

Toxic Legacies and Health Inequalities of the Anthropocene

Perspectives from the Margins

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Abstract

Based on research in Matamoros (Mexico) and Naples (Italy), this article critically deconstructs embodiments and social histories of toxicity, addressing uneven power relations and health inequalities generated through late capitalism of the Anthropocene. By focusing on food and water consumption in regions at the margins of borders and defined as toxic wastelands, it sheds light on the multidimensional power structures of the global economy. Whether through reference to the illegal dumping of toxic waste by mafia-structured organised crime groups, or the contamination caused by foreign-owned assembly plants, the article illustrates how mechanisms taking place in the individual realm are ‘subsumed’ (Breihl 2019, 33) within more complex historical, economic, and environmental processes. These two case studies are the point of departure to reflect upon the undisclosed but powerful impact that commercial determinants of health have on individuals’ wellbeing, feeding profound north–south inequalities.

Keywords

Toxicity, Anthropocene, Health inequalities, Commercial determinants of health.

Introduction

The 21st century has witnessed an increasing interest being paid towards ‘the Anthropocene’. Multiple contested debates about the term and around this epoch have been generated across different disciplines, including anthropology, with a particular emphasis on human activity and how this has produced profound alterations to our planet. As Chua and Fair (2019, 3) write, ‘These impacts include anthropogenic climate change, biodiversity loss leading to mass extinction, and the ubiquity of microplastics in terrestrial and marine ecosystems’. Jason Moore recognises that the Anthropocene has ‘two lives’ (2016a, 80): one embedded in the geological debate around its scientific concept and the other often addressed in the public space and within social sciences revolving on the relationship(s) between human beings and ‘nature’. Although different anthropological approaches have emerged that consider this term and epoch, in this article I will, following Chua and Fair, ‘treat the Anthropocene as a political and socio-economic problem and symptom of global inequalities and injustices’ (2019, 2).

I am interested in particular in deconstructing the past and present relationships between capitalism, power, and inequality, and how these relationships lead to health inequalities, which in turn have profound implications for today’s global politics (Sayre 2012). In this critique, the Anthropocene is a ‘sociogenic’ phenomenon (Malm and Hornborg 2014, 66), emerging from uneven distribution of power and social relations. When taking power into consideration, Moore (2016a) asks whether we should call this epoch the ‘Capitalocene’, emphasising in this way the impact capitalism has on our planet through world markets, empires, modern states, and systems of social class. In this article, I engage with perspectives from critical medical anthropology, which imply that research has to focus on ‘the capitalist and colonial relations through which the elite access healthy foods while the poor consume poor-quality diets’ (Gaber 2020, 3). Human health depends on the integrity of local ecosystems, and the stories of health in the Anthropocene provide a means to engage on analyses of the multiple forces at stake in an unequal, changing world (Zywert and Quilley 2020).

As Paula Ebron and Anna Tsing point out, ‘the Anthropocene require[s] stories—not just any stories, but those that identify dangers and show us how to navigate challenges’ (2017, 658). This article focuses on two main stories: a woman and a man from different countries and continents. In doing so it pays particular attention to food and water consumption in regions that are defined as toxic wastelands. Based on ethnographic research, the first story was collected in Matamoros, located on the U.S.–Mexico border, in the north-eastern part of the state of Tamaulipas, across Brownsville (Texas), and along the Rio Grande River. The second story comes from the city of Naples, in southern Italy.

Interestingly, Matamoros is in the north of the global south and Naples is in the south of the global north; parallels can be drawn between these two examples in the context of my work when looking at north-south relationships. Matamoros and Naples are both at the margin of borders (whether real ones like that separating the US and Mexico, or imaginary and constructed ones, as in the case of Italy). Lancione (2016, 3) writes that:

[B]eing at the margin means to be situated on the other side of a border, while someone else is on the “inside” somewhere more towards the “centre”. Borders render the margins at the same time possible and visible, tangible and effective, embodied and felt ... To say that the practice of bordering – of delineating what is right and what is wrong, what is in and what is out – produces margins, means essentially to state that through bordering specific spaces and people are produced as well.

In this article, I argue that a way to materialise these margins is through waste and, in particular, through its circulation and social life (Appadurai 1988). Hecht has defined the Anthropocene ‘as the apotheosis of waste’ (2018, 111). The period after World War II has been described as the ‘great acceleration’ (Steffen et al. 2015) for the exponential rise of resource use. Capitalist production and consumption have also grown exponentially, and with such growth there has been an increase in the quantity and durability of waste—two examples of such durable waste being microplastics and radioactive waste (Hecht 2018). Recent anthropological literature on waste has shown that a reading of it as simply ‘matter out of place’ (Douglas 1966, 44) may not tell a complete story as ‘in reality it is unavoidably entangled with multiple life forms and forms of life’ (Reno 2014, 22).

As I will show through these two stories, waste has economic value (Nguyen 2018), but it also has profound implications for health. Hazardous waste is expensive to dismantle safely, and its illegal trafficking and dumping has become a hugely profitable national and international business for organised crime groups. As David Williams writes (2010, 132):

Since the late 1970s, the waste disposal industry has become a lucrative context in an extreme form of gangster capitalism, in which toxic materials are dispersed illegally and with devastating effects. Bernardo Provenzano, former boss of bosses in the Sicilian *Cosa Nostra* [Sicilian Mafia], wrote in one of his smuggled notes, with a Midas-like boast: “It’s easy, it goes out shit, and comes back gold.” In Italy, investigators suggest that millions of tonnes of industrial waste “disappear” every year, of which about 300,000 tonnes are highly toxic. An estimated 500 tonnes a day go missing from the province of Milan alone, almost 40 per cent of its daily total.

Since the post-World War II period, waste has been commodified on a large scale (Field 1998) and transferred from Europe, the United States and Japan to countries and regions considered to be on the 'periphery' (Wallerstein 1976), such as Latin America, the Caribbean, Africa, and south and Southeast Asia (White 2018).

As Banks et al. powerfully summarise, 'environmental crime is currently one of the most profitable forms of criminal activity and it is no surprise that organised criminal groups are attracted to its high profit margins' (2008, 2). In his book on transnational environmental crime, White (2018) explores eco-global criminology, especially when it comes to illegal transportation and dumping of toxic waste. From a global political economy perspective, four connected social processes affect transnational environmental crime: resource depletion, disposal problems, corporate colonisation of nature, and species decline (White 2010). The businesses of waste disposal have become sources of profit within the capitalist system. In particular, research has shown the role of organised criminal cartels in the dumping of hazardous waste (Block 2002) and the inequalities associated with the location of disadvantaged communities near toxic waste sites (Saha and Mohai 2005; Pellow 2007). Recent research has also shown how 'illicit economies are more than transnational organised criminal organisations' (Gregson and Crang 2017, 216) and how they are often embedded within the mainstream economy. Discussing these issues, Ray Hudson (2014, 775) states that:

Links between the legal and illegal are critical to the dynamic trajectory and spatiality of accumulation globally. Legal and illegal practices can be seen as genetically entwined and encoded in the DNA and 'normal' operations of contemporary capitalism, integral to the workings of the capitalist economy rather than a marginal and unusual anomaly.

Although my ethnographic subjects are located in different countries and continents, their stories are woven together to critically deconstruct embodiments and social histories of toxicity from the margins, addressing uneven power relations and health inequalities generated through late capitalism of the Anthropocene. By focusing on food and water consumption in regions defined as toxic wastelands, the article will shed light on how social inequalities become embodied through complex biosocial processes (Singer et al. 2019; Swinburn et al. 2019; García and Bermúdez 2021). These two case studies will be the point of departure to reflect upon the undisclosed but powerful impact that commercial determinants of health have on individuals' wellbeing. Moreover, it will discuss how this approach of commercial determinants in the Anthropocene becomes even more meaningful to deconstruct health inequalities at the margins.

Commercial determinants of health

2021 marked the 30th anniversary of the Dahlgren and Whitehead model of the main determinants of health or 'The Rainbow Model' (Dahlgren and Whitehead 2021). Although this framework aims to include the wider determinants of health, the model does not explicitly address or include the commercial determinants of health (Maani et al. 2020). Nevertheless, as John S. Millar points out, 'the business sector has an enormous effect on population health, health inequities and health care expenditures' (2013, e327).

