Land Use in Mesoamerica in the Colonial Period

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The transformations of Mesoamerican landscapes during the colonial period were heterogeneous across this region and of varying intensity during the three centuries of colonial rule. Documentary records exist of the consequences of new forms of land use and exploitation of landscape elements. For example, in 1550, the King of Spain received the report of Viceroy Antonio de Mendoza who was concerned about the extensive deforestation that sapped the mountains around Mexico City (Lira 1990). In contrast, the demographic cataclysm (Koch et al. 2019) suffered by the Indigenous peoples of the region resulted in the abandonment of large agricultural areas with the consequent increase in forest cover. This chapter summarizes the various consequences, factors, and actors that reconfigured the geographies of the region and produced environmental changes globally.

For this analysis, this chapter questioned the main consequences and transformations in land use resulting from the imposition of other ways of relating to nature. To begin answering this question, two lines of discussion are taken into account. The first focuses on the impacts and their origins regarding the colonial model as a turning point in Mesoamerican landscapes through three central factors: ownership, population patterns, and labor. The second examines the emergence of an extractivist spatial model and articulation linked to the new forms of relations with nature, that is, the imposition of dualistic ontologies and epistemologies, which underlie the production of these new land-use geographies. In this way, this chapter outlines some of the main axes by which colonial geography consolidated or, in other words, questions how transformations are densified through 300 years of colonial rule.

Despite the fact that these transformations are part of the long-lasting process by which the human species has profoundly impacted the environment, referred to by Crutzen (2002) as a new geological age – the Anthropocene – the perspective in this chapter seeks to expand this analysis by considering how the colonization of America gave access to resources and cheap labor that enabled the Industrial Revolution, originally considered as the beginning of this era (Lewis and Masli 2015; for a discussion on this in the case of Guatemala, Roda 2023). Based on Moore's proposal (2016), this chapter focuses on the reorganization of land uses as part of the assem-

bly of a planetary ecology where capital, power, and nature converge, as well as a cognitive and ontological organization based on nature/society dualism. This chapter argues that the transformations and reconfigurations of Mesoamerican land use geographies are the foundation of a singular and situated capitalist form. The Capitalocene in this region shows the characteristics of unique historical configurations that broaden the understanding of anthropogenic transformations by incorporating questions of differentiation/social stratification and exploitation that escape the original Anthropocene argument. Interweaving both approaches allows a better understanding of how new land-use geographies quickly impacted a complex and long civilizational project that is now considered Mesoamerica (Roda 2023).

Both the territorial extent and the study period make it necessary to synthesize, through a model, the impacts, factors, actors, and narratives that were variable, even contradictory, and complex. Therefore, this chapter focuses on the consequences of colonization in terms of the densification of landscapes' alterations through the arrival and consolidation of colonial power and on the new colonial narratives and worldviews around nature, evidencing at the same time the changes, concerns, tactics of colonial powers around the environmental havoc generated. Among the significant factors considered are the arrival and expansion of livestock, urbanization, forestry, mining, and road reorganization, as well as the change in land tenure and usufruct. Among the actors, this chapter highlights the metropolitan colonial and Creole or Novohispanic governments, landowners, settlers, and Indigenous and African populations, not forgetting the differentiation processes that already existed in Mesoamerica, crucial to understanding new land uses.

The chapter is divided into two sections. The first focuses on the Mesoamerican civilizational process that characterized specific forms of territorial organization and land use, and on which the colonial model prevailed. Thus, a synthetic examination is made of biocultural co-evolution that generated a diversity of landscapes impacted by this model. The second section, divided into two parts, focuses on land use transformations in the region from case studies. The first analyzes the changes in the forms of land ownership and labor imposed by the Spanish crown in relation to the demographic collapse of Indigenous peoples, new settling patterns, as well as the resistance among different sectors of the population to these new territorial organization models. The second part explores the extractivist model from which new geographies of production and geopolitical configurations emerged significantly transforming the region through the overexploitation of forests, soil erosion, monocultures, livestock, and spatial rearrangement around the extraction of landscape elements. The last section of the chapter discusses the land-use change environmental impacts and the colonial model of human-nature relations as part of the Anthropocene discussion and the origin of the Capitalocene in the region.

Mesoamerica: Imprints of the Future of a Region in the Long Term

In order to understand more precisely the dramatic impacts of Spanish colonialism, this chapter approaches, as its main antecedent, the socio-spatial configurations of the civilizational effort that unfolded in a complex way for around 10 thousand years (Withmore and Turner 1992; 2001). This clash, between multiple ways of constructing worlds and of material and biological contexts, referred to as the "microbial unification" of the world (Crosby 1972; Crosby 1976; Crosby 1988; Nun and Qian 2010; Koch et al. 2019), had profound consequences in ontological, epistemological, and material practices on landscapes (López Austin 1980; Crosby 1994).

