MAT Medicine Anthropology Theory

SPECIAL PIECES

Embodied Inequalities of the Anthropocene

Jean Segata, Ceres Víctora, Paola Sesia, Laura Montesi, Jennie Gamlin, and Sahra Gibbon

Welcome to the Fabulous Anthropocene Era. With this provocative phrase, printed on a Las Vegas-styled sign, visitors were greeted by the installation Habitus (2013-ongoing) by British visual artist Robyn Woolston. Erected outdoors in the gardens of Edge Hill University, on the outskirts of Liverpool, the work aimed to critically deconstruct the visibility of the cataclysmic behaviour in which humans are protagonists. As the artist clarifies on her website, '"Welcome to the Fabulous Anthropocene Era: a time unlike no other where we are faced with signs that reflect back to us the care with which we choose to look after the planet… or not"'.

'Habitus' (2013–ongoing), by Robyn Woolston. Published with permission from the artist. See the artist's website: https://www.robynwoolston.com.

Medicine Anthropology Theory 10 (2): 1–30; ISSN 2405-691X; https://doi.org/10.17157/mat.10.2.8887.
© Jean Segata et al, 2023. Published under a Creative Commons Attribution 4.0 International license.

Working at the intersection of art and ecology, Woolston has been recognised for her critical engagement with the environment in her work. Her practice involves discarded materials and damaged landscapes. Through these, she creates discursive and emotional frameworks for reflection on the daunting reality of living through a sixth extinction event. That the artist chooses to parody the famous sign in Las Vegas, first erected in 1959, and since 2009 deemed worthy of preservation by the National Register of Historic Places in the US, is not merely happenstance. As Billing (2019) has noted, this choice by the artist neatly marks the fifty years since the beginning of the Great Acceleration, a period particularly identified with American lifestyle and its fossil capitalism, for which the air-conditioned Las Vegas is a culminating caricature.

The idea of the existence of a *great acceleration* in human activity in the postwar period shapes many of the debates concerning the Anthropocene today. This acceleration has seen a massively growing demand for so-called natural resources, many of which are non-renewable, and are directly involved in the capitalist pursuit of global economic growth. These include fossil fuels and every type of ore—from cement and iron to build large cities to batteries and computer chips —but also wood, fresh water, and food sources of animal and vegetable origin, consumed on a scale never seen before in history. This acceleration caused the anthropogenic mass to grow to such a great extent throughout the second half of the 20th century that, by 2020 it had surpassed biomass. In other words, what humanity has manufactured—metal, plastic, and asphalt—has exceeded all plant and animal life on the planet, even without the inclusion of waste products in this calculation (Elhacham, Ben-Uri, Grozovski, Bar-On, and Milo 2020). The ideas on the great acceleration inform the ongoing debate on the Anthropocene. It starts from the premise that the impacts of human activity have caused the planet to enter a new geological epoch, one marked by a profound alteration in biodiversity, climates, ecosystems and, more broadly, the course of life on Earth, as a result of human activity (Bonneuil and Fressoz 2016; Tsing, Mathews, and Bubandt 2019; Chakrabarty 2021).

The scientific community has mobilised the idea of a *great acceleration* due to overwhelming evidence of rapid change against the extensive geological and historical timescales under study. The last 2.5 million years correspond to the quaternary period of the Cenozoic era. It is divided into two separate epochs, the Pleistocene, colder and responsible for recent geological formations and the first forms of life on Earth, and the Holocene, corresponding to the last 11,000 years, warmer and more conducive to biodiversity. Among geologists, the definition of the current epoch is disputed. For some of these scientists, we live in the Holocene; for others, we entered the epoch of the Anthropocene during the last two or three centuries. This, they argue, is indicated by the increased activities of humans, from

the constitution of the so-called industrial capitalist societies at the end of the 18th century up to the advent of ‘new products, such as antibiotics, pesticides and transgenics, (…) and their effects on higher temperatures in the atmosphere and oceans that alter evolutionary processes’ (Descola 2017, 17)[1]. For geographers Lewis and Maslin (2015), the start of the Anthropocene can, in fact, be traced back to around 1610, when the geological impacts of Europeans colonising the Americas led to a dip in atmospheric CO^2. They named this change, visible in stratigraphic records, the ‘Orbis Spike’. The authors highlight that the intersection of colonialism, global trade, and coal caused the Anthropocene by creating social issues, such as an exponential increase in the unequal power dynamics that had already existed before 1610, economic growth, the effects of global trade, and dependence on fossil fuels (ibid.). This position is also a nod to the geopolitical history of the capitalist expansion to which the colonisation of the Americas was pivotal. For geologists, then, accustomed to working with generous timescales in the millions and billions of years, these recent transformations have been taking place over an impressively accelerated period of time, collapsing history (human) and the geo-history (of Earth). Instead of transformation taking millions of years, geologists are confronted with evaluating rapid change; a time interval of between 70 and 200 years, in which ‘damaged landscapes’ have multiplied, ushering in mass extinction, deforestation, and the melting of polar glaciers or ocean acidification, among other phenomena.

Woolston’s parody of the famous Las Vegas sign illustrates this extremely rapid destructive transformation of living conditions on Earth. However, this is just one of the stories of the Anthropocene. For other scholars, the concept of the Anthropocene focuses on an erroneous conception of the world; one that is based on the division between nature and humanity, or between human history and the history of life on Earth. This, they argue, is an approach that underlies the so-called western way of life. That is, we impose the west’s apprehension of history, western conceptions of freedom, and the west’s practices of democracy (Danowski and Viveiros de Castro 2016; Charbonnier 2021). As Bruno Latour (2017) has voiced, ‘our’ (i.e., human) actions have become gigantic, without us feeling individually responsible for them. Given this, it seems impossible to achieve a collective experience of this *anthropos* of the Anthropocene. This means that not all portions of humanity should be held equally responsible for the destruction of the planet,

1 For many scholars, ‘the Anthropocene’ is a more situated reference to capitalist man and the destructive, potentially global and irreversible scale of human action and the human desire to convert the Earth into a resource that generates profit and growth. However, for some critics, this concept has limitations, and alternatives have been proposed. See, for example, the defence of the concept of ‘Capitalocene’ (Moore 2016), or other concepts proposed by Haraway (2016) such as the ‘Chthulucene’. In addition, Trischler (2017, 42) has emphasised that it ‘is crucial to distinguish between the Anthropocene in a scientific sense, as a geological concept, and in a broader sense, the Anthropocene as a cultural concept.

and that the economic and social inequalities that are aggravated by this scenario of ecological devastation cannot be overlooked by scholars.

The very definition of this epoch as 'the Anthropocene' suggests a global human responsibility for what is effectively the result of the western industrial social order. As a concept derived from geology, however, the Anthropocene tends to favour the explanatory models of modern science, often disregarding how different populations specifically and sensitively produce, live, and explain their environments based on their own cosmologies and knowledge (Tola et al. 2019). Indigenous Chaquenian and Amazonian philosophies and practices reveal conceptions of contemporary climate change that differ from predominant western positions (ibid.). The authors argue that certain Amerindian accounts are grounded in notions of spiralling time, embrace the latency of interspecies metamorphoses, and share agency among multiple beings who must restore caring and diplomatic relationships among themselves. The failure of the west to recognise these different conceptions adds a burden of vulnerability, which compounds the destruction of ecosystems. Simultaneously, both the environment and the conditions of life, as well as cosmology, are being destroyed. It is crucial to acknowledge the populations most vulnerable to this convergence of threats and promote their knowledge and their own strategies of resistance and organisation. Beyond this, it is also essential to place the defence of human rights in a perspective that extends the struggle for rights and justice to other non-human forms of life and to the ecosystems on which collective life depends. Above all, achieving the task of expanding the meaning of the political and the social to integrate beings once called natural—a task of an inevitably interdisciplinary kind—is what has summoned the human and social sciences in recent decades.

The premise of this curated collection in *MAT* is that the Anthropocene is more than a geological-biological event. It is social and it is political. It demands the analysis of ecological catastrophes, extreme events, citizenship, health, socio-environmental risks, and so-called economic 'development' conjointly. After all, we have to ask ourselves, as Dipesh Chakrabarty does when reflecting on Mike Davis's provocative text, *Living on the Ice Shelf*: 'how a planet of slums, with growing food and energy crises, will accommodate their biological survival, much less their inevitable aspirations to basic happiness and dignity?' (Chakrabarty 2021, 34–35). We cannot exclude the debate on citizenship and health from the agenda of the Anthropocene.

