value of trees, the adoption of improved pasture species, better veterinary care, etc., which are also forms of *intensification*, in their own right (Manzano and White, 2019). This offers an entirely different mindset than the linear approach of Cartesian, mechanical thinking. The latter has led to the replacement of traditional cyclic approaches within the food system by powerful yet one-directional innovations, such as the mobilization of non-renewable fossil fuels for the production of chemical fertilizers via the Haber–Bosh process. Such practices, also including the use of pesticides, herbicides, intensive tillage, monoculture cropping, livestock-keeping on fertilized monotonous swards, and exhaustive irrigation, all have the potential to boost yields. Unfortunately, such potential also comes at a cost, with long-term environmental trade-offs and the disruption of ecosystem dynamics, including soil building, nutrient uptake, and symbiotic relations between bacteria, fungi, insects, mammals, and flora (Scott, 1998). From an animal standpoint, these practices may impair animal welfare and wellbeing, increasing physiological stress.

Yet, rather than insisting on a nostalgic return to the *Organic Mind*, knowledge-intensive schemes may be used to overtake the resource-intensive ones (Massy, 2017). This is by no means an anti-technological stance, but rather a plea to venture into new thoughtscapes. In future pastoral spaces, graziers may need to move away from one-dimensional and myopic views of pastoralism, which should no longer exist in isolation from the wider landscape and societal functions and cease to perceive animals as merely a source of meat, fiber, and milk. Alternative future grazing lands will have to be re-imagined. Instead of excessively hegemonic top-down planning schemes, a search for increased resilience-based system designs that focus on higher social and biological diversity should be favored. This will also need to include a more *situational* and *practical* approach to knowledge than is currently the case (based on local knowledge and Μῆτις; cf. Scott, 1998).

Toward a Richer Thoughtscape

New thoughtscapes will have to redefine the meaning of ethical, healthy, and sustainable foodscapes, while offering a more appreciative outlook on the place of human and animal communities therein. In line with Ikerd (2019), the killing of animals 'should never become comfortable [or

entail] irreverence or disrespect for the life taken,' whilst the eating of meat should 'remain a matter of culture, conscience, and personal choice.' We do not have the answer on how to achieve this, and the solution is certainly not straightforward (Pilgrim, 2013), but a more mindful approach to what it implies to grow and eat animals seems a minimum requirement. Practical experience, scientific information with minimal bias, active personal investment in food production and preparation, and more communal ways of eating all offer potential. Wider recognition of the nutritional value of animal source foods and the various benefits of grazing for both the animals and society may further contribute to this (Wilkinson et al., 2019). Meanwhile, the transformation of human–animal interactions into a more rewarding configuration can only be achieved if the post-domestic mindset undergoes a catharsis, by removing some of its most problematic elements and assumptions.

Moral claims that are now taken for granted by partial and divisive parts of society, often taken to an eschatological level, will need to be scrutinized. As an example, farming is neither *unnatural* nor against livestock's interests. Although much can be said about some of the animal welfare issues of a part of industrial agriculture, it is unreasonable to assume that animal husbandry in general – and new holistic approaches in particular – cannot provide good life quality per definition (Leroy et al., 2020). It suffices to compare the life of well-treated animals with the ferocious conditions in the wild. When ethical and welfare standards are in place, livestock will receive a decent life, veterinary care, feed during winter, and a fast death (Baggini, 2014). The refusal to accept that animals need to be killed for food points to the alienation of the post-domestic subject, who is no longer able to grasp the dynamics of life and death (Fairlie, 2018). Although numbers are uncertain (Fischer and Lamey, 2018), the death toll of sentient animals for the production of meat may well be much lower than for the crops needed for its substitution, especially due to pest control and the action of harvesting machines (Davis, 2003; Archer, 2011; Bobier, 2020).