First, what is meant by Mesoamerica must be defined. This term was first used by Kirchhoff (1943[2002]), to designate a complex cultural area that, due to its historical-cultural singularities, became a long civilizational process in which the flourishing and decay of its various peoples and cultures, deployed independently, but with contacts with each other, allowed the realization of a common cultural (ontological) substrate. Its unwavering core, as López Austin calls it, focused on milpa-maize, had as symbolic references and shared materials the cult of water (León Portilla 1992; Scarborough 2006), land, and religiosity (López Austin 1999), despite the cultural, historical, linguistic, and ecogeographic diversity (López Austin 2001; West and Augelli 1989).

These three symbolic and material references merge, in diversity, common places in Mesoamerican thought. Maize, a *Gramineae* native to this region, and its milpa agricultural complex, along with about 100 other domesticated plants, characterize Mesoamerica as one of the eight domestication areas of plants in the world (Vavilov 1994; González Jácome 2021). In the absence of mammals as a result of climatic changes and hunting during the Pleistocene (Barker 2006), the civilizational effort of the last 5,000 years focused on horticulture, with maize and the maize-bean-squash agronomic triad being the basis of farmers daily practice, their ways of sculpting their landscapes, and their gastronomy (González Jácome 2022). Around this agricultural complex Mesoamerican thought founded its origin myths and ways of organizing daily life (López Austin and López Luján 2001).

Because Mesoamerica is located in the northern limit of the intertropical strip on the continent, the random and irregular rain that sustained the milpa gave rise to ritual practices shared by its peoples. Mother Earth, the giver of life and fertilizer of maize seeds through the benefits of water, led these peoples to develop a polytheistic religious complex to seek their survival and social reproduction. This Mesoamerican biocultural framework allowed the development of complex societies with urban designs, irrigation, and sophisticated mathematical, astronomical, agronomical, and ecological knowledge systems, which translated in their population growth and geographic expansion (Knight 2002). Even though tensions, disputes, and hegemony existed, as is the case of the Mexica and Mayan empires before the impact of con-

quest and colonialism. When the encounter happened, an estimated 25 to 30 million people constituted the population fuse of this civilizational area, according to recent estimates (Koch et al. 2019: 53). By the number of inhabitants before 1519, Mesoamerica is recognized as one of the most populous regions of the world at the time, which corresponded to 40 percent of America's total population, estimated at about 60 million people (Koch et al. 2019: 17).

Land Use at the Time of Conquest

Whitmore and Turner (2001) studies, based on an exhaustive review of the sixteenth century *Relaciones Geográficas* in New Spain, show the great horticultural complexity of this dense and irregularly populated civilizational area, as the result of heterogeneous ways of inhabiting the region (see, for example, the discussion of the "Mayan collapse" during the Mesoamerican Classic, Diamond 2005; Turner 2010; Ford and Nigh 2022), but which, above all, demonstrate a low to medium impact in localized areas (Martín Gabaldón et al. 2021).

The above demographic estimates, together with those of land use, demonstrate that intensive but diversified use characterized much of their landscapes. Although such transformations, based primarily on human work accumulation (labortasking) rather than sophisticated technological implementation (technotasking) (Scarborough et al. 2019: 214–215), in the absence of metals and working animals, resulted in a complex network of agricultural and agroforestry systems that degraded land in specific locations. Thus, the impacts were not densified to consider them an extended and intensive imprint at the arrival of the Spanish. Therefore, it must be stated that this truncated civilizational process did not contribute significantly to the Anthropocene footprint that one sees today. Neither pristine nor wild lands, nor severe environmental degradation prevailed in the early sixteenth century, and this was the human footprint that the conquerors discovered.

Multiple pieces of evidence about the sophistication of these cultivated landscapes confirm the industrious sculpting of the highlands and lowlands of the region. The Mesoamerican space based on the milpa is shaped by sophisticated hydraulic and irrigation systems (Rojas Rabiela et al. 2009; Sandstrom 2019), such as terraced (Donkin, 1979) and promontory agriculture, both in the highlands (Rojas Rabiela 1995; Sanders 1957; Palerm 1973; West and Armillas 1950; Sluyter 1994), and in the tropical lowlands (Denevan 1970; Denevan 1982; Puleston 1978; Siemens 1983; Turner and Harrison 1983; Fisher 2005; Wilken 1987; Sluyter 1994), as well as rainfed or slash and burn agricultural systems (Sluyter 2021; Withmore and Turner 2001), agroforestry systems or forest gardens (Ford and Nigh 2015), and backyard or family gardens (Gonzalez Jácome 2021; Gómez Pompa et al. 1987; Killion 1992). A thousand-years shaping of landscapes that was far from an empty territory or "*Terra Nullius*" (Gómez Pompa and Kaus 1992; Denevan 1992), as it was described to justify its ap-

propriation, and that offered sustenance to the more than 25–30 million people at the time of the encounter. In Mesoamerica, the pre-conquest use of 1.1 hectares *per capita* is calculated (Koch et al. 2019: 18–20), indicating that an estimated 35–40 million hectares were used intensively in agricultural systems (i.e. 35–40 percent of the area of Mesoamerica). However, unlike what would happen after the conquest, the use of this area was based on diversity, as noted above.