Indigenous Peoples and riparian populations have seen their territories and food sources destroyed or suffocated by the illegal expansion of agribusiness and logging and pollution from the mining activity. These have had serious health consequences for many populations. An example of this is the current

humanitarian crisis experienced by the Yanomami, who are still dealing with the after-effects of the genocidal policy of former Brazilian President Jair Bolsonaro (Almeida, Santos, and Terena 2021). The notion of environmental racism has long aided scholars in understanding that vulnerable groups and populations tend to be more exposed to health and environmental risks and harms than others, as they tend to reside in areas lacking urban sanitation infrastructure or live near polluting industrial complexes. Climate change, degraded environments, and the improper disposal of waste are closely related to the increase in synanthropic species, such as rodents and mosquitoes, which can act as vectors and transmitters of infectious diseases such as leishmaniasis, leptospirosis, rabies, dengue, zika, chikungunya, yellow fever, malaria, and many others (Segata 2021, 2022a). We must pay attention to the anthropogenic disturbances capable of destabilising environments and causing diseases, especially in situations of inequality. The high presence of harmful substances in the environment and the development of chronic and degenerative diseases associated with them is also alarming. This is evident in the case of lung chronic disease associated with air pollution resulting from the burning of fossil fuels, or the chronic toxicity resulting from contact with toxic substances and heavy metals (such as those used in mining) or pesticide and antibiotic drug residues employed in the agro-food industry.

Expanding on the notion of food insecurity among Indigenous Peoples, we also consider its broader relationship with environmental, health, and social crises, arriving at the massive expansion in agribusiness of recent decades associated with global supermarket trading and distribution networks (Matioli and Peres 2020; Freudenberg 2021). Monocultures (such as soybean, corn, and other grains) provide cheap and versatile raw materials. They are easy to transport, do not perish easily, and are capable of being converted into various industrialised foods when combined with high doses of salt or sugar. Economically vulnerable populations tend to consume more processed and ultra-processed foods, which are at the centre of emerging ‘silent epidemics’ of cardiovascular and metabolic diseases, such as high blood pressure, heart failure, diabetes, obesity, and malnutrition (Guhman 2011; Moran-Thomas 2019). As the contributions to this collection will demonstrate, food, health, and citizenship need to be included in the agenda of debates on the Anthropocene.

This Special Issue was proposed by members of the Embodied Inequalities of the Anthropocene Project (EIAP). By paying attention to these scenarios, we engage in medical anthropology research that challenges thinking about how this epoch impacts human and nonhuman health and produces embodied inequalities. In doing so, we provide multidisciplinary insights, as well as novel theoretical and methodological approaches. The ethnographic works in this issue bring a critical approach to the global discourse on the Anthropocene, situating specific analyses

in the unequal geographies of the global south, which is particularly evident in Latin America and the Caribbean. Also here, Latin America and the Caribbean are promising sites for a debate on the Anthropocene; a debate that argues that environmental destruction is inextricable from structural violence, social inequality, and colonialism. At their intersection lie the destructive forms of colonialism based on slavery to the current times of the emergence of radical right-wing governments and their association with devastating practices such as illegal mining, deforestation, private exploitation of water resources, territorial conflicts with Indigenous populations, and climate denialism. Brazil, for example, is a critical case in point. Most of the Amazon rainforest is in its territory. Deforestation and pollution caused by mercury from illegal mining have put the health of Indigenous populations at serious risk, not to mention the harm caused to the local biodiversity, with its unknown global ramifications. In addition, the destructive policies of former President Jair Bolsonaro allowed more than a hundred pesticides (which were already banned in several other countries) to be used in Brazil, by means of the heavy lobbying of agribusiness interests in parliament. To compound the catastrophic situation, pandemic denialism, led by the same president and his followers, was one of the exacerbating factors for the number of infections, illnesses, and preventable deaths during the COVID-19 pandemic in the country. This is a prominent example of a form of chronic destruction that has been witnessed during the Anthropocene, one that exploits and sickens humans, animals, and the environment simultaneously. These acts catalyse inequality, precarious labour, racial disparities, and negatively impact health and can cause disease, thus necessitating critical understanding from the field of medical anthropology.

In this issue, we draw and build on theory in critical medical anthropology, which we acknowledge is a product of its social context. Not only in Brazil, but across Latin America—the most unequal region of the world—this tradition is embedded in histories of inequality, ethnocide, racism, and coloniality. It has also often developed in the political shadow of dictatorships, rebellion, social unrest, and civil wars (Sesia et al. 2020), providing rich terrain for social critique. The editors of this Special Issue all work with the critical concepts that are the product of this situated history. Indigenous epistemologies, intercultural health, critical and sociocultural epidemiology, studies on social and environmental suffering, critiques of the hegemony of capitalist world views and practices and its differential effects on health, and collective agency as a transformative force toward social, environmental and reproductive justice, have all informed critical theories of medical anthropology in Latin America. Indeed, it reveals an inequality experienced in a relational manner, where the poor health of many is understood in relation to the opulent lifestyles of a few. Health in the Anthropocene is a stellar example of this phenomenon, as this geological epoch is itself a consequence of

an unequal social order. Hence, exploring the embodied inequalities of the Anthropocene, or the ‘Patchy Anthropocene’ as Tsing (2019) poses it, means being mindful of how marginalised collectivities or communities experience this epoch epistemologically from a subaltern position, and corporally in relation to the embodied experiences of a hegemonic *other*.

This issue draws on insights and experiences from engaged anthropological research, aiming to foster dialogue on critical areas, including Indigenous experience, coloniality, gender and reproduction, environmental justice, and human-animal relations. The issue also addresses topics such as the COVID-19 pandemic and public understanding of the Anthropocene. As social and medical anthropologists, we are concerned with how human bodies are unevenly affected and respond differently to the context of the Anthropocene. Concurrently, our problematisation of this phenomenon is unstable and constrained by western categorisations of health and illness, planetary life, human experiences, science, and methods for achieving sustainable social and environmental futures. Our challenge concerns a decolonisation of the relationship between health and the Anthropocene, by placing in the foreground the structural violence and social injustices involved in contexts that have historically been exploited in the most diverse ways, as is the case of Latin America and the Caribbean.

Beyond the garden

In a recent speech, Josep Borrell, the European Union’s outspoken head of foreign affairs and security policy, reanimated the colonialist archetype that shapes European thought and practices of contempt and domination over the planet and its different peoples. In his own words,

> Europe is a garden. We have built a garden. Aggregate works are the best combination of political freedom, economic prosperity, and social cohesion that humankind has been able to build. There are three things together, and here bridges may be the representation of the beautiful things, intellectual life, and well-being. The rest of the world is not exactly a garden. Most of the rest of the world is a jungle, and the jungle could invade the garden. The gardeners should take care of it.[2]

The colonial spirit never rests. Borrell’s speech makes it clear that when dealing with the Anthropocene, scholars can no longer solely focus on the development of mercantile and industrial capitalism, but must also include colonial history and attitude. It is important to remember that the construction of the European ‘garden’ was based on more than five hundred years of extracting wood and minerals,

2 Josep Borrell addressing the opening ceremony of the European Diplomatic Academy in Bruges, Belgium, October 13, 2022. See: https://www.youtube.com/watch?v=f8SKblpc7kY.

expropriating territories, annihilating identities and ways of thinking, the rape of women, enslavement and killing of human and animal populations, in this portion of the world that Borrell considers the 'jungle' (Araóz 2014; Descola 2017; Ulloa 2017; Ferdinand 2022). Furthermore, questioning European expansion (and later, US imperialism) helps to inscribe this debate in a historical lineage of structural violence that traverses environmental imbalances, risks, and health problems. As Magali Romero Sá adeptly defines,

> the colonising expansion of European countries provoked extreme social, environmental and epidemiological changes. The flow of people, the introduction of animals and plants, engineering works, railroads, etc., were environmental and cultural interventions in biologically unknown spaces that led to a series of imbalances and adaptations that has changed the configuration of relationships and interactions, relationships between parasites, hosts and vectors (Romero Sá 2013, 71).

Concerns on the production of unequal geographies, histories, and sanitary conditions between Europe and 'the rest of the world', materialise in what Ulrich Brand and Markus Wissen (2021) call the 'Imperial Mode of Living'. This is the idea that 'everyday life in the capitalist centres is essentially made possible by shaping social relations and society – nature relations *elsewhere*, i.e. by means of (in principle) unlimited access to labour power, natural resources and sinks' (Brand and Wissen 2022, 40–41, emphasis in the original). The same can be said of the modern ideals of freedom and autonomy exercised at the centre and based on the exploitation of material resources in 'another place'. Borrell's 'jungle' is the infrastructure of the 'garden'; the jungle is always the *other* place, just as 'fossil fuels' are Charbonnier's (2022) *freedom*. For Charbonnier, the Anthropocene reveals a material history of freedom, based on the achievement of emancipation through the accumulation of energy, material sources, and, we might add, precarious labour that results from the conversion of nature, certain animals, and racialised humans—the *other*—into exploited resources.