In this article, I define commercial determinants of health as 'strategies and approaches used by the private sector to promote products and choices that are detrimental to health' (Kickbusch, Allen, and Franz 2016, e895). In particular, I examine health inequalities caused by multinational companies, following scholars like John Millar (2013), who has explored 'ugly corporations, motivated entirely by profits, that sell products at prices that are far below market value because they have been allowed to shift responsibility for the negative effects of their products (so-called "externalities") to society (e328)'. He continues his argument by analysing how the food and beverage sector have grown according to the prototype set by the tobacco industry.

Similarly, in her analysis of commercial determinants of health, Juliette McHardy recognises that there are direct and indirect harms, 'unprevented or permitted due to a political failure—whether because of incapacity, incomprehension or complicity' (2021, i40). Within this context, negative health outcomes are often constructed as the result of individual choices, ignoring the long-term structural 'forces behind the conditions of life' (Strother Ratcliff 2017, 7) or the 'drivers' (Marmot and Allen 2014) that cause specific health effects. Therefore, looking upstream (Strother Ratcliff 2017) means engaging with a variety of determinants of health, from the social to the commercial and political. As Kickbusch writes (2015, 1):

Health is a political choice, and politics is a continuous struggle for power among competing interests. Looking at health through the lens of political determinants means analysing how different power constellations, institutions, processes, interests, and ideological positions affect health within different political systems and cultures and at different levels of governance. Bambra et al. provide three arguments why health is political: health is unevenly distributed, many health determinants are dependent on political action, and health is a critical dimension of human rights and citizenship.

According to the World Health Organization (WHO), noncommunicable diseases kill 41 million people each year—equivalent to 71 per cent of all deaths globally—with 77 per cent of these deaths happening in low- and middle-income countries

(WHO 2021). The urgency of addressing this epidemic was voiced by the then WHO Director-General Margaret Chan, who discussed how 'efforts to prevent noncommunicable diseases go against the business interests of powerful economic operators' (2014, i10). Corporations have increasingly been shaping global patterns of health and disease, with food, tobacco, and alcohol industries producing harmful products. In addition, governments have shifted their responsibility for public health, weakening regulations, and making individuals more responsible for their health (Freudenberg 2014) through unhelpful public health policies which focus on 'healthy lifestyles' (Seeberg and Meinert 2015). With a global rise in chronic diseases, policies have focused on the individual rather than the structural level of health, translating into commercial determinants of health being strategically hidden and unaddressed.

Public health scholars and activists developed the new concept of the 'commercial determinants of health' at the beginning of the 21st century; however, Freudenberg et al. (2021) recognise in a recent publication that there are multiple challenges when it comes to defining said commercial determinants of health and determining the metrics to quantify their impact on human health. The authors continue by adding that some of the reasons for the underdevelopment of this concept are connected to limited funding for research on their role, the supremacy of biomedical and behavioural paradigms, and increasing pressures exerted by corporations on those conducting research in this area. However, Freudenberg et al. (2021) do suggest a framework for the future study of these determinants, identifying influences that are structural and those linked with actors. Structural influences include political and economic systems, stratification (social class systems and mobility), and organisations (including business and institutional ones, governance and norms); those related to actors include market-oriented, and policy and politically-oriented practices. Ultimately, the authors conclude that these factors produce 'living conditions, lifestyles, environments, services, and norms that shape patterns and distribution of human and planetary health' (idem, 2204). Starting from these structural and systemic forces, this article will focus on food and water consumption in Matamoros and Naples, looking at the influence of the political economic system and the different types of (il)legal organisations and institutions acting within it in order to discuss stratification and market-oriented practices, such as the disposal of hazardous waste. Whether we talk about ugly corporations or illegal dumping of toxic waste by organised criminal groups, these are market-oriented practices that should not be obscured. Therefore, their relevance should be made visible when discussing the impact of commercial determinants of health on the health inequalities of the Anthropocene.

Two stories of the Anthropocene

'Ethnography is a way of thinking oneself through in the place of another' (Jackson 2011, 196). Individual stories in toxic wastelands provide insights into the commercial determinants of health, revealing the theoretical limitations of hypothetical models of health based on direct 'casual' or abstracted relations. By shedding light on uneven toxic embodiments and entanglements, ethnography can help 'to uncover the most salient lived experiences and environmental conditions experienced by communities' (Lock, Argentieri, and Shields 2021, 1772), especially when it comes to health inequalities in the Anthropocene.

The next two sections are based on ethnographic research carried out in Matamoros and Naples in 2008 and 2009, which involved multi-sited ethnography (Falzon 2016; Marcus 1995) in different locations in Europe and Texas (US) to follow the ships and waste produced during the process of their dismantling. As explained by P. Wenzel Geissler and Ruth Prince, 'ethnographic work on toxic worldings may start from objects, materials, assemblages, relations, policies or practices, to generate perspectives on ways of seeing, sensing and knowing toxicity' (2010, 4).

The ethnographic fieldwork lasted for eighteen months and was carried out in shipbreaking yards and their surrounding communities, involving repeated visits to the field sites. During fieldwork, I was in contact with different local and international environmental organisations, which were particularly active in those areas.

While in the US, I carried out research in a shipbreaking yard in Brownsville, Texas (Matamoros' sister city; the two are separated by the Rio Grande). It was through environmental activists who were based in Brownsville and who had been working in NGOs to improve the living conditions of communities living along the border for several years that I met my informants in Matamoros. The US environmental activists' introduction and my fluency in Spanish helped me to gain the trust of local neighbourhood residents, who were happy to share their stories. Ana's story was selected for this article as she had both worked as a factory worker and a scavenger (two common professions in the local area), providing insightful reflections on local factories, landfills and waste. The environmental conditions and her lived experience were central to provide a picture from below and from above, interconnecting different scales (micro and macro) and power dynamics. Ethnography then made visible those commercial forces that were often obscured or subsumed, linking together individual and structural biosocial processes.

In Naples, while doing research in a shipbreaking yard, I also met my research participants through grassroots and environmental NGOs active in the region. As

someone who was born and raised in a small village in northern Italy, my background had implications for the forging of relations at the beginning of my fieldwork because of my informants' initial assumptions. However, spending time with them allowed for an exchange of ideas on the north–south divide in Italy. My political stance and historical analysis of this divide were welcomed and provided an opportunity to build rapport and then trust.

In both places—Mexico and Italy—research participants were keen on telling me their stories as they were inspired by their environmental activism and their urgency to denounce what was happening in their places of residence. They hoped I could tell their story in a publication. Over the years after this research was completed, I have always felt guilty that, due to personal and family circumstances, I have not managed to publish more. I am pleased to be able to tell this story now. This feeling is not, however, uncomplicated.

When it comes to ethical considerations, I also recognise that I have always felt I was in a privileged position in comparison with my informants, as I was able to leave the toxic wastelands. I have often struggled to make peace with this uncomfortable truth and questioned whether I could have done more to help those communities and groups. As a researcher that embraced a critical theory paradigm and was inspired by social justice, I have always wondered whether it was enough to tell their stories.

Further ethical considerations led me to change all the names of the people that appear in these pages and to protect research participants' identities. Names of neighbourhoods have also been omitted due to issues of safety and the risk of informants being identified. Moreover, it is important to emphasise that I did not conduct research with organised crime groups. The information on organised crime is based on sources and publications that have previously researched the illegal dumping of toxic waste in these two areas.

Of local factories, landfill and waste-related labour in Matamoros

Since the last decades of the 20th century, the U.S.–Mexico border has been the centre of profound social, economic, and environmental changes (Johnson and Niemeyer, 2008). With the 1965 Border Industrial Program in Mexico, *maquiladoras* were built in urban industrial parks along the border: as foreign-owned assembly plants, *maquiladoras* were allowed to import tariff-free raw materials, machinery, and equipment into Mexico and export their finished products duty-free, with Mexican workers receiving a fraction of the wages earned by similar employees in the US (Ruiz 1998). Working conditions in these factories have been described as unsafe and extremely difficult (Lugo 2008). However,

many workers moved to the border in search of a better life and their migration from other parts of Mexico increased during the 1980s due to the impact of neoliberal policies and of the North American Free Trade Agreement (NAFTA). This produced a population boom in the cities along the border, with half of Matamoros' inhabitants living in *colonias populares*. As Johnson and Niemeyer write (2008, 371):

The term *colonia* simply means neighbourhood, a *colonia popular* is a neighbourhood of the people, or a poor people's neighbourhood – typically the unannexed shantytowns that ring all of Mexico's cities. In the US, the term *colonia* by itself refers to shantytowns found on the US side of the border.