In other words, the prevailing moral crisis is related to post-domestic sensibilities and societal dysfunction (as argued above) plus a sinister view on what constitutes nature and life, *sensu lato*. As long as this problematic perspective remains in place, it may be difficult to alter our relationship with animal husbandry. This will prevent a novel, fresh view on the nature of pastoralism and grazing lands as a table where we all – grazing ruminants and humans – eat in communion. Alternatively, one could hypothesize that our current episteme is partially the result of a malignant attitude to human–animal relations. Returning to the quotes by Levi-Strauss and Orwell cited earlier on, animals indeed have a pivotal role at the nexus of foodscapes and thoughtscapes. They may indeed be one of the most effective targets to trigger broad societal change.

Rather than abandoning animal husbandry all together, a more respectful interaction with animals could unlock the new 'mythology' (although the word may be ill-chosen), to which humanity seems to be aspiring. The transformative process may need to be fundamentally artistic: a *story* to tell, a shared language, a community of discourse (Massy, 2017). We already know that husbandry, if done right, stimulates regional and local thoughtscapes of knowledge and identity (Proença and Teixeira, 2019). We may have to take this one step further by using it as a catalyst for societal change and, if possible, connecting it to the various needs of a globalized humanity. These needs encompass enhanced health and security, a richer communal life, a detoxification of the intraspecific tensions, and an aspiration to a more meaningful and integrational existence. Taken together, this brings us back to Maslow (1943)'s assumptions as well as to the suggestion that the full spectrum of our biosocial needs can only be met through the restoration of a more harmonic societal system (Wilkinson and Pickett, 2010). The reason why humans have evolved higher needs is precisely because it allows them to more efficiently satisfy their basic physiological requirements (Christakis, 2019).

CONCLUSION

The present study illustrates the clash between a historically contingent biosocial desire for animal foods and contemporary narratives that portray livestock as damaging to humans, animals, and the planet. It is unclear in which direction the current view on livestock production that is now prevalent in the urban settings of the West (in particular within the Anglosphere), will evolve to absorb this tension between foodscapes and thoughtscapes, and how exactly it will generate *purpose* in a society fragmented by status anxiety and in desperate need of common challenges. According to one radical scenario, livestock would be rendered obsolete as humans adopt a (top-down) vegan societal model. Another option would involve a profound rethinking of the way animal husbandry is performed in future domains, embracing it as part of the solution rather than being at the core of the problem. Evidently, these are two opposite setups whereas the future would more likely lead to a mosaic of business-as-usual practices, 'plant-based' options, and animal farming with strong agroecological principles. In its conclusive version, the vegan scenario would have vast implications on societal organization. Rather than ending up as a wholesome approach, it risks being highjacked by vested interests and totalitarian schemes. It would be particularly difficult to reverse such a situation, once established. By opposing the elimination of animal husbandry and deruminization of grasslands, rangelands, and pasturelands, and the reactive pleas for *less* or *none*, we argue that an affirmative response is to be preferred (a thoughtscape of *more* and *better*). The most promising way forward, in our opinion, would consist of a combination of the best of current animal husbandry and grazing systems design, revitalized by increased bio-circular praxis, and a much richer approach to human–animal–land interactions than is currently the case. 'Problems' of environment, soil, diet, health, and livestock need to be faced positively with the intention to expand, connect, and innovate. Such approach would need to be open, creative, and in search of actualization, whereby humans and animals would work *with* rather than *against* nature.

AUTHOR CONTRIBUTIONS

FL was responsible for the conception of the study and acted as lead author. AH and PG brought in specific expertise (food studies and pastoralism, respectively) and contributed to the writing of the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of Interest: FL is a board member of academic non-profit organizations, including the Belgian Association of Meat Science and Technology (BAMST; president), the Belgian Society for Food Microbiology (BSFM; secretary), and the Belgian Nutrition Society (BNS). On a non-remunerated basis, he also seats in the scientific committee of the Institute Danone Belgium and the Advisory Commission for the 'Protection of Geographical Denominations and Guaranteed Traditional Specialities for Agricultural Products and Foods' of the Ministry of the Brussels Capital Region.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.