However, colonialism has even more structural aspects. Eurocentrism conforms to an idea of nature that needs to be questioned in order to understand the multiplicity and complexities of the Anthropocene. In *Imperial Eyes*, Mary Louise Pratt (1992) brings forward an essential reflection on how 'natural history asserted an urban, lettered, male authority over the whole of the planet; it elaborated a rationalising, extractive, dissociative understanding which overlaid functional, experiential relations among people, plants, and animals' (Pratt 1992, 38). The author's argument affirms that the naturalistic journey and exploration of 19th century accounts 'produced' the rest of the world for European readers; thus, naturalist classification schemes imposed themselves on vernacular relations,

constituting a Eurocentric form of global consciousness that Pratt calls ‘planetary’. The result of this process materialised in the prefiguration of a particular form of global hegemony, which gave rise to a descriptive paradigm and an apparently benign and abstract appropriation of the planet, producing a utopian and innocent vision of European world authority, which the author refers to as ‘anti-conquest’.

Anti-conquest is a possible way in which to understand the representation strategies used by European agents to safeguard their position of power. These are, therefore, representational strategies through which European aristocratic and bourgeois agents sought to ensure their innocence, while continuing to ensure European hegemony. The main protagonist of this anti-conquest is the figure of the ‘observer’, who demonstrates the attitude of innocence, while concealing the imperial apparatuses that produce their mobility. Domination by anti-conquest therefore takes place through the act of naming. The origin of reality and order is achieved by naming, as it ‘is more directly transformative. It extracts all the things of the world and redeploys them into a new knowledge formation whose value lies precisely in its difference from the chaotic original’ (Pratt 1992, 34). Nature, then, was always a European knowledge-building project that created a new kind of Eurocentric-planetary consciousness:

> Blanketing the surface of the globe, it specified plants and animals in visual terms as discrete entities, subsuming and reassembling them in a finite, totalizing order of European making. (...) as a descriptive paradigm was an utterly benign and abstract appropriation of the planet. Claiming no transformative potential whatsoever, it differed sharply from overtly imperial articulations of conquest, conversion, territorial appropriation, and enslavement. The system created, as I suggested above, a Utopian, innocent vision of European global authority, which I refer to as an *anti-conquest* (1992, 38).

This issue of *MAT* opens with Gamlin’s article *Wixárika practices of medical syncretism: an ontological proposal for health in the Anthropocene* and Hutchinson and Núñez Casal’s *Sustaining (dis)embodied inequalities in the(ir) Eurocene: ancient microbes, radical anthropometry, and lifestyle choice*. Both inquire and theorise on the notion of ‘contact zones’, to use Pratt’s (1992) term, as imperial sites of intervention that offer the possibility of ‘studying modes of coexistence’ (ibid.), and how these interactions reproduce racialisations and models of civilised and natural or uncivilised peoples, which have repercussions for bodies, and how we conceptualise health and well-being.

The coloniality of being is a central theme for Gamlin, who discusses how the dichotomisation of different ways of life was established in what she refers to as the ‘ontological Anthropocene’: the subalternisation of Indigenous forms of life in

order to define the superiority of the modern counterpart. She takes this idea forward through an analysis of ethnographical data with Indigenous Wixárika communities whose medical ontology is more-than-human, centring around good and respectful relationships with plants, animals, and ancestors, or 'deities'. Using the medical contact zone as an example, Gamlin shows how over time Wixárika care seeking practices have become syncretic, incorporating the use of modern medical systems, alongside shaman-led care that connects individual wellbeing to the wellbeing of their more-than-human community. She concludes that the hierarchisation of being does not serve human wellbeing. Instead, in these anthropocenic times, global and public health understandings of wellbeing would benefit all by decentring the human, or destabilising the ontological Anthropocene.

In their article, Hutchinson and Núñez Casal draw on two examples of western extractivism and intervention, the first involving the Mbya Guarani Peoples of the Brazil's Atlantic Forest, and the second, Amazonian Checherta communities. They discuss how contact zones generated during research that sought to excavate and measure racialised bodies, reproduced racial assumptions about Indigenous Peoples. The authors' starting point is a critique of the concept of 'Anthropocene', pointing to its implicit embeddedness in a 'universalising myth of "mankind's" growth' and parallel assumptions that Indigenous, Black, and other Peoples have not been transforming the earth for millennia. Instead, Hutchinson and Núñez Casal use the concept of Eurocene to problematise the Anthropocene. They refer more specifically to the Euro-American geological order and form of life and how an 'other' was necessitated to create modernity, hence the 'myth of virgin nature' and Indigenous Peoples was sustained and potentiated.

Troubling the very notion of nature (and the worlds based on it) as a colonial project is fundamental to understanding the Anthropocene and its limits; after all, it is a concept that tends to endorse an idea of 'same nature', which does not capture the plurality of worlds, such as the Amerindians and their multiplication of agencies in the world. For Tola et al. (2019), for example, the Earth itself can mean more than a planet formed by mineral and organic elements, as it can shape part of an identity, with meanings of self and collectivity—as in the case of ancestors of mountains, rivers as siblings, animals as faithful friends, or territory as identity, which are very common conceptions in these cosmologies (Descola 2017; Krenak 2020; Lahiri-Dutt 2019).

In line with this critique, Marisol de la Cadena (2018) calls the process of world creation the 'Anthropo-not-seen', through which heterogeneous worlds that are not constituted with a division between humans and non-humans are forced to operate by way of this distinction, while simultaneously exceeding it. Territory can be both a piece of land and an emergent entity and may translate into an 'ontological

conflict', which reveals the misunderstanding between different components of each world. In her own words:

> the misunderstanding in equivocation emerges when bodies that belong to different worlds use the same word to name entities that are not the same because they too, like the bodies that name them, belong to different worlds; disagreement results from misunderstandings about the conditions for naming the same entities in a world that should be shared (de la Cadena 2018, 39).

In her critique, de la Cadena (2018) employs Jacques Rancière's idea of *dissensus* (2015). Here, the challenge is not to make (a single) sense of all these stories, but rather to value dissensus—that is, how a single issue can be disputed between parties that do not necessarily consider themselves to be parties in conflict. For the French philosopher, dissensus is to politics as consensus is to the police (Rancière 2015). Politics favours free action, which allows for connections between causes and effects to loosen, making room for the plurality of worlds, and for the unpredictability of sensory experiences and for the unusual to emerge. Policing orders, organises, ranks, assigns qualities, and requires consensus. The pun between 'politics' and 'police' that comes from Rancière's work helps us understand two ways of working with ontological encounters. For him, politics (as dissent) maintains difference (which is not necessarily conflict, but a coexistence of worlds that cannot be reduced to each other). On the other hand, politics (as consensus) reduces the ontological encounter to a hierarchy of worlds, categories of understanding or interpretation of what is diverse and seen as 'other'. Consensus is a practice of the police: it dehydrates difference, and hierarchises or organises categories of understanding from hegemonic positions. In other words, it is what Slavoj Žižek called 'the decaffeinated other' when writing about the 'politics' of welcoming migrants in Europe, suggesting that what is being imposed as the central human right in late capitalist societies is the right not to be bothered, that is, the right to be kept at a safe distance from others (Žižek 2011). The same applies, historically, to the European concept of 'nature'—it has always been cautiously kept at a distance from other ontologies of the idea of nature. It positions itself as a hegemonic and hierarchical reference for conceiving 'other natures' as exotic, and thus, objects of study. The European concept of nature tried to achieve consensus. It operates as police, not as politics, to use Rancière's terms. Without challenging this pretence at consensus, the notion of nature converts into a new form of reproducing the colonial logic that has shaped these domains. In other words, a scenario of discrete but no less violent domination is produced at the cost of the deprivation and erasure of non-European thought, practices, and experiences.

It is evident that the Anthropocene of geology is an alarming reality. However, here we draw attention to the need for a critical view on this concept, because long before we piled plastic on top of rocks, we had already piled up layers of separation between us and the planet. White, European humanity placed itself 'outside the world' and, as an exception, separate form objectified animals, plants, gases, minerals, and certain racialised humans of colour, so that they would become a 'natural resource'. In other words, there is a double problem in the genesis of the Anthropocene: it rests on both the western ideas of nature and of humanity, and as a project conceives of 'nature' as a controllable externality. The Indigenous intellectual Ailton Krenak (2021) summarises this point well:

> We are excluding all local forms of organization that are not integrated into the world of merchandise, thus threatening with extinction all other ways of life — at least those we used to recognize as such, to which we ascribed some co-responsibility and respect for shared spaces and fellow beings, not just this single humanity, an abstraction we've allowed ourselves to create to the exclusion of all other creatures. (...) When we depersonalize the river, the mountain, when we strip them of their meaning — an attribute we hold to be the preserve of the human being — we relegate these places to the level of mere resources for industry and extractivism (Krenak 2021, 47, 49).