Anthropologist Maria Eugenia De la O Martínez (2006, 97) defines '*la frontera histórica*' (the historic border; my translation) as represented by the five cities where the first assembly plants were installed on the U.S.–Mexico border. These were Tijuana and Mexicali, in the state of Baja California; Ciudad Juárez, in the state of Chihuahua; Nogales, in the state of Sonora; and Matamoros, in the state of Tamaulipas. These cities developed quickly due to the industrialisation of the border.

The expansion of Matamoros, due to the rapid industrial growth, led to the emergence of at least 182 *colonias populares* (De la O Martínez and Flores Ávila 2012), with many lacking basic infrastructure and access to water and/or electricity. This has meant that new neighbourhoods with limited services expanded next to unregulated factories, and industrial contamination seriously affected public health in the region (Johnson and Niemeyer 2008). Valerie Cass explored this issue in her work and defined it as a 'toxic tragedy' (1996, 99). She noted that 'the disposal of hazardous wastes by *maquiladora* plants in Mexico ... and the transport of wastes across the US/Mexico border' are the main causes of illegal dumping in northern Mexico (idem, 100). In 1990, the U.S.-based National Toxic Campaign Fund (NTCF) sampled four waterways along the US–Mexico border and found high level of toxic substance contamination (NTCF 1991). Matamoros has been identified as one of the most polluted areas in Mexico, with discharges greater than 6,000 times allowable US standards (Cass 1996). In addition, illegal transboundary dumping of hazardous waste coming from the US has also been transported to Mexico through 'sophisticated corporate officials' (Maes 1987, 42) in order to avoid strict US environmental regulation and higher disposal costs.

It is in this context of toxic wastelands that the first story of the Anthropocene takes place. It is about Ana, a resident of a *colonia popular* in Matamoros. Ana was a scavenger (a *pepenadora*) for over 20 years before she died seven years ago. In the 1980s, she illegally crossed the US–Mexico border with her two children and her husband. They lived in California, close to Sacramento, for four years,

harvesting tomatoes, grapes, and apples. However, she did not like living in the US, so Ana and her family decided to return to Matamoros. Once back in Mexico, she became a factory worker in two *maquiladoras* and remained active in this role for eight years.

When we first met in 2008, Ana was a community leader of her *colonia*, collaborating with environmental activists based in Brownsville. She was fighting against the contamination of her neighbourhood, trying to create a better future for her grandchildren. She was moved by an urgency to improve the living conditions of her neighbourhood residents and was vocal about socioeconomic and health inequalities.

One morning, she took me to the open-air dump where she worked, not far away from her neighbourhood. On the dirty road leading to the dump, plastic bags were blowing in the wind, flying over the open sewage canal that bordered the road. All the fields were covered in sprawling mountains of rubbish. A mountain of cows' skulls suddenly caught my attention. The smell was omnipresent and flocks of birds were everywhere, covering the horizon.

'Scavenging can be better than working in a factory. You can make much more money', Ana told me. When this research was carried out, this form of scavenging was informal and not connected to official municipal activities. Then Ana went on, listing how much she could get from selling copper, plastics, aluminium, iron, steel, and bronze. These materials could all be found in the open-air dump, although their origin is difficult to pin down. She continued by adding that prices fluctuated according to demand for goods and their availability and that these materials, once sold, were sent to Monterrey, where there were many steel mills. She then added: 'Waste is life, it's our daily bread.' She preferred to be a scavenger rather than a factory worker. She spoke extensively about the working conditions she experienced in the *maquiladoras*; workers inhaled toxic fumes and felt sick after a while. Some experienced lung diseases, cancer, allergies, skin rashes, general respiratory problems. Ana had so many headaches linked with what she was inhaling that, in the end, she decided to quit her factory job.

Her *colonia* was 'also very contaminated', she told me. Water pollution was particularly striking, with open sewage canals bordering the roads and displaying colourful liquids. The pollution of water sources created different health hazards for residents, including not only viral, bacterial, and protozoal pathogens, but also skin diseases, birth defects, and cancers (Loue 1998; Owens and Niemeyer 2006). Walking around Ana's *colonia*, I was struck by the lack of trees, which apparently had all died.

Ana explained to me that residents tried not to drink tap water, but they used it to wash and bathe, which could still be very dangerous. They bought soft drinks or bottled water, although the former were often cheaper than the latter, as is the case in many other countries in Latin America, including Bolivia, where I also conducted fieldwork. Mexico is the world's largest soft drink consumer (Cahuana-Hurtado et al. 2015), and high intake of soft drinks has been associated with multiple public health issues, obesity among them (Bawa 2005). There has for decades been a global epidemic of chronic conditions which has been exacerbated by the consumption of cheap and unhealthy food and drinks, high in sugar or salt (Freudenberg 2014). This epidemic has particularly impacted low- and middle-income countries, where drinkable water is not available or too expensive to consume.

Ana also commented on the multiple respiratory problems residents in her *colonia* had reported, and how she and other residents tried to consume imported foods. They did not trust local fish or meat—which, in any case, was scarce in their diets. On the few occasions when they could afford meat, this came from the US. Ana's narrative provided insights into embodiments and social histories of toxicity. In her case, her health was not only determined by the environmental contamination and surrounding degradation caused by industrial factories and US corporations' illegal dumping of toxic waste but was also affected by her consumption of imported food and soda drinks, which reinforced corporate interests, profit, and hegemony (Baer, Singer, and Susser 2003; Castro and Singer 2004; Singer and Baer 2008; Freudenberg 2014). This case study and other ethnographic research emphasising similar lived experiences provide a powerful critique of public health approaches that too easily focus their health promotion on changing individual lifestyles and choices. Ana's story demonstrates how 'entanglement allows us to understand how outsides and insides are constantly co-constituted across different lifeworlds' (Roberts 2017, 594). This provides insights into the complexity of issues emerging when taking into consideration environmental and social factors, and how commercial and political determinants of health in toxic wastelands determine some of the stories of health in the Anthropocene. In the next section, I will look at similar issues happening in Naples.

Of tomatoes and buffalo mozzarella: A history of contamination

Following the Unification of Italy in 1861 and the emergence of regional inequalities, the south of the country was described as a distinctive reality in comparison to the northern regions. Hostility towards the south was constructed around discourses of 'backwardness' associated with social, cultural, and even racial traits; on the other hand, the north was described as 'more modern, more

European and more governed by law and order' (Schneider 2020, 70). This has been analysed as a form of orientalism (Said 1985) within one country (Schneider 2020); people from the south were defined as the ultimate 'other' by their northern fellow citizens (Capussotti 2010), as alterity was constructed within national political imaginaries.

The problem of the south (known in Italian as *la questione meridionale*) has been debated since the end of the 19th century, with some maintaining that the south was exploited by the northern elites and entrepreneurs (Felice 2011). Today, employment rates in northern and central regions of Italy are in line with those of the main European countries; on the other hand, 'the rates of employment in Southern Italy are among the lowest in the world' (Algieri and Aquino 2011, 411).

The region of Campania is in the southwest of Italy and Naples, its capital, is one of the main cities in this area. Ilenia Iengo (2022, 343) writes that:

Campania is a sacrifice zone of capitalist accumulation, where neoliberal defunding policies in public health care intersect with a decades-long environmental emergency regime and a chronic absence of dignified living conditions for working-class communities.

She continues by talking about how the inhabitants of Campania have experienced processes of racialisation and environmental violence through the illegal dumping of toxic waste coming from northern industrial Italy and other countries in Europe. Similarly, another scholar describes democracy in Naples as 'obscured by the so-called ecomafia', which 'stands for a number of environmental crimes' (Iovino 2009, 339) that have contaminated this region and have become a threat to its inhabitants' health.