Land-use Actors and Transformation Factors

Land, Property, and Labor: Setting and Implementing Crown Policies

This analysis of land use changes during the colonial period draws from two interwoven processes, the "disarticulation and territorial rearticulation" (López Núñez 2009) and the "expansion rings" (Von Wobeser 1980), through which new models of land ownership and use were imposed throughout the region. This new structure was based not only on land grabbing and wealth sharing, but also on the reorganization of population patterns and forms of social control associated with the territorialization of the state. The land-property-work nexus is critical to understanding the environmental impacts and exploitation substrate that initiates a new era in the region. This historical process is a fundamental part of life's transformation on the planet, at the time that capitalism as a system-world commence (Knight 2022; Moore 2003; Wallerstein 2016; Wallerstein 2017), clearing the way for modernity's geographical expansion and environmental changes (such as carbon levels in the atmosphere, Koch et al. 2019) that led to a new anthropogenic era.

Although the result of this long process stretching over three centuries can be generalized today in terms of large productive units formation: the haciendas, and to a lesser extent, the ranchero model of small ownership, which responded to new logics of supply/accumulation (which we analyze in the next section) and of population (urbanization and territorial segregation), it is necessary to consider the multiplicity and diversity of processes and actors that participated. That is why several authors (Assies 2008; López Núñez 2009) mention differentiated patterns, or "agrarian mosaics," which derive from the trajectories and characteristics of each region and its population. In the case of what is now Honduras, the demographic collapse meant that there was almost no local labor to undertake activities such as mining (Gómez 1999).

Regarding the impact of the Spaniards arrival on the landscapes, evidenced in soil erosion, deforestation (as in the Mixteca, Oaxaca), the Mezquital area (Roa López 2022) and Veracruz (Barrera-Bassols 1994) associated with livestock), and droughts or changes in water culture (Enfield and O'Hara 1999, for the case of Michoacán), one

must consider, in parallel, the differentiated regeneration of vegetation in previously occupied areas between the sixteenth and seventeenth centuries.

Thus, the most significant imprint on land use changes of the first two centuries was due to the concomitant depopulation-regeneration-appropriation process. The first and most dramatic was the demographic collapse of native inhabitants, shortly after conquerors and settlers' arrival. This demographic phenomenon, originated by the conquest wars and slavery, intensified with the arrival of disease-causing microbes unknown to the original inhabitants (the "microbial unification of the world," Crosby 1991), due to their relative geographical isolation, among other factors, or what Crosby (1976) calls "*virgin soils*." Since the arrival of Hernán Cortes in Veracruz and during the next 80–100 years, a wave of epidemics dramatically hit the 25–30 million Mesoamerican inhabitants, decimating their population by up to 90 percent (Koch et al. 2019: 15; Lovell 2020: 9–12, 15–17; Zamora 1982; Smith 2017). It is estimated that, by the mid-seventeenth century, only about 2.5-3 million people resided in the region, including a very small number in the Central American isthmus (Koch et al. 2019: 21). The case of the populations of what now constitutes Honduras is representative, the author mentions the community of Naco that went from 10,000 inhabitants to only ten before the end of the sixteenth century (Gómez 1999). This demographic decline constituted 10 percent of the total world population at that time (Koch et al. 2019: 21). This "human emptying" is considered the most serious holocaust in human history (Stannard 1992; Lovell 2020; Smith 2017).

Secondly, the disarticulation-articulation process, proposed in the context of Michoacán, México, by López Núñez (2009) but replicated in different areas of Mesoamerica, as shown in the cases discussed here, allows an understanding of the relationship between population decline and land seizing from the implementation of encomiendas as a form of taxation and acquisition of labor (Eastmond 1998), to the establishment of haciendas as a *summum* of seizing and economic reorganization of the landscape (García Targa 2006). In this sense, changes in land use were supported by new commercial and supply needs for local populations and the extraction economy. Thus, there was a shift from encomiendas, which settlers did not own, to the repartimiento as wage labor imposed for controlling and, ironically, caring for an Indigenous population subjected to exploitation, disease, and war (Assies 2008).