In addition to this annihilation of local sensitivities, we also have to discuss the components of gender and Christian, westernising patriarchy, as the foundation of the European project of nature and humanity: in the patriarchal scene, nature is represented by an unruly woman—a witch. At the origin of the Anthropocene is the masculine fetish of control. Therefore, more so than 'human exceptionalism', widely denounced in contemporary philosophy, we need to disclose 'male exceptionalism'. 'Man' is that which neoliberalism summarises as the planet's prime customer: he who sees himself as exclusively deserving of privileges. In *Unruly Edges*, anthropologist Anna Tsing (2012) redefines the terms of this debate, leading us to understand that the separation between humanity and nature is, above all, an exception for man in the gendered sense of the word; of a nature taken to be a resource for his purposes—and in this case, animals, plants, women and men of colour are included 'in nature'. Earth is literally, as Tsing argues 'Stalked by Man' (Tsing 2016).

Anna Tsing's feminist, multispecies critique (2012) apprehends the historical attempt to emancipate man over nature through three emblematic processes: the subordination of plants, animals, and women. The case of plants and animals is commonly narrated as the beginning of the development of agriculture and the domestication of animals. This process also symbolises a way of exteriorising man to the world around him. It is when man understands himself as the lord of nature,

converted into an object from which he can extract subsistence, but little by little also by accumulation and profit through its commodification in capitalism.

Anna Tsing (2012) also highlights the male desire for dominance; after all, it is not enough to cultivate the plants—he has to line them up, count them, and make them grow wherever and whenever he wants, according to his optimisation proposals and expansion projections. For example, if a harvester makes better use of fuel and generates more profit with plants arranged 30 cm apart, that is how man will make them grow. Cows, in turn, must produce milk and meat to feed markets in the genetically planned form and quantity. And finally, women. In the male scheme of the world, women have historically been converted into 'beings of nature' and child breeders. Everywhere, through unpaid work, women were reduced to part of the domestic capital production infrastructure (Federici 2020). Thus, the 'domestication' of plants, animals, and women characterises the long process of the subordination of nature to the dominating fetish of man, a key element in the expansion and consolidation of imperialism, capitalism, and the male machine for destroying ecosystems. In short, as Anne McClintock (1995, 5) reinforces with regard to imperialism, 'the cult of domesticity was not simply a trivial and fleeting irrelevance'. For us, the same can be applied to the debate on the Anthropocene and its relationship with the processes of slavery that marked the colonial period in Latin America and the Caribbean. In her own words:

> European men were the most direct agents of empire. Yet male theorists of imperialism and postcolonialism have seldom felt moved to explore the gendered dynamics of the subject. Even though it was white men who manned the merchant ships and wielded the rifles of the colonial armies, white men who owned and oversaw the mines and slave plantations, white men who commanded the global flows of capital and rubber-stamped the laws of the imperial bureaucracies; even though it was white, European men who, by the close of the nineteenth century, owned and managed 85 percent of the earth's surface, the crucial but concealed relation between gender and imperialism has, until very recently, been unacknowledged or shrugged off as a fait accompli of nature (McClintock 1995, 5–6).

It is important to emphasise that if previously it was the process of colonisation and expropriation that devastated local populations and natural landscapes, today it is genetic manipulation technologies and free access to precarious labour that convert the low-income and emergent countries into large, profitable plantations of transgenic crops and confined animal husbandry (Segata 2020). Unequal geographies give rise to landscapes of slow violence, which include bodies segregated within precarious ecologies. They highlight the workings of racial capitalism, which disproportionately exposes migrants, Black individuals, and

Indigenous Peoples to porous contact with potentially contaminating substances and situations. This is the material manifestation of structural violence that silently intersects and embodies the Anthropocene and its racial, class, and species hierarchies.

Chronic wars

The accelerated transformations in local ecologies and global ecosystems foster the proliferation of new pathogens and the emergence of infectious diseases, as well as prolonged droughts, storms, cyclones, and a variety of climatic phenomena that are quickly transforming 'man in control' into a poor 'innocent victim' of an enraged nature (Tsing 2016). The responses by those in power is also known—instead of care policies, the attitude is one of combat, epitomised in the statement by the governor of the State of New York, Kathy Hochul, in regard to a winter storm that hit the United States and Canada in 2022: 'This is a war with Mother Nature, and she has been hitting us with everything she has' (Hochul, cited in Sollenberger 2022). These are chronic wars that blur the collective care for health, citizenship, and the environment with issues of security, and whose technocratic solution is always separation, defence, and combat (Segata 2020).

In a similar vein, phrases such as 'we have an invisible enemy', 'our security is threatened', and 'we will not measure forces to win this battle' arose in public discourse throughout the COVID-19 pandemic. Phrases like these could describe situations of war, but they were plucked from news reports. Even the World Health Organization (WHO), at the conference on 11 February 2020, where the official name of the disease caused by the SARS-CoV-2 virus was announced, used this bellicose language. For the organisation's Director-General Tedros Adhanom Ghebreyesus, the scenario was comparable to a terrorism threat:

> I was a foreign minister in one of my hats, discussing terrorism and so on but a virus can have more powerful consequences than any terrorist action and that's true. If the world doesn't want to wake up and consider this enemy virus as public enemy number one I don't think we will learn our lessons. It's the number one enemy to the whole world and to the whole of humanity and that's why we have to do everything to invest in health systems, to invest in preparedness and that's why I always say, that's what wakes me up at night and it should wake all of us up at night. It's the worst enemy you can imagine. It can create havoc, politically, economically and socially.

The words of the WHO Director-General are emblematic of how the domains of biosecurity interventions have militarised the guidelines of the fields of health, citizenship, and environment. A health agenda based on the terms of security and globalisation has given rise to the idea that pathogenicity is intensified through the

accelerated circulation of potential unknown enemies present among humans, animals, environments, and their technological transformations. Indeed, regulations and responsibilities invoke and activate the grammar of global threat, by emphasising the symptoms of a chronic war. Such grammar enacts, performs and defends borders between certain humans and the rest of the world and sustains the reason of biosecurity policies with their desires for containment and asepsis (Segata 2020).

In this project, there are two highlighted fronts—that of resource and that of threat. Both are integrated, so to speak, into an extensive framework of Euro-American thought funnelled by capitalism—said thus, between naturalism and the Capitalocene. This is the exceptionalism of humans that organise the so-called natural world as an externality to the social. From it, nature is turned into a resource, imagined as inexhaustible. References to this can be seen in its commoditisation and the desire for improvement, with examples ranging from mining to deforestation, and from monoculture cultivation to intensive meat production. In this imaginary, nature needs to be tamed, subdued and, through advances in genetic engineering, improved. Total control is the basis for shaping the planet into an immense plantation that caters to profit-driven needs rather than the needs of consumption itself. Agribusiness is an intricate combination of political and corporate interests, which has transformed agriculture and extraction into a vast industrial enterprise. In stark contrast to agriculture, which is based on relationships of cultivation and mutual care between humans and other beings that constitute the world, agribusiness thrives on a violent relationship with the world. Pathogens and climate disasters are not merely strokes of bad luck; they are the outcomes of undesirable encounters, fuelled notably by centuries of planetary destruction and exploitation.

In his work on agribusiness, Rob Wallace (2016, 2021) highlights how much the industry is responsible for generating favourable environments for large-scale production of new pathogens and for modifying immunological responses that could delay the transmission of a new infectious disease. The transformation of animals into raw material for the food industry has been based on genetic monocultures that, together with large chaotic metropolises and industrial complexes, also form cuts and wounds that expose us to high degrees of risk and vulnerability (Tsing, Mathews, and Bubandt 2019). The emerging rationality of agribusiness promises to feed an increasingly populous and hungry world, when, in fact, it expands the scales of capitalism's profit with crops optimised by the combination of genetic improvement and precarious labour. In other words, agribusiness is a neoliberal and technological version of the plantation, one of our most enduring and sickening colonial legacies that continues to cast its shadow,

perpetuating contemporary inequalities. Agribusiness does not feed a hungry world. It feeds the end of the world (Segata 2023).