In their work on the effects of dioxin on sheep and humans in Campania, Armiero and Fava (2016) write about how the accumulation of toxins in bodies and places provides a window on environmental burdens that are happening at the margins, where subaltern human and non-human communities are entangled together in toxic ecologies of the 'Wastocene', rather than the Anthropocene (Armiero 2021a). Capitalism then produces accumulation through the contamination of people and places (Armiero 2021b).

The concept of 'place' occupies a central role in the literature on agri-food. Its 'multiple layers of meaning' (Harvey 1996) make it ambiguous, and it is commonly used to define the 'territoriality' of a food chain, embedding the relationship between a food system and its context of production. In the literature, a distinction is often made between globalised (or conventional) food systems, which are constructed and imagined as de-territorialised or detached from a specific place,

and localised (or alternative) food systems, which are conversely assumed to be closely connected to a territoriality, with a circumscribed production context (Sonnino 2007). Italy has often been described as a country where food products are rooted within specific places, such as local regions and provinces. Historically, Italian food has often been represented as ‘peasant food’, simple and organic (Helstosky 2004). For instance, the Slow Food movement arose in Italy in 1986 as a critique of the domination of fast-food chains, supermarkets, and agribusiness (Andrews 2008). The classic Mediterranean diet in Italy is still very popular nowadays and consumers are happy to pay more for locally produced olive oil and vegetables—if they can afford it (Helstosky 2004). An analysis of local food products cannot treat them as separate from their social and political contexts. It has to take into consideration the ‘territoriality’ of the food chain, engaging with the ecology of the area, which is often affected by local and national politics.

Two food products often invoked as national symbols and embedded in a specific territoriality are tomatoes and buffalo mozzarella, both produced in the Campania region. These were often mentioned in my informants’ narratives in Naples as examples of when ‘the local is bad, unhealthy, polluted’. Cirillo et al. (2008, 136) write that:

Buffalo milk and mozzarella cheese produced in the Caserta and Salerno areas in Campania region have been investigated on the presence and the levels of polychlorobiphenyls (PCBs). Seven congeners, six non-dioxin-like (NDL-PCBs nos. 28, 52, 101, 138, 153 and 180) and one dioxin-like (DL-PCB n. 118), were detected. PCBs were found at detectable levels in the 83% of the buffalo milk and in the 100% of the mozzarella cheese samples from Caserta; in those from Salerno the prevalence of contamination was 77% for milk and 73% for mozzarellas, respectively. The NDL-PCB content of mozzarellas collected in Caserta was significantly higher than that found in those from Salerno.

Exposure to polychlorobiphenyls (PCBs) can provoke a number of health issues, such as cancer, alteration of thyroid and reproductive functioning, and an increased risk of developing cardiovascular and liver disease, and diabetes (Ross 2004). The same study has also shown that women and birthing people are at a higher risk of giving birth to infants of low birth weight, with consequent future health issues. Illegal waste dumping and open air burning of plastic waste for several years have caused the release of PCBs in the Campania region (Ferrante et al. 2020).

Different authors have documented the illegal trafficking of hazardous waste in this region, which is often dumped on the land or in the sea by local organised criminal groups in exchange for huge financial gains (Saviano 2006; Liddick 2010; Massari

and Monzini 2004; Osservatorio Nazionale Ambiente e Legalità di Legambiente 2016), with dramatic consequences for the local food chain. It is estimated that ten million tonnes of toxic waste have been illegally dumped in the ‘Land of Fires’, situated between the provinces of Naples and Caserta—so called because of the burning of waste (Legambiente 2013).

In the post-war period, different forms of organised crime began to become more prominent in southern Italy (*Cosa Nostra* in Sicily, *Camorra* in Campania and *N'drangheta* in Calabria). These organisations have managed to infiltrate both the state and society, in business, cultural, and voluntary institutions. Local Mafias have affected micro- and macro-political, and economic processes. This activity is taking place in what is considered to be the ‘peripheral’ area of Italy—the south—while financial transaction and accumulation happen in the north.

There are many differences between the various types of organised crime. The Sicilian Mafia, for example, emerged from the nineteenth-century transformation of the agrarian structure that saw the armed guards of the old estates as the mediator category between the peasantry and the wider society (Gledhill 1994, 128). More specifically, these intermediaries carried out work dealing with poor peasants in the *latifundia* (large, landed estates), while the landlords lived in Palermo, Rome, Paris, or other European cities. While the Sicilian Mafia was born as a rural phenomenon and as an alternative to the state—a state within the state—the Neapolitan *Camorra*’s origins lay in the city of Naples (Allum 2006).

However, there also are important parallels between the *Mafioso* and the *Camorrista*. In both cases they are entrepreneurs who try to affirm their economic and political powers in the capitalist system. They exploit the gap between the local and national levels of government, controlling ‘paths linking the infrastructure of the village to the superstructure of the larger society’ (Block 1974, 7, quoted in Schneider and Schneider 2013, 9). Thanks to these relations, the Sicilian Mafia or the Neapolitan *Camorra* could affirm pre-eminent positions in the world drug system and in the illegal sector of the international economy (Arlacchi and Ryle 1986), succeeding in the illegal trafficking of waste (Saviano 2006). *Mafiosi* and *Camorristi* have devoted themselves to capital accumulation and innovation to create new productive combinations that allow for competitive advantages over other entrepreneurs. Having economic power allowed the Mafia to perpetuate control over the territory. Several criminal investigations have proved that industrialists, mainly from northern Italy, have employed the *Camorra* to dispose of their toxic waste (De Rosa 2017). Armiero (2019, 4) powerfully writes:

Toxic waste leaking into the aquifers, travelling across species (Armiero and Fava 2016), saturating the sky with pestilent smoke, penetrating into the cells

of human bodies (Iengo and Armiero 2017) is the invisible and yet so material ghost at the very root of the story.

Naples is where the second story of the Anthropocene takes place. The main character is Marco, a young Italian man in his early thirties. Marco was an environmental activist, and a history and philosophy high school teacher, born and bred in Naples. Marco was part of an environmental group and became a key informant while I was in Naples. One evening, after a group meeting, we went out to eat pizza. I ordered a margherita with local buffalo mozzarella and tomatoes. When I exclaimed how delicious it was, Marco added: 'Yes, and it's full of dioxin, Melania! Unfortunately,' he added, 'the illegal trafficking of toxic waste had inexorably affected the food chain'.

As happened in Ana's story, Marco and his friends tried to consume imported products and bottled water to avoid becoming 'a concentration of dioxin', as they told me. Local food and water were therefore imagined as poison and described as 'dioxin'. The results of this environmental disaster have been an increasing rise in cancer cases as well as in congenital anomalies (Martuzzi et al. 2009; Comba et al. 2006; Senior and Mazza 2004), despite the fact that the Campania region (of which Naples is the capital) has never been a major industrial area and its population is the youngest in the country. The consequences for its environment, livestock—many animals have also been dying because of cancer caused by high concentrations of dioxin—and population have been tragic. A doctor I interviewed and who worked at the Institute for Cancer Research told me: 'I am a concentration of dioxin. If we survive, the rest of the world will survive'. He also alluded to the fact that the Campania region had become 'a laboratory' for pharmaceutical companies to test out their medicines aimed to cure cancer. Research in anthropology has revealed specific biosocial mechanisms of how industrial waste, PCBs, and dioxins influence human health; chemicals have been connected to non-communicable diseases and conditions, such as obesity, cancers, diabetes, changes in the microbiome, and metabolic disease (Nading 2020). Despite the unveiling of these biosocial mechanisms, individual responsibility is often seen as the main cause of non-communicable diseases rather than looking at larger social and economic structural issues.

Local food products are supposed to trigger our symbolic representations of 'good, healthy, fair' food, connected with a place and a local production context. On the other hand, 'local' in this case study becomes a synonym of 'bad, unhealthy, unfair, unjust'. I remember the words of Luigi, another young man I met in Naples during my fieldwork. He told me that he carefully selected the food he was buying. He was only consuming foreign products, such as Spanish tomatoes. He said that this was the only possibility he had of avoiding becoming 'a concentration of dioxin'.

Luigi was a middle-class young professional and he could afford to buy imported goods. Yet, class distinction in Naples emerged as a new boundary created through food consumption: educated and affluent people could afford to buy more expensive, imported foods, but this was not the case with those from lower social classes.