Finally, from the Latin American point of view, the study of the Anthropocene needs to consider social justice, existing profound social, economic, and health inequalities, and how these historically expose and stimulate, to a greater or lesser degree, the actions of human and animal populations in cycles of environmental destruction. As Ferdinand (2022) rightly warns us, the inaugural conception of the Anthropocene as a notion by Paul Crutzen (2002, cited in Ferdinand 2022) brings forward the promise of a narrative of Earth that erases colonial history. Here, he argues, decolonial critique has the arduous task of recomposing what he calls the 'double fracture', between the colonial and the environmental. For Ferdinand (2022), the time has come to move beyond the environmental debate, which, on the one hand, silences misogynistic slaveries and their racisms, as well as beyond the colonial debate, which too often abandons ecological issues:

> on the one side, anticolonial critique condemns the conquests, the genocide of Amerindian peoples, the violence against Amerindian and Black women, the transatlantic slave trade and the enslavement of millions of Black people. On the other side, environmental criticism highlights the extent of ecosystem destruction and the loss of biodiversity that has been caused by the European colonization of the Americas. This double fracture erases the continuities that saw humans and non-humans confused as 'resources' feeding the same colonial project, the same conception of the Earth and the world (Ferdinand 2022, 26).

The Anthropocene does not merely involve the environmental impacts resulting from human action. It also concerns plundering territories and extracting minerals and plants; it is speciesist, and exploits animals on an industrial scale. Moreover, the Anthropocene is the expanding European 'garden' itself—it could not exist without colonisation, without the enslavement of Black Peoples, nor without the genocide of Indigenous Peoples, which is why we, the authors, base the Anthropocene on a decolonial agenda, particularly in terms of structural violence. In other words, that portion of the world that Josep Borrell calls the 'jungle' has no interest in 'invading the garden'. It merely continues to echo what Ferdinand (2022, 16) defined as 'a centuries-old cry for justice and an appeal for a world'.

The end of the world comes earlier for some of us

The sentence opening this section was spoken to one of us during a class on the Anthropocene by an undergraduate student in Brazil who works as a collector of

recyclable materials[3]. In his criticism, the concept being studied in class did not capture the concrete situations of those who experience the Anthropocene in their bodies, constantly exposed to the risks of contact with potentially contaminated waste and the harsh weather conditions of precarious work carried out under extreme climatic conditions.

Rubbish, garbage or trash—generic and negative terms that refer to waste resulting from human activities—is at the centre of the debate concerning the Anthropocene. It concerns the materiality of human action, produced and dumped on the planet in different scales and forms—industrial or domestic, organic or inorganic, visible or microscopic. As Monsaingeon (2017) suggests, the Anthropocene is the time of *Homo detritus*; such is the implication of rubbish in the anthropogenic genesis of disasters related to climate emergencies, extreme events, and socio-environmental accidents, both for local ecologies and on global ecosystems. The logic of the relationship experienced by ‘bin men’ with the Earth is that of a certain ‘normalisation of abandonment’ of its productive remains over the surface of the planet—a thought that is directly and inversely related to the work of collectors of recyclable materials. In other words, what the student brought to the table is the ambivalent manner in which we have separated the Anthropocene from the field of health and from fundamental rights. This is because, if collectors of recyclable materials play an essential role in mitigating socio-environmental disasters, or more broadly in protecting the planet, how can we protect them from the risks and vulnerabilities involved in their activity, including their own health? How do we produce the mechanisms of citizenship and human rights in the Anthropocene? (Segata 2022b).

The student’s criticism also highlights the problem that has led us to curating this collective issue of *MAT*: on the one hand, the concept of the Anthropocene advances the global production of alliances between the natural and human sciences in recognition of a profound ecological crisis of an anthropic nature. On the other, it remains disconnected from social realities, marked by violent structures and processes of inequality that situate certain populations under disproportionate degrees of its social, economic, and health impacts.

The question of how toxic exposures are lived, materialised, and experienced is a central theme at the intersection of health, inequality, and the Anthropocene. Exposure to waste, toxicity, and pollution is often greater for those who live in liminal, frontier geographic zones, or abject marginal spaces and landscapes, constituted and compounded by capitalism and the contemporary legacies of colonialism, racialisation, and exploitation. Likewise, the consequences of such toxic modes of living continue to be differentiated and unevenly stratified, serving

3 Translated from Portuguese, ‘O fim do mundo chega mais cedo para alguns de nós’ (see Segata 2022b).

to heighten embodied experiences of marginality. At the same time, however, focusing on toxicity at the margins elucidates the complex dynamics of exposure. These dynamics are constitutive, in the sense of the ‘unequal Anthropocene’ (Tsing, Mathews, and Bubandt 2021), where the ‘feral effects’ or proliferations of such toxic exposures and efforts to manage them produce unexpected consequences and uncomfortable conjunctions.

In this issue, Calestani’s contribution focuses on food and water consumption practices in contrasting frontier zones in Mexico and Italy, highlighting what she describes as the ‘commercial determinants of health’ in the context of waste disposal linked to foreign-owned assembly plants in Matamoros, Mexico, and the illegal dumping of toxic waste near Naples in Campania, southern Italy. She critically engages with the limits of the social determinants of health approach and defends the need to situate the examination of inequalities in toxic exposure in relation to legal and illegal trade linked to waste disposal. In doing so, Calestani points to the stratified bodily and biosocial entanglements at play in these contrasting contexts. While stories of inequality and racialisation are composed in these real and imaginary frontier contexts, they are traversed and reproduced through other dynamics and strategies of consumption and survival. In the context of illegal waste trafficking in Campania, we see how this implies the paradoxical rejection of local food and water, in efforts to prevent it from becoming a ‘concentration of dioxins’.

While the embodied consequences of toxic waste are also highlighted in Hallowell’s article in the issue, the author’s attention is focused on the less tangible and more immaterial aspects of toxic suffering. For those who live in the residential area of Santa Cruz, on the outskirts of the city of Rio de Janeiro, in Brazil, next to a production plant of the steel company TKSA, the stigma and structural vulnerability of living in this area is synonymous with the dust to which they are exposed daily as a result of steel processing; itself a ‘feral’ effect of industrial extraction. However, as the author points out, the violence at play here is multiple. It is constituted not only by the particles or ‘silver rain’ that fall on their homes and bodies but is aggravated because the damage it causes is refuted by those responsible for its production and violently displaced through claims of ‘corporate responsibility’. Building on the work of others who have highlighted the role of ‘affect’ in the Anthropocene, Hallowell goes beyond a singular attention to the materiality of toxicity to highlight the ‘immaterialities’ of ‘discursive violence’ in corporate rhetoric and the ‘emotional reverberations’ of these corporate interventions for residential communities in Santa Cruz. By doing so, she demonstrates the various forms of emotional labour that are undertaken by residents of Santa Cruz as dust, protest, activism, and health issues are navigated

and endured, constituting what is described as a landscape of 'somatic attunement'.

Further to this line of discussion, Martinez's contribution focuses on toxic waste in the the U.S.-Mexico border zone. Here, toxic waste, unlike in Calestani's examples, is a result of industrial production as well as agricultural runoff and residential waste. The author shows how this impacts the ecological, biological, and social ecologies of the Tijuana River canal region and serves to amplify the inequities that are rooted in colonial, racialised, and capitalist logics. The Tijuana River canal is a modern urban infrastructure, that is a response to Anthropocene's industry, an agent of wealth accumulation, and a paradoxical cyclical space of refuge for displaced and marginal communities as well as a simultaneous zone of expulsion for communities who have nowhere else to call home. In a similar manner to Hallowell, here the focus is on public rhetoric and what is done, not so much in the name of corporate responsibility, but rather in the name of urban sanitation and public health. More specifically, we see how the rehabilitation of the canal and forced drug rehabilitation become conjoined in an effort to 'discipline unruly landscapes', as the author puts it. Supposedly 'simple' solutions to the feral effects of this modern infrastructure project are anything but. Instead, we come to see how the entangled social and ecological practices of rehabilitation in this border zone serve to transform the Tijuana River into a 'carceral' zone that perpetuates cycles of violence and domination for those who must live there.

Such works place us on the margins of toxicity and enable us to understand that there are strong challenges for the work of medical anthropology in the field of embodied inequalities in the Anthropocene. Considering that entanglements of human and non-human agencies contingently constitute the fabric of reality, disciplinary resistance to thinking and acting remains. What roles do these entanglements play in the Anthropocene, for example, and what kind of attention do they command in health policies? After all, now that polluting atmospheric gases, viruses, resistant bacteria, biogeophysical cycles, metals, plastics, and waste, among others, have come to define our health policies, and our ways of living and relating with the Earth, can we continue to treat them as mere inert objects? In order to understand them, we again insist on an agenda that dissolves the homogeneity of the idea of the Anthropocene.