Rachel Black writes that ‘what is rubbish and what is good to eat are often culturally determined’ (2009, 141), although she also argues that what is considered edible is also often shaped by economic circumstances. The situation of the Campania region is reminiscent of what has happened in other toxic wastelands; see, for example, Chernobyl. Phillips (2002), writing about food contamination following the nuclear disaster in Chernobyl, mentions that buyers could ask vendors to see their certificates and feel confident that they were buying ‘clean’ foods. In Chernobyl, residents limited their food intake and tried to consume food that had been canned or produced before the disaster. In Naples, on the other hand, people tried to buy food that came from other European countries. There was a need to develop consumption strategies to overcome the contamination of the territory, a place that had become alien and corrupted, as had the food on the table. It was in this context that the role of the state was negatively perceived by locals; citizens felt abandoned, while their health and wellbeing was affected by the corruption of entrepreneurs, politicians, and *Camorristi* implicated in illegal waste trafficking. As described in the introduction to this article, commercial and political determinants of health play a fundamental role when it comes to positive or negative health outcomes. I consider the activities of organised crime groups and their involvement in the illegal dumping of hazardous waste as a form of commercial determinants of health.

During my time in Naples, I managed to approach the representatives of different organisations. They explained to me that the waste emergency in the region had been going on for over thirty years. Furthermore, they also spoke of other southern regions and their contamination. For instance, the *N'drangheta* organised crime group in the Calabria region has made huge profits by receiving nuclear waste from a number of countries in Europe (Parini 2010; Liddick 2010; Herring et al. 2020).

Conclusion

As Sidney W. Mintz and Christine M. Du Bois put it, ‘Next to breathing, eating is perhaps the most essential of all human activities, and one with which much of social life is entwined’ (2002, 102). Nowadays there is an important public debate about food policy, food security, and biodiversity, as well as about dieting, physical activity, and health (Waxman 2004). This article tries to shed light on the

complexity of biosocial issues and processes surrounding wastelands, toxic legacies, and health inequalities.

In both stories, Ana, Marco, and their families and friends bought imported goods and bottled water (or, in Ana's case, soft drinks). Whether it was the illegal dumping of toxic waste by local organised crime or US corporations, or the unregulated contamination caused by *maquiladoras* on the border, a reflection that clearly emerges is that 'big business has placed humanity at the edge of a social and environmental abyss ... [submitting] communities to dependent, alienating and subordinate modes of living' (Breilh 2019, 42), deeply affecting life, work, and consumption patterns. Multinational food and beverage corporations also make a profit throughout this process of environmental poisoning, since their markets are able to expand thanks to local toxic food and water.

These ethnographic case studies are helpful to understand how 'simpler processes taking place in the individual, psychological, and biological (phenotypic and genotypic) realm are shaped (or subsumed) by more complex social processes' (idem, 33). Food and water cannot simply be expressed as social determinants; as we have seen, they become contested concepts too. 'We are what we eat' (Twiss 2007, 1) and drink, but what we eat and drink is metaphorically 'waste' in these two stories—whether because of environmental contamination or ugly corporations. Therefore, structural and systemic processes are connected to individual ones, entangling outsides and insides (Roberts 2017). Research has shown how the biological subsumption in the social (Levins and Lewontin 1985; Samaja 1993, 1996; Breilh 2019) is incarnated or expressed in forms of embodiment in individual bodies (Krieger 2011).

Ana and Marco's stories have also opened up an opportunity to think about the impact that commercial and political determinants of health can have on individuals' health and wellbeing, especially when thinking about the role played by multinational food and beverage corporations in feeding already uneven power relations and health inequalities. There are therefore different micro and macro layers of socioeconomic interactions that may influence free will and individual lifestyles.

Similarly, White highlights (2018, 73) that there has been a 'commodification of all types of human activity and human requirements (e.g., water, food, entertainment, recreation)'. Indeed, this has happened with large quantities of toxic waste, too; gangster capitalism, whether through organised crime or US corporations, has generated huge profits through waste disposal. This opens up new ways to think about the boundaries between licit and illicit economic flows and activities, and how they have been inextricably intertwined during late capitalism. White also adds that 'particular firms and companies create risks and problems and reap the

economic rewards from their activities. However, it is the public in general who suffer the health consequences (e.g., of air and water pollution, toxic landfill, loss of biodiversity, atmospheric changes)' (idem, 77).

When it comes to toxic waste in the Italian south, Armerio (2019, 15) defines it as 'environmental racism', recognising categories of 'subaltern identity' and 'colonial otherness' in the narratives of his informants. Discussing the work of sociologist Antonello Petrillo, he adds that 'the framing of Southern Italians as an inferior race is part of a historical path that since the unification of the country in 1861 has produced its own provincial orientalism' (idem, 16). This resonates with Jennie Gamlin's analysis of the impact of globalisation and neoliberalism in Ciudad Juárez on the US–Mexico border, where 'the continuity of North–South (coloniser vs colonised) relationality' (2022, 522) produces profound inequalities. As globalisation is enforced through 'violent borders' (Jones 2016), 'borders cut through the increasingly integrated world in a way that exposes the inside-outside logic of contemporary capitalism' (Turhan and Armiero 2019, 363). As the narratives of this article have shown, the flow of toxic waste through borders, both real (across countries like the US and Mexico) and imaginary (as in the case of Italy), magnifies the north–south divide. This divide is constructed through processes of racialisation (Rattansi 2005) and unequal classification systems of superiority and inferiority.

The Anthropocene, then, is a political and socioeconomic problem, fuelled by the global inequalities and injustices perpetrated by late capitalism, where 'food, energy, raw material and human life' can be defined as 'the Four Cheaps' (Moore 2016a, 11). The fact that they are so cheap means that they can be easily exploited and that they are not worthy of protection. Moore powerfully describes this by writing (2016b):

Capitalism was built on excluding most humans from Humanity – indigenous peoples, enslaved Africans, nearly all women, and even many white-skinned men (Slavs, Jews, the Irish). From the perspective of imperial administrators, merchants, planters, and conquistadores, these humans were not Human at all. They were regarded as part of Nature, along with trees and soils and rivers – and treated accordingly.

Therefore, analyses of the social determinants of health, like food and water, cannot be disentangled from political and commercial determinants of health (including illicit flows and activities of toxic waste). Saying that people do not have access to clean tap water or safe food is not enough; it ignores the causes of the causes, the obscured capitalist forces behind the social determination of health. Finally, Hecht (2018, 12) suggests that 'we must never forget that the violence associated with the Anthropocenic apotheosis of waste is not merely planetary – it

also has particular, differential manifestations', embodied in individual and structural biosocial processes. Going back to Ebron and Tsing (2017), the Anthropocene requires stories, like those of Ana and Marco, to unpack lived experiences, and these differential manifestations of health inequalities which are socially determined by the multidimensional power structure of the global economy. 'We need stories (and theories) that are just big enough to gather up the complexities and keep the edges open and greedy for surprising new and old connections' (Haraway 2015, 160)—showing how (il)legal capitalist forces (the commercial determinants of health of ugly corporations and organised crime) are subsumed into the undeserving and disposable bodies (Karim 2014; Bauman 2013) of those living at the margins.

Authorship statement

The article was conceived and written in its entirety by the author.