The neoliberalisation of nature

In addition to the problems already raised here—concerning the intellectual coloniality of the concept of the Anthropocene and the invisibilisation of the historical processes of ecological degradation and structural violence associated with colonial invasions—we wish to pinpoint that it is the very homogeneity of the

idea of the Anthropocene that produces a double blindness. On the one hand, it dilutes the accountability and responsibility of the agents of destruction, while on the other, it makes the most impacted populations and environments invisible. It is precisely in this manner that the aforementioned criticism by Tsing, Mathews, and Bubandt (2021) becomes essential. For these authors, the Anthropocene needs to be treated as an uneven patch or fragment—what they call a 'patchy Anthropocene'—going beyond the naive idea that it is globally homogeneous. These patches can be characterised as uneven planetary geographies. They call attention to contexts where human action on the planet is more intensive. For Tsing, Mathews, and Bubandt (2021), a better understanding of these 'spots' and 'uneven fragments'—such as industrial complexes, rapidly expanding metropolises, confined animal farming operations, and monoculture plantations—tends to be achieved through dense ethnographic fieldwork interfacing with research in biology, chemistry, geology, among others. We suggest that with this approach, the study of the Anthropocene can better consider the profound social and economic inequalities that exist today. These include looking at the ways in which inequality exposes and also stimulates, to a greater or lesser extent, the action of human populations in cycles of environmental destruction, human and non-human health, and life itself. It is not enough just to blame humans for the destruction of the planet; it is necessary to moderate the social and historical conditions that impose a destructive way of life on them, especially the *neoliberalisation of nature* that characterises, for example, the devastating actuation of the global food industry produced in confinement and plantation regimes.

Nading's contribution sharply illustrates these phenomena, by putting focus on the plantation as a complex expanded space of lives, ecologies, and social practices that intersect and extend far beyond the confines of agricultural cultivation. His contribution is based on ethnographic research among workers on sugarcane plantations in Nicaragua, which are also sites where a chronic kidney disease of non-traditional origin (CKDnt) is on the rise. His examination of how sugarcane plantations in Nicaragua became 'hotspots' of CKDnt enables the theoretical and analytical understanding of the plantation, not as a delimited place, but as a dynamic 'context in action'. For Nading, this means recognising how this monocultural plantation style profoundly alters environments and exacerbates inequalities. It also involves understanding both the everyday lives of plantation workers and their activist practices as a form of 'hotspotting'. Furthermore, it entails examining how sugarcane plantations became sites of experimental investigation to the extent that epidemiological research has become centred on the connection between exposure to environmental heat stress and CKDnt. As Nading indicates in his ethnographic examination of the 'Adelante' shade tent, the plantation's latest manifestation as a hotspot is a mere 'technical tweak' that does little to challenge

the true human cost of cane production or the violent, unruly consequences of climate change in the lives of those who must work in this environment. As he suggests, it is an experimental intervention rooted in the dreams of a green revolution that aims to close the 'productivity gap' by focusing on monocultural sugar production as a path to human growth. In contrast, he focuses on what is described emically as the ‘hotspotting’ practices of workers and communities, who create and share digital narratives to raise broader concerns about the effects of pesticides on their health, and develop evidence based on places that serve to defy the enclosing tendencies of the plantation as an experimental hotspot. Here, the ‘shrivelled plant narratives’ open up to scrutiny the entangled and more than human ecologies and embodiments at stake in sugar cane cultivation

Furthermore, it is possible to say that this ‘plantation politics’ meets the decolonial critique of the Anthropocene. A focus on the past and the ongoing colonial legacy of plantation practices and economies has been a key feature of recent critical attention to the inequitable consequences of pursuing large-scale agricultural production on lives and livelihoods in the name of efficiency, increased production, and capital generation. Some have gone so far as to suggest that the notion of ‘Plantationocene’ (Haraway 2016) may be a key feature of the structural inequalities of the modern era. As Alex Nading observes, the concept of the plantation has gained significant traction in large-scale global health initiatives, as awareness of the irreconcilability between health and growth becomes increasingly evident, articulating what he describes as the ‘earthly limits’ of global health. However, as Nading (also Martinez) demonstrates, there is a need for a renewed engagement with ‘plantation politics’ that can address not only how the embodied inequalities that arise at these complex intersections are diversely stratified, but also tell us more about how these inequalities are lived, endured, and contested.

The ‘feral’ effects of the expanded use of transgenic soy crops designed to resist pesticides in agricultural regions of Uruguay are at the forefront of Evia’s contribution to this issue. While she acknowledges the type of ‘modular simplification’ plantation in soy cultivation in Uruguay, she also elucidates the need to attend to the specificity of everyday experience for those who must continue to live and work in these environments. Drawing on rich ethnographic research that examines the experience of toxicity among agricultural workers and rural dwellers, we see how embodied inequalities are shaped by what Evia calls the ‘soybeanisation’ process (i.e., the advancement of large-scale soybean cultivation on territories traditionally destined for other agricultural uses, which in turn caters to export markets in places like China and the U.S., in detriment to local food production for local consumption) and its concomitant toxic exposures. While highlighting the differential structural vulnerability of the *mosquiteros* (operators of

crop-sprayers) and the *aguateros* (water carriers) who must work with pesticides in these fields, as well as the families living in and around the plantation sites, Evia also shows how gender values and class dynamics inform how these exposures are understood and endured. In this context, the ways in which knowledge, experience, and the vulnerabilities of pesticide exposures are naturalised, serve not only to sustain the status quo, but are also part of common strategies of survival, care, and resistance that shape the limits and possibilities of 'everyday life'.

Unhealthy entanglements and multispecies health

Significantly, this *MAT* Special Issue was designed and completed during the COVID-19 pandemic. For us, social, environmental, and health crises are not isolated events, and COVID-19 is yet another obvious manifestation of this. Environmental and health catastrophes, often analysed as global problems, prompt global responses. However, this tendency is apt to obliterate the historical relations of power and inequalities, much like the social and environmental transformations produced in parts of the planet (Rosenberg 1992; Scopel et al. 2021). Despite coronavirus-centric global narratives, the pandemic has often exceeded the pathogenic agent and taken shape and intensity in more or less local and contingent entanglements and encounters (Gamlin et al. 2021; Singer and Rylko-Bauer 2021).

In Brazil, for example, the pandemic took shape and intensity in the harmful combination of political and corporate agents dismantling social policies. Historical power relations and inequalities acted with the virus in establishing differential environments of risk and vulnerability. In this sense, despite the global reach of the pandemic, health, disease, and care relationships need to be understood locally, particularly when they involve Indigenous populations.

The contribution by Dias-Scopel, Scopel, and Langdon highlights this point. The chronicle of the COVID-19 pandemic, state (in)action and Indigenous Peoples' care strategies in Mato Grosso do Sul serves as a point of departure for criticising the concept of the Anthropocene (seen as a universalising narrative obfuscating alternative logics of existence) and invites a 'more inclusive and decolonised notion of health', in their own words. Dias-Scopel and colleagues employ the concept of 'cosmography' to show the ideological and praxiological links between a group's biosocial reproduction and a specific territory (Little 2001), exemplifying how the management of the COVID-19 pandemic disclosed the clash between two incompatible cosmographies; namely, the colonial and the Indigenous. In a context marked by the syndemic interaction between violence, poor health conditions, discrimination, and now also COVID-19, Indigenous leaders showed political

consciousness and leadership, mobilising a variety of collective care strategies where human health and land protection went hand in hand. In the face of rampant environmental degradation and land usurpation due to an ever-expanding agricultural and industrial frontier, Indigenous Peoples show the perdurance of a different cosmography, which can also serve as a futuristic counternarrative to the Anthropocene.

In a somewhat similar vein, in this issue of *MAT*, Montesi, Prates, Gibbon, and Berrio also address the COVID-19 pandemic in the Anthropocene among Indigenous Peoples, using two ethnographic case studies on vaccination campaigns in Brazil and Mexico. They propose a review of Latin American critical epidemiology as a theoretical framework that informs their discussion on Anthropocene health, Brazilian and Mexican Indigenous cosmologies as well as ontologies vis-à-vis state-led vaccination campaigns and land usurpation during the pandemic. They recognise and ethnographically show the analytical value of Latin American critical epidemiology over hegemonic Euro-American conventional epidemiology in addressing Anthropocene health and Indigenous experiences and understandings of COVID-19 and state-led immunisations. At the same time, these authors illustrate some of the limitations of and areas of development for this valuable theoretical contribution when it comes to understanding the other than human socialities involved in Indigenous Peoples' collective memories, experience, and responses; not only toward these public health vaccination campaigns, but also toward state-led or state-permitted invasions and destruction of their ancestral territories.

Anthropological research on COVID-19 has shown these multiple, devastating impacts and social, economic, political, and cultural transformations (e.g., Segata et al. 2021). However, the hegemonic, transcultural, and interventionist models that shape explanations concerning the Anthropocene and the pandemic also need to be ethnographically tensioned. Such models of Global Health and biosecurity interventions operate through indicators, assessors, and the ranking of needs, on the one hand, and people, local policies, and relationships with animals and environments, on the other, updating regulatory, colonising versions of scientific knowledge (Matta and Moreno 2014; Lakoff 2017; Segata 2020; Baquero, Benavidez Fernández, and Aguilar 2021; Baquero 2021).

The intersection between Anthropocene and health increasingly requires the adoption of a syndemic and multispecies analysis of the structural violence that connects social, environmental, and health crises. For Merryl Singer and Barbara Rilko-Bauer (2021, 9), syndemics is 'is the adverse synergistic interaction of two or more diseases or other health conditions (…) promoted or facilitated by social and environmental conditions'. Structural violence, in contrast 'refers to the often-

hidden ways that structures of inequality, such as poverty, racism, and discrimination, negatively impact the lives and well-being of affected populations' (idem). Eben Kirksey and Stefan Helmreich's multispecies analysis (2010) also allows us to expand upon the idea of the affected population beyond humans. Animals, microorganisms, plants, minerals, soil, and the atmosphere are included alongside humans, each with their own legible biographies and political protagonism. Structural and multispecies violence materialises in the historical degradation of environments through extractivism and the transformation of nature into merchandise. In both cases, they rely on an infrastructure based on degrading work and exposure to contamination of various natures. In other words, we need an anthropology that is more sensitive to the emerging modes of coexistence for multispecies care in the Anthropocene (Sordi, Segata, and Lewgoy 2021; Segata et al. 2021).

In short, from an anthropological point of view, the COVID-19 pandemic exceeds pathogen-centric global narratives, as much as the Anthropocene exceeds carbon footprints. We cannot disregard the combined effects of centuries of planetary destruction and the creation of conditions for new pathogens to appear and circulate. Nor can we leave out of our analyses the profound socio-environmental injustices that enable the Anthropocene to arrive earlier and for pandemics to endure longer.

We need to build a denser agenda of research and anthropological debates on health, disease, and care processes in the Anthropocene, with a view to constituting subsidies to promote public policies that maintain, expand, and complexify actions for sustainable development and the quality of life of humans, animals and, environments. In addition, anti-colonial criticism needs to be present in the debate on the Anthropocene and on health/disease processes, moderating the historical and structural violence that directly intersects colonialism, capitalism, patriarchy, and the male fetish of domination. Finally, an agenda of 'Embodied Inequalities of the Anthropocene' cannot be reduced to a correlation exercise between the Anthropocene and emerging diseases in contexts of inequality. For us, the Anthropocene is the disease and it embodies colour, gender, class, and geography.

Acknowledgements

This special issue was proposed by members of the Embodied Inequalities of the Anthropocene Project (EIAP, funded by the Wellcome Trust, UNS122541). EIAP is an international collaborative project building capacity in Medical Anthropology to develop research on the human health impacts of the Anthropocene with a

specific focus on inequalities in the Global South. It is led jointly by Sahra Gibbon and Jennie Gamlin (University College London (UCL), United Kingdom), Jean Segata and Ceres Víctora (Federal University of Rio Grande do Sul (UFRGS), Brazil), and Laura Montesi and Paola Sesia (Centre for Advanced Research and Studies in Social Anthropology (CIESAS), Mexico). Jean Segata and Ceres Víctora are researchers at the Rede Covid-19 Humanidades MCTI (funded by Financial Agency for Studies and Projects, Finep-UFRGS 1212/21). The authors would like to express their gratitude for the valuable comments provided by the editors of *MAT*, which greatly contributed to the finalisation of this introduction. The authors also express solidarity with the *MAT* editors in the context of university strikes. Not only in the United Kingdom, but all around the world, universities are becoming increasingly precarious, with low salaries and inadequate conditions for teaching, research, and editorial work. 'The union makes us strong' – and this also applies to the Anthropocene era.

About the authors

Jean Segata is a social anthropologist who specialises in multispecies health, epidemics, and biosecurity interventions. He has extensive experience conducting fieldwork and developing research collaborations across Latin America, primarily in Brazil. He currently serves as an Associate Professor at the Department of Anthropology at the Federal University of Rio Grande do Sul (UFRGS, Brazil), where he directs the Centre for Animal, Environmental and Technologies Studies (NEAAT), as well as the Rede Covid-19 Humanidades MCTI. He is also a CNPq Researcher (Brazilian National Council for Scientific and Technological Development, 309710/2021-9).

Ceres Víctora is a Professor at the Department of Anthropology and the Graduate Program in Social Anthropology at the Federal University of Rio Grande do Sul. She also leads the Center for Research in Anthropology of the Body and Health (NUPACS) at the same university. With research and teaching experience in Medical Anthropology, her focus is on health inequalities, social suffering, violence, emotions, and disasters in Brazil.

Paola M. Sesia is a medical anthropologist and public health professor at CIESAS, Mexico. Her current research interests include maternal and reproductive health, professional and traditional midwifery, obstetric violence, access to abortion and abortion care, and health and health policy among Indigenous Peoples in Mexico. She approaches her work from a perspective of reproductive and human rights, as well as from a social justice and structural vulnerabilities perspective, with a focus on social inequalities.

Laura Montesi is a CONACyT researcher based at CIESAS, Mexico. She is a medical anthropologist with fieldwork experience in indigenous rural Mexico, and her work focuses on chronic conditions, particularly diabetes mellitus and related comorbidities. She interweaves culturally grounded lived experiences with the workings of larger structural forces. Her research interests include the intersections of health, social inequalities, and violence, as well as food and culture, and language rights.

Jennie Gamlin is Associate Professor and Senior Wellcome Trust Fellow at the UCL Institute for Global Health. She is also Co-director of the Centre for Gender, Health and Social Justice. Her research focuses on the coloniality of gender and health in Indigenous Wixárika communities. Jennie's theoretical work revolves around decolonisation, Indigenous ontologies of health and being, critical ethnography, and historicising patriarchy and violence. She has co-edited the book 'Critical Medical Anthropology, perspectives in and from Latin America' (UCL Press 2020) and the book series 'Embodying inequalities, perspectives from Latin America'.

Sahra Gibbon is a Professor of Medical Anthropology in the Anthropology Department at UCL. She has conducted research in the UK, Cuba, and Brazil examining the intersections between health, gender, citizenship, activism, and identity. Her current research focuses on examining the social context of biosocial research in birth cohorts and embodied inequalities, particularly as they relate to questions of toxicity, pollution, and Anthropocene health. She is a co-editor for the UCL Press series 'Embodying Inequalities: Perspectives from Medical Anthropology'.

References

Almeida, Eloísa Machado, Juliana Vieira Santos, Eloy Terena. 2021. 'Direitos indígenas e meio ambiente'. In *Bolsonaro genocida*, edited by Tadeu Breda, 13–109. São Paulo: Editora Elefante.

Arraóz, Horacio Machado. 2014. *Potosí, el origen: genealogía de la minería contemporánea*. Buenos Aires: Mardulce.

Billing, Björn. 2019. 'Rhetoric and Imagery of the Anthropocene'. In *Perspectives on Ecocriticism: Local Beginnings, Global Echoes*, edited by Ingemar Haag, Karin Molander Danielsson, Marie Öhman, and Thorsten Päplow, 31–54. Newcastle: Cambridge Scholars Publishing.

Bonneuil, Christophe and Jean-Baptiste Fressoz. 2016. *L'événement Anthropocène: la Terre, l'histoire et nous*. Paris: Éditions du Seuil.

Brand, Ulrich, and Markus Wissen. 2021. *The Imperial Mode of Living: Everyday Life and the Ecological Crisis of Capitalism*. New York, NY: Verso.

de la Cadena, Marisol. 2019. 'Uncommoning Nature: Stories from the Anthropo-not-seen'. In *Anthropos and the Material*, edited by Penny Harvey, Christian Krohn-Hansen, and Knut G. Nustad, 35–58. Durham, NC: Duke University Press.

Chakrabarty, Dipesh. 2021. *The Climate of History in a Planetary Age*. Chicago, IL: Chicago University Press.

Charbonnier, Pierre. 2021. *Affluence and Freedom: an Environmental History of Political Ideas*. Cambridge: Polity Press.

Danowski, Déborah and Eduardo Viveiros de Castro. 2016. *The Ends of the World*. Cambridge: Polity.

Descola, Philippe. 2017. '¿Humano, demasiado humano?' *Desacatos* 54: 16–27. https://doi.org/10.29340/54.1737.

Elhacham, Emily, Liad Ben-Uri, Jonathan Grozosvki, Yinon Bar-On, and Ron Milo. 2020. 'Global Human-made Mass Exceeds all Living Biomass'. *Nature* 588: 442. https://doi.org/10.1038/s41586-020-3010-5.

Federici, Silvia. 2020. *Revolution at Point Zero: Housework, Reproduction, and Feminist Struggle*. New York, NY: PM Press.