Ethics statement

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References

- Algieri, Bernardina, and Antonio Aquino. 2011. 'Key determinants of poverty risk in Italy'. *Rivista italiana degli economisti* 16 (3): 411–30. <https://doi.org/10.1427/35764>.
- Allum, Felia. 2006. 'Pentiti di Camorra'. In *Pentiti: I collaboratori di giustizia, le istituzioni, l'opinione pubblica*, edited by Alessandra Dino, 185–205. Roma: Donzelle Editore.
- Andrews, Geoff. 2008. *The Slow Food Story: Politics and Pleasure*. London: Pluto Press.
- Appadurai, Arjun, ed. 1988. *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge: Cambridge University Press.
- Arlacchi, Pino, and Martin H. Ryle. 1986. *Mafia Business: The Mafia Ethic and the Spirit of Capitalism*. London: Verso.
- Armiero, Marco. 2019. 'Of ghosts, waste, and the Anthropocene'. In *Urban Political Ecology in the Anthro-Obscene: Interruptions and Possibilities*, edited by Henrik Ernstson and Erik Swyngedouw, 184–202. Abingdon and New York, NY: Routledge.
- Armiero, Marco. 2021a. *Wasteocene: Stories from the Global Dump*. Cambridge: Cambridge University Press.
- Armiero, Marco. 2021b. 'The Case for the Wasteocene'. *Environmental History* 26 (3): 425–30. <https://doi.org/10.1093/envhis/emab014.003>.
- Armiero, Marco, and Anna Fava. 2016. 'Of Humans, Sheep, and Dioxin: A History of Contamination and Transformation in Acerra, Italy'. *Capitalism Nature Socialism* 27 (2): 67–82. <https://doi.org/10.1080/10455752.2016.1172812>.
- Baer, Hans A., Merrill Singer, and Ida Susser. 2003. *Medical Anthropology and the World System*. Westport, CT: Praeger Publishers.
- Banks, Debbie, Charlotte Davies, Justin Gosling, Julian Newman, Mary Rice, Jago Wadley, and Fionnuala Walravens. 2008. *Environmental Crime. A Threat to Our Future*. Cambridge: Environmental Investigation Agency.
- Bauman, Zygmunt. 2013. *Wasted Lives: Modernity and its Outcasts*. New York, NY: John Wiley & Sons.
- Bawa, Sa'eed. 2005. 'The Role of the Consumption of Beverages in the Obesity Epidemic'. *The Journal of the Royal Society for the Promotion of Health* 125 (3): 124–28. <https://doi.org/10.1177/146642400512500316>.
- Black, Rachel. 2009. 'Eating Garbage. Socially Marginal Food Provisioning Practices'. In *Consuming the Inedible. Neglected Dimensions of Food Choice*, edited by Jeremy MacClancy, Henry Jeya Kumar, and Helen M. Macbeth, 141–49. Oxford: Berghahn Books.
- Block, Alan A. 2002. 'Environmental Crime and Pollution: Wasteful Reflections'. *Social Justice* 29 (1/2 (87–88): 61–81. <http://www.jstor.org/stable/29768119>.

- Breilh, Jaime. 2019. 'Critical Epidemiology in Latin America: Roots, Philosophical and Methodological Ruptures'. In *Philosophical and Methodological Debates in Public Health*, edited by Jordi Vallverdú, Ángel Puyol González, and Anna Estany, 21–43. Amsterdam: Springer.
- Cahuana-Hurtado, Lucero, Sandra Sosa-Rubi, Luis Rubalcava-Peñafiel, Panagiota Panopoulou, Guadalupe Rodriguez-Oliveros, and Edson Servan-Mori. 2015. 'Understanding the Heterogeneous Nature of the Demand for Soft Drinks in Mexico: Why Social Determinants also Matter'. MPRA Paper No. 61274. National Institute of Public Health, Mexico.
https://mpra.ub.uni-muenchen.de/61274/1/MPRA_paper_61274.pdf.
- Capussotti, Enrica. 2010. 'Nordisti contro Sudisti: Internal Migration and Racism in Turin, Italy: 1950s and 1960s'. *Italian Culture* 28 (2): 121–38.
- Cass, Valerie. 1996. 'Toxic Tragedy: Illegal Hazardous Waste Dumping in Mexico'. In *Environmental Crime and Criminality: Theoretical and Practical Issues*, edited by Sally M. Edwards, Terry D. Edwards, and Charles B. Fields, 99–119. London: Routledge.
- Castro, Arachu, and Merrill Singer, eds. 2004. *Unhealthy Health Policy: A Critical Anthropological Examination*. Lanham, MD: AltaMira Press.
- Chan, Margaret. 2014. 'Opening Address by Dr Margaret Chan, Director-General, World Health Organization'. *Health Promotion International* 29 (suppl 1): i9–10.
<https://doi.org/10.1093/heapro/dau037>.
- Chua, Liana, and Hannah Fair. 2019. 'Anthropocene'. In *The Cambridge Encyclopaedia of Anthropology*, edited by Felix Stein. <http://doi.org/10.29164/19anthro>.
- Cirillo, Teresa, Viscardi, Viviana, Farina, Alfonso, Fasano, Evelina, Del Prete, Umberto and Cocchieri, Renata Amodio. 2008. 'Occurrence of polychlorobiphenyls in buffalo mozzarella cheese from Campania (Italy)'. *Journal of Preventive Medicine and Hygiene* 49 (4).
- Comba, Pietro, Fabrizio Bianchi, Lucia Fazzo, Lucia Martina, Massimo Menegozzo, Fabrizio Minichilli, Francesco Mitis et al. 2006. 'Cancer Mortality in an Area of Campania (Italy) Characterized by Multiple Toxic Dumping Sites'. *Annals of the New York Academy of Sciences* 1076 (1): 449–61.
<https://doi.org/10.1196/annals.1371.067>
- Dahlgren, Göran, and Margaret Whitehead. 2021. 'The Dahlgren-Whitehead Model of Health Determinants: 30 Years on and Still Chasing Rainbows'. *Public Health* 199: 20–4. <https://doi.org/10.1016/j.puhe.2021.08.009>
- De la O Martínez, Maria Eugenia. 2006. 'Geografía del Trabajo Femenino en las Maquiladoras de México'. *Papeles de Población* 12 (49): 91–126.
<https://scielo.org.mx/pdf/pp/v12n49/v12n49a5.pdf>.
- De la O Martínez, Maria Eugenia, and Alma Leticia Flores Ávila. 2012. 'Violencia, jóvenes y vulnerabilidad en la frontera noreste de México'. *Desacatos* (38): 11–28.

https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1607-050X2012000100002.

- De Rosa, Salvatore Paolo. 2017. *Reclaiming Territory. Knowledge generation and spatial practices of grassroots environmental movements in the waste conflicts of Campania, Italy*. PhD dissertation. Lund: Lund University.
- Douglas, Mary. 1966. *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo*. New York, NY: Routledge.
- Ebron, Paula, and Anna Tsing. 2017. 'Feminism and the Anthropocene: Assessing the Field through Recent Books'. *Feminist Studies* 43 (3): 658–83. <https://doi.org/10.1353/fem.2017.0023>.
- Falzon, Mark-Anthony, editor. 2016. *Multi-sited Ethnography: Theory, Praxis and Locality in Contemporary Research*. London: Routledge.
- Felice, Emanuele. 2011. 'Regional Value Added in Italy, 1891–2001, and the Foundation of a Long-term Picture'. *The Economic History Review* 64 (3): 929–50. <https://doi.org/10.1111/j.1468-0289.2010.00568.x>.
- Ferrante, Maria Carmela, Paola Di Vaio, Elisa Magli, Francesco Frecentese, Rosaria Meli, Giuseppe Caliendo, Angela Corvino et al. 2020. 'PCB Levels in Adipose Tissue of Dogs from Illegal Dumping Sites in Campania Region (Italy)'. *Chemosphere* 244: 1–9. <https://doi.org/10.1016/j.chemosphere.2019.125478>.
- Field, Rodger C. 1998. 'Risk and Justice: Capitalist Production and the Environment'. *Capitalism Nature Socialism* 8 (2): 69–94. <https://doi.org/10.1080/10455759709358736>.
- Freudenberg, Nicholas. 2014. *Lethal but Legal: Corporations, Consumption, and Protecting Public Health*. Oxford: Oxford University Press.
- Freudenberg, Nicholas, Kelley Lee, Kent Buse, Jeff Collin, Eric Crosbie, Sharon Friel, Daniel Eisenkraft Klein et al. 2021. 'Defining Priorities for Action and Research on the Commercial Determinants of Health: A Conceptual Review'. *American Journal of Public Health* 111 (12): 2202–11. <https://doi.org/10.2105/AJPH.2021.306491>.
- Gaber, Nadia. 2020. ' Issue 2, Airs, Waters, Places: Reading the Environment in Medical Anthropology'. *Medical Anthropology Quarterly, Reading the Archives Blog Series*. <https://medanthroquarterly.org/teaching/rta/issue-2-air-water-places-reading-the-environment-in-medical/>.
- Gamlin, Jennie. 2022. 'Coloniality and the Political Economy of Gender: Edgework in Juárez City'. *Urban Studies* 59 (3): 509–25. <https://doi.org/10.1177/00420980211003842>.
- García, Martha Elena, and Bermúdez, Guillermo. 2021. *Alimentamos con dudas disfrazadas de ciencia. Nutriendo conflictos de interés en México*. Ciudad de México: El Poder del Consumidor.
- Geissler, P. Wenzel, and Ruth J. Prince. 2020. "'Toxic Worldings": Introduction to Toxic Flows'. *Anthropology Today* 36 (6): 3–4. <https://doi.org/10.1111/1467-8322.12615>.