Ferdinand, Malcom. 2022. *Decolonial Ecology: Thinking from the Caribbean World*. Cambridge: Polity.

Freudenberg, Nicholas. 2021. *At What Cost? Modern Capitalism and the Future of Health*. Oxford: Oxford University Press.

Gamlin, Jennie, Jean Segata, Sahra Gibbon, Lina Berrio, and Francisco Ortega. 2021. 'Centring a Critical Medical Anthropology of COVID-19 in Global Health discourse'. *BMJ Global Health* 6: e006132. http://doi.org/10.1136/bmjgh-2021-006132.

Guhman, Julie. 2011. *Weighing In: Obesity, Food Justice, and the Limits of Capitalism*. Berkeley, CA: University of California Press.

Haraway, Donna. 2016. *Staying With the Trouble: Making Kin in the Chthulucene*. Durham, NC: Duke University Press.

Kirksey, Eben and Stefan Helmreich. 2010. 'The Emergence of Multispecies Ethnography'. *Cultural Anthropology* 25 (4): 545–76. https://doi.org/10.1111/j.1548-1360.2010.01069.x.

Krenak, Ailton. 2021. *Ideas to Postpone the End of the World*. Toronto: The House of Anansi.

Lahiri-Dutt, Kuntala. 2019. 'Imaginando los ríos'. *Revista Colombiana de Antropología* 55 (1): 153–66. https://doi.org/10.22380/2539472X.574.

Lakoff, Andrew. 2017. *Unprepared: Global Health in a Time of Emergency*. Oakland, CA: University of California Press.

Latour, Bruno. 2017. *Facing Gaia: Eight Lectures on the New Climatic Regime*. Cambridge: Polity.

Lewis, Simon, and Mark Maslin. 2015. 'Defining the Anthropocene'. *Nature* 519: 171–80. https://doi.org/10.1038/nature14258.

Matioli, Victor, and João Peres. 2020. *Os donos do mercado: como os grandes supermercados exploram trabalhadores, fornecedores e a sociedade*. São Paulo: Editora Elefante.

Matta, Gustavo, and Arlinda Barbosa Moreno. 2014. 'Saúde global: uma análise sobre as relações entre os processos de globalização e o uso dos indicadores de saúde'. Interface: *Comunicação, Saúde e Atenção* 18 (48): 9–22. https://doi.org/10.1590/1807-57622014.0230.

McClintock, Anne. 1995. *Imperial Leather: Race, Gender, and Sexuality in the Colonial Contest*. London: Routledge.

Moore, Jason W. 2016. 'The rise of the cheap nature'. In *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*, edited by Jason W. Moore, 78–116. Oakland, CA: PM Press.

Monsaingeon, Baptiste. 2017. *Homo detrictus: critique de la société du déchet*. Paris: Éditions du Seuil.

Moran-Thomas, Amy. 2019. *Traveling with Sugar: Chronicles of a Global Epidemic*. Oakland, CA: University of California Press.

Pratt, Mary Louise. 1992. *Imperial Eyes: Travel Writing and Transculturation*. London: Routledge.

Rancière, Jacques. 2015. *Dissensus: on Politics and Aesthetics*. London: Bloomsbury Academic.

Rosenberg, Charles. 1992. *Explaining Epidemics*. Cambridge: Cambridge University Press.

Romero Sá, Magali. 2013. 'Migração e saúde nos trópicos'. In *Migrações e natureza*, edited by Eunice Nodari, Silvio Correa, 71–91. São Leopoldo: Oikos.

Scopel, Daniel, Raquel Dias-Scopel, Rita C. Neves, and Jean Segata. 2021. 'Os povos indígenas e a Covid-19'. *Espaço Ameríndio* 15 (2): 7–18. https://doi.org/10.22456/1982-6524.117814.

Segata, Jean. 2020. 'Covid-19, biossegurança e antropologia'. *Horizontes Antropológicos* 26 (57): 275–305. https://doi.org/10.1590/S0104-71832020000200010.

Segata, Jean. 2021. 'Enacting Politics with Mosquitoes: Beyond Eradication and Control'. In *Mosquitopia? The Place of Pests in a Healthy World*, edited by Marcus Hall, and Dan Tamïr, 165–82. London: Routledge.

Segata, Jean. 2022a. 'Chikungunya in Brazil, an Endless Epidemic'. *Centaurus* 64 (1): 133–44. https://doi.org/10.1484/J.CNT.5.129635.

Segata, Jean. 2022b. 'O fim do mundo chega mais cedo para nós'. In *O eu catador: reciclando humanidades*, edited by Alex Cardoso, 13–16. Porto Alegre: IFCH.

Segata, Jean, Arlei S. Damo, Ceres Victora, and Patrice Schuch. 2021. 'A Covid-19 e suas múltiplas pandemias'. *Horizontes Antropológicos* 27 (59): 7–25. https://doi.org/10.1590/S0104-71832021000100001.

Segata, Jean, Caetano Sordi, Juliara Borges Segata, and Bernardo Lewgoy. 2022. 'Ungesunde Ökologien, prekäre Arbeit und Pandemie in der globalisierten Fleischindustrie im Süden Brasiliens'. *Peripherie: politik, Ökonomie, kultur* 4: 386–404. https://doi.org/10.3224/peripherie.v41i4.02.

Segata, Jean. 2023. 'Feeding the End of the World: Unhealthy Ecologies, Precarious Labor, and COVID-19 in the Meat Industry in Southern Brazil'. Paper presented at the Colonial Legacies, Contemporary Inequities: Critical Approaches to Global Health Symposium, University College London, June 14, 2023.

Singer, Meryll, and Barbara Rylko-Bauer. 2021. 'The Syndemics and Structural Violence of the COVID Pandemic: Anthropological Insights on a Crisis'. *Open Anthropological Research* 1: 7–32. https://doi.org/10.1515/opan-2020-0100.

Sollenberger, Roger. 2022. 'NY Guv Declares 'War with Mother Nature' as Storm's Death Toll Rises to 17'. *The Daily Beast*, December 25, 2022. https://www.thedailybeast.com/kathy-hochul-declares-war-with-mother-nature-as-nys-death-toll-rises.

Sordi, Caetano, Jean Segata, and Bernardo Lewgoy. 2022. 'Covid-19 and Disaster Capitalism: "passando a boiada" in the Brazilian Meat Processing Chain'. *Vibrant: Virtual Brazilian Anthropology* 19: 1–22. https://doi.org/10.1590/1809-43412022v19e904.

Tola, Florencia, Antonela dos Santos, Juan Pablo Restrepo, Gabriel Rodrigues Lopes, Sonia Sarra, Agustina De Chazal, and Maximiliano Varela. 2019. 'Entre el futuro que ya llegó y el pasado que nunca pasó: diplomacias chaqueñas en el Antropoceno'. *Mana* 25 (3): 809–36. https://doi.org/10.1590/1678-49442019v25n3p809.

Trischler, Helmuth. 2017. 'El Antropoceno, ¿un concepto geológico o cultural, o ambos?' *Desacatos* 54: 40–57. https://doi.org/10.29340/54.1739.

Tsing, Anna. 2012. 'Unruly Edges: Mushrooms as Companion Species'. *Environmental Humanities* 1 (1): 141–54. https://doi.org/10.1215/22011919-3610012.

Tsing, Anna. 2016. 'Earth Stalked by Man'. *The Cambridge Journal of Anthropology* 34 (1): 2–16. https://doi.org/10.3167/ca.2016.340102

Tsing, Anna, Andrew Mathews, and Nils Bubandt. 2019. 'Patchy Anthropocene: Landscape Structure, Multispecies History, and the Retooling of Anthropology'. *Current Anthropology* 60 (Suppl. 20): 186–97. https://doi.org/10.1086/703391.

Ulloa, Astrid. 2017. 'Dinámicas ambientales y extractivistas en el siglo XXI: ¿es la época del Antropoceno o del Capitoloceno en Latinoamérica?' *Desacatos* 54: 58–73. https://doi.org/10.29340/54.1740.

Wallace, Rob. 2016. *Big Farms Make Big Flu: Dispatches on Influenza, Agribusiness, and the Nature of Science*. New York, NY: Monthly Review Press.

Wallace, Rob. 2021. *Dead Epidemiologists:On the Origins of COVID-19*. New York, NY: Monthly Review Press.

World Health Organization. 2020. Coronavirus press conference, February 11, 2020. Geneva, World Health Organization. https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-full-press-conference-11feb2020-final.pdf?sfvrsn=e2019136_2.

Žižek, Slavoj. 2011. 'Lo straniero decaffeinato'. *La Stampa*, November 14, 2011. https://www.lastampa.it/cultura/2011/11/14/news/slavoj-i-ek-lo-straniero-decaffeinato-1.36919410/.