- Gledhill, John. 1994. *Power and Its Disguises: Anthropological Perspectives on Politics*. London: Pluto Press.
- Gregson, Nicky, and Mike Crang. 2017. 'Illicit Economies: Customary Illegality, Moral Economies and Circulation'. *Transactions of the Institute of British Geographers* 42 (2): 206–19. <https://doi.org/10.1111/tran.12158>.
- Haraway, Donna. 2015. 'Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin'. *Environmental Humanities* 6 (1): 159–65. <https://doi.org/10.1215/22011919-3615934>.
- Harvey, David. 1996. *Justice, Nature and the Geography of Distance*. Oxford: Blackwell.
- Hecht, Gabriele. 2018. 'Interscalar Vehicles for an African Anthropocene: On Waste, Temporality, and Violence'. *Cultural Anthropology* 33 (1): 109–41. <https://doi.org/10.14506/ca33.1.05>.
- Helstosky, Carol. 2004. *Garlic and Oil: Food and Politics in Italy*. Oxford: Berg.
- Herring, Eric, Latif Ismail, Tom B. Scott, and Jaap Velthuis. 2020. 'Nuclear Security and Somalia'. *Global Security: Health, Science and Policy* 5 (1): 1–16. <https://doi.org/10.1080/23779497.2020.1729220>.
- Hudson, Ray. 2014. 'Thinking Through the Relationships Between Legal and Illegal Activities and Economies: Spaces, Flows and Pathways'. *Journal of Economic Geography* 14: 775–95. <https://doi.org/10.1093/jeg/lbt017>.
- Iengo, Ilenia. 2022. 'Endometriosis and Environmental Violence: An Embodied, Situated Ecopolitics from the Land of Fires in Campania, Italy'. *Environmental Humanities* 14 (2): 341–60. <https://doi.org/10.1215/22011919-9712412>.
- Iovino, Serenella. 2009. 'Naples 2008, or, the Waste Land: Trash, Citizenship, and an Ethic of Narration'. *Neohelicon* 36 (2): 335–46. <https://doi.org/10.1007/s11059-009-0004-6>.
- Karim, Lamia. 2014. 'Disposable Bodies: Garment Factory Catastrophe and Feminist Practices in Bangladesh'. *Anthropology Now* 6 (1): 52–63. <https://doi.org/10.1080/19492901.2013.11728417>.
- Kickbusch, Iona. 2015. 'The Political Determinants of Health—10 Years On'. *British Medical Journal* 350:h81 <https://doi.org/10.1136/bmj.h81>.
- Kickbusch, Iona, Luke Allen, and Christian Franz. 2016. 'The Commercial Determinants of Health'. *The Lancet Global Health* 4 (12): e895–96. [https://doi.org/10.1016/S2214-109X\(16\)30217-0](https://doi.org/10.1016/S2214-109X(16)30217-0).
- Krieger, Nancy. 2011. *Epidemiology and the People's Health: Theory and Context*. New York, NY: Oxford University Press.
- Jackson, Michael. 2011. *Life Within Limits. Well-being in a World of Want*. New York, NY: Duke University Press.
- Johnson, Melissa A., and Emily D. Niemeyer. 2008. 'Ambivalent Landscapes: Environmental Justice in the US–Mexico Borderlands'. *Human Ecology* 36 (3): 371–82. <https://doi.org/10.1007/s10745-008-9171-8>.
- Jones, Reece. 2016. *Violent Borders: Refugees and the Right to Move*. London: Verso.

- Lancione, Michele. 2016. *Rethinking Life at the Margins*. New York, NY: Routledge.
- Legambiente. 2013. 'Ecco cifre, dati e numeri delle rotte dal Nord verso la Terra dei Fuochi'. *Quotidiano Magazine*, November 15, 2013. <http://magazine.quotidiano.net/ecquo/ufficiostampa/2013/11/15/ecco-cifre-dati-e-numeri-delle-rotte-dal-nord-verso-la-terra-dei-fuochi-domani-a-napoli-legambiente-nel-fiumeinpiena-per-archiviare-questa-triste-stagione/>.
- Levins, Richard, and Richard Lewontin. 1985. *The Dialectical Biologist*. Cambridge, MA: Harvard University Press.
- Liddick, Don. 2010. 'The Traffic in Garbage and Hazardous Wastes: An Overview'. *Trends in Organized Crime* 13 (2–3): 134–46. <https://doi.org/10.1007/s12117-009-9089-6>.
- Lock, Margaret, M. Austin Argentieri, and Alexandra E. Shields. 2021. 'The Contribution of Ethnography to Epigenomics Research: Toward a New Bio Ethnography for Addressing Health Disparities'. *Epigenomics* 13 (21): 1771–86. <https://doi.org/10.2217/epi-2020-0009>.
- Loue, Sana, ed. 1998. *Handbook of Immigrant Health*. Cleveland, OH: Springer.
- Lugo, Alejandro. 2008. *Fragmented Lives, Assembled Parts: Culture, Capitalism, and Conquest at the US–Mexico Border*. Austin, TX: University of Texas Press.
- Maes, Denise. 1987. 'Transboundary Waste Dumping: The United States and Mexico Take a Stand'. *Natural Resources Journal* 27 (4): 941–48.
- Maani, Nason, Jeff Collin, Sharon Friel, Anna B. Gilmore, Jim McCambridge, Lindsay Robertson, and Mark P. Petticrew. 2020. 'Bringing the Commercial Determinants of Health Out of the Shadows: A Review of How the Commercial Determinants are Represented in Conceptual Frameworks'. *European Journal of Public Health* 30 (4): 660–64. <https://doi.org/10.1093/eurpub/ckz197>.
- Malm, Andreas, and Alf Hornborg. 2014. 'The Geology of Mankind? A Critique of the Anthropocene Narrative'. *The Anthropocene Review* 1 (1): 62–9. <https://doi.org/10.1177/2053019613516291>.
- Marcus, George. 1995. 'Ethnography in/of the World System: The Emergence of Multi-sited Ethnography'. *Annual Review of Anthropology* 24: 95–117. <https://doi.org/10.1146/annurev.an.24.100195.000523>.
- Marmot, Michael, and Jessica J. Allen. 2014. 'Social Determinants of Health Equity'. *American Journal of Public Health* 104 (S4): S517–19. <https://doi.org/10.2105/AJPH.2014.302200>.
- Martuzzi, Marco, Francesco Mitis, Fabrizio Bianchi, Fabrizio Minichilli, Pietro Comba, and Lucia Fazzo. 2009. 'Cancer Mortality and Congenital Anomalies in a Region of Italy with Intense Environmental Pressure Due to Waste'. *Occupational and Environmental Medicine* 66 (11): 725–32. <https://doi.org/10.1136/oem.2008.044115>.

- Massari, Monica, and Paola Monzini. 2004. 'Dirty Businesses in Italy: a Case-study of Illegal Trafficking in Hazardous Waste'. *Global Crime* 6 (3–4): 285–304. <https://doi.org/10.1080/17440570500273416>.
- McHardy, Juliette. 2021. 'The WHO FCTC's Lessons for Addressing the Commercial Determinants of Health'. *Health Promotion International* 36 (S1): i39–i52. <https://doi.org/10.1093/heapro/daab143>.
- Millar, John S. 2013. 'The Corporate Determinants of Health: How Big Business Affects our Health, and the Need for Government Action!' *Canadian Journal of Public Health* 104 (4): e327–29. <https://doi.org/10.17269/cjph.104.3849>.
- Mintz, Sidney W., and Christine M. Du Bois. 2002. 'The Anthropology of Food and Eating'. *Annual Review of Anthropology* 31 (1): 99–119. <https://doi.org/10.1146/annurev.anthro.32.032702.131011>.
- Moore, Jason, ed. 2016a. *Anthropocene or Capitalocene? Nature, History and the Crisis of Capitalism*. Oakland, CA: PM Press.
- Moore, Jason. 2016b. 'The Rise of Cheap Nature'. In *Anthropocene or Capitalocene? Nature, History and the Crisis of Capitalism*, edited by Jason Moore, 78–115. Oakland, CA: PM Press.
- Nading, Alex M. 2020. 'Living in a Toxic World'. *Annual Review of Anthropology* 49 (1): 209–24. <https://doi.org/10.1146/annurev-anthro-010220-074557>.
- National Toxic Campaign Fund. 1991. *Border Trouble: Rivers in Peril*. Boston, MA: Routledge.
- Nguyen, Mihn. 2019. *Waste and Wealth: An Ethnography of Labor, Value, and Morality in a Vietnamese Recycling Economy*. Oxford: Oxford University Press.
- Osservatorio Nazionale Ambiente e Legalità di Legambiente. 2016. *Ecomafia 2016. Le storie e i numeri della criminalità ambientale in Italia*. Milan: Edizioni Ambiente.
- Owens, Janel E. and Emily D. Niemeyer. 2006. 'Analysis of Chemical Contamination Within a Canal in a Mexican Border Colonia'. *Environmental Pollution* 140 (3): 506–15. <https://doi.org/10.1016/j.envpol.2005.07.019>.
- Parini, Ercole Giap. 2010. 'The Strongest Mafia: N'drangheta Made in Calabria'. In *Italy Today, The Sick Man of Europe*, edited by Andrea Mammone and Giuseppe A Veltri, 193–204. London: Routledge.
- Pellow, David Naguib. 2007. *Resisting Global Toxics: Transnational Movements for Environmental Justice*. New York, NY: MIT Press.
- Phillips, Sarah Drue. 2002. 'Half-lives and Healthy Bodies: Discourses on Contaminated Food and Healing in Post-Chernobyl Ukraine'. *Food and Foodways* 10 (1–2): 27–53. <https://doi.org/10.1080/07409710212483>.
- Rattansi, Ali. 2005. 'The Uses of Racialization: The Time-spaces and Subject-objects of the Raced Body'. In *Racialization: Studies in Theory and Practice*, edited by Karim Murji and John Solomos, 271–302. Oxford: Oxford University Press.
- Reno, Josh O. 2014. 'Toward a New Theory of Waste: From "Matter out of Place" to Signs of Life'. *Theory, Culture & Society* 31 (6): 3–27.

- <https://doi.org/10.1177/0263276413500999>.
- Roberts, Elizabeth F.S. 2017. 'What Gets Inside: Violent Entanglements and Toxic Boundaries in Mexico City'. *Cultural Anthropology* 32 (4): 592–619. <https://doi.org/10.14506/ca32.4.07>.
- Ross, Gilbert. 2004. 'The Public Health Implications of Polychlorinated Biphenyls (PCBs) in the Environment'. *Ecotoxicology and Environmental Safety* 59 (3): 275–91. <https://doi.org/10.1016/j.ecoenv.2004.06.003>.
- Ruiz, Ramón Eduardo. 1998. *On the Rim of Mexico: Encounters of the Rich and Poor*. London: Routledge.
- Saha, Robin, and Paul Mohai. 2005. 'Historical Context and Hazardous Waste Facility Siting: Understanding Temporal Patterns in Michigan'. *Social Problems* 52 (4): 618–48. <https://doi.org/10.1525/sp.2005.52.4.618>.
- Said, Edward. W. 1985. 'Orientalism Reconsidered'. *Cultural Critique* 1: 89–107. <https://doi.org/10.1177/0306396885027002>.
- Samaja, Juan. 1993. *Epistemología y metodología: elementos para una teoría de la investigación científica*. Buenos Aires: Eudeba.
- Samaja, Juan. 1996. *Epistemología y metodología*. Buenos Aires: Eudeba.
- Saviano, Roberto. 2006. *Gomorra*. Milan: Edizioni Mondadori.
- Sayre, Nathan F. 2012. 'The Politics of the Anthropogenic'. *Annual Review of Anthropology* 41: 57–70. <https://doi.org/10.1146/annurev-anthro-092611-145846>.
- Schneider, Jane, ed. 2020. *Italy's 'Southern Question': Orientalism in One Country*. London: Routledge.
- Schneider, Jane, and Peter Schneider. 2013. *Culture and Political Economy in Western Sicily*. London: Elsevier.
- Seeberg, Jens, and Lotte Meinert. 2015. 'Can Epidemics Be Noncommunicable?' *Medicine Anthropology Theory* 2 (2): 54–71. <https://doi.org/10.17157/mat.2.2.171>.
- Senior, Kathryn, and Alfredo Mazza. 2004. 'Italian "Triangle of Death" Linked to Waste Crisis'. *The Lancet Oncology* 5 (9): 525–27. [https://doi.org/10.1016/S1470-2045\(04\)01561-X](https://doi.org/10.1016/S1470-2045(04)01561-X).
- Singer, Merrill, and Hans A. Baer, eds. 2008. *Killer Commodities: Public Health and the Corporate Production of Harm*. Lanham, MD: AltaMira Press.
- Singer, Merrill, Hans Baer, Debbi Long, and Alex Pavlotski. 2019. *Introducing Medical Anthropology: A Discipline in Action*. London: Rowman & Littlefield.
- Sonnino, Roberta. 2007. 'The Power of Place: Embeddedness and Local Food Systems in Italy and the UK'. *Anthropology of Food* (S2). <https://journals.openedition.org/aof/454>.
- Steffen, Will, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig. 2015. 'The Trajectory of the Anthropocene. The Great Acceleration'. *Anthropocene Review* 2 (1): 81–98. <https://doi.org/10.1177/2053019614564785>
- Strother Ratcliff, Kathryn S. 2017. *The Social Determinants of Health: Looking Upstream*. Cambridge: Polity Press.

- Susser, Ida. 2010. 'The Anthropologist as Social Critic: Working Toward a More Engaged Anthropology'. *Current Anthropology* 51 (S2): S227–33.
<https://doi.org/10.1086/653127>.
- Swinburn, Boyd A., Vivica I Kraak, Steven Allender, Vincent J Atkins, Phillip I Baker, Jessica R Bogard, Hannah Brinsden et al. 2019. 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission Report'. *The Lancet* 393 (10173): 791–846. [https://doi.org/10.1016/S0140-6736\(18\)32822-8](https://doi.org/10.1016/S0140-6736(18)32822-8).
- Turhan, Ethemcan, and Marco Armiero. 2019. 'Of (Not) Being Neighbors: Cities, Citizens and Climate Change in an Age of Migrations'. *Mobilities* 14 (3): 363–74.
<https://doi.org/10.1080/17450101.2019.1600913>.
- Twiss, Katheryn C. 2007. 'We Are What We Eat'. *The Archaeology of Food and Identity*, edited by Katheryn C. Twiss, 1–15.. Carbondale, IL: Center for Archaeological Investigations, Southern Illinois University Carbondale.
- Wallerstein, Immanuel. 1976. 'Semi-peripheral Countries and the Contemporary World Crisis'. *Theory and Society* 3 (4): 461–83. <https://doi.org/10.1007/BF00161293>.
- Waxman, Amalia. 2004. 'WHO Global Strategy on Diet, Physical Activity and Health'. *Food and Nutrition Bulletin* 25 (3): 292–302.
<https://doi.org/10.1177/156482650402500310>.
- White, Rob. 2010. 'Transnational Environmental Crime and Eco-Global criminology'. In *International Handbook of Criminology*, edited by Shlomo Giora Shoham, Paul Knepper, and Martin Kett, 231–58. New York, NY: Taylor and Francis.
- White, Rob. 2018. *Transnational Environmental Crime: Toward an Eco-global Criminology*. London: Routledge.
- Williams, David. 2010. 'Underworld, Underground, Underhistory: Towards a Counterhistory of Waste and Wastelands'. *Performance Research* 15 (4): 131–40. <https://doi.org/10.1080/13528165.2010.539895>.
- World Health Organization. 2021. 'Noncommunicable Diseases'.
<https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>.
- Zywert, Katharine, and Stephen Quilley, eds. 2020. *Health in the Anthropocene: Living Well on a Finite Planet*. Toronto: University of Toronto Press.