However, the fundamental change was land titling through *mercedes*, compositions or sales through which legal property was given to settlers and Indigenous chieftains. This meant the legalization of the territory's occupation by the state. After 200 years, this land grab (González Dávila 1999), although it granted some security to the Indigenous peoples, resulted in more than half of the agricultural and pastoral lands of the viceroyalty being given to Novo-Hispanic owners, who obtained full legal recognition of these properties. All this contrasts with the un-

certainty around the possession of lands in the hands of Indigenous peoples or republics (Assies 2008: 34–37; Von Wobeser 1980).

The new territorial structure based on property, which aimed at the production of surpluses to be sold and supply the extractive economy, enforced on the landscapes a series of productive units that broke with previous forms of organization. This atomization, as López Núñez (2009) proposes, was based on agricultural and livestock properties of different kinds that divided the landscape into, for example, caballerías with an area of 43 ha., and "*suerte de tierra*" of 10.7 ha., for the former, and "*estancias de ganado mayor*" of 1756 ha. and "*menor*" of 780 ha, for the latter. Even so, the seizing and change of land tenure throughout the sixteenth and seventeenth centuries is linked to new patterns of settlement, congregation, or resettlement, which aimed at greater control over population and labor. Thus, "*espacios ociosos*" (idle spaces), which resulted from population concentration and demographic debacle, were the first to be appropriated by settlers to extend their control over the territory and move forward with the change in land use patterns (Enfield and O'Hara 1999; López Núñez 2009). Von Wobeser (1980), on a regional scale, suggests a similar chronology of disarticulation, expansion, and consolidation, but shows how this process took place in the form of concentric circles starting in the new Spanish villas. Thus, beginning in Mexico City, it spread northward with the expansion of its productive borders to the tropical coasts or lowlands, mainly in the Gulf of Mexico and on the Pacific coasts southward to Oaxaca, Chiapas, and Guatemala and, finally, southeastward in the Yucatan Peninsula.

The land grab was made in parallel with the territorialization of state control over Indigenous populations, based on segregation through two ways of governing the colony. The creation of the spatially and economically separated republics of Spaniards and republics of Indians, which underpinned cultural and territorial segregation, was all for the benefit of the needs and interests of the crown and the viceroyal government (Levaggi 2001). These internal borders allowed the territorial control, through varied and changing jurisdictional rules, to make tribute efficient, tithing for the church, in addition to the control and usufruct of Indigenous labor and political control of subjugated populations. A new geopolitical and geoeconomic configuration, founded on the constitution of these two republics reorganizing the colonial space, was based on a new urban layout and norms of usufruct of their surrounding lands to sustain the Novohispanic economy (Díaz Serrano 2021).

Thus, the Indian republics were the bastion (although diminished) of Indigenous resistance throughout the 300 years of the colonial period (Suñe and Gómez 1986; De Rojas 2011: 195–210). Nevertheless, granting economic and political benefits, as well as usufruct of the land to the Indigenous nobility increased the conflicts between them and the Indigenous-peasant population, in addition to those struggles with the church, the Novo-Hispanic landlords and, to a lesser extent and very localized, with the Black and mulatto populations. In this context, despite everything,

the tradition of human labor (labortasking), remained current, although frankly diminished, and the ways of land use and uses, according to their own and diverse community traditions.

On the other hand, the republics of Spaniards benefited legally by the viceroyalty and by the crown, and responded to the idiosyncrasies of the empire, its conquerors, and settlers, in addition to those of the peninsular Creoles. Its normative logic reproduced Iberian culture based on power, superiority, and colonial frames. Power and the concentration of conquered land constituted the hegemonic basis for the new usufructs of the land, dominated by the need to own, control, and reproduce the Iberian ways of living. From the latter comes the mono-specialization of land uses, their technologization, and a necessary form of expropriation of conquered land assets. It can be argued that the extractivist (technotasking) and statist mentality motivated this rationality in the socioecological reconfiguration of New Spain during the 300 years of colonialism.

Thus, faced with the demographic emptying of the original population in New Spain during the first 60–100 years of colonialism, it was possible to deploy an economy for local supplying and the appropriation of land now in the hands of conquerors and settlers, based on the expropriation of cheap labor. The sudden absence of original labor meant, in principle, agricultural and food production systems breakdown, maintained for centuries because of human labor (labortasking), with consequent environmental degradation processes in specific locations, especially where agricultural systems required labor intensive work (Fisher 2005). This prompted a second historic event, the arrival of slave labor from Africa.

The colonial authorities of New Spain, faced with the demographic holocaust, promoted with the Spanish crown the arrival of slave hands from Africa. Between 1532 and 1640, New Spain was the main importer of African slave labor on the continent. Between 150 and 200 thousand Black slaves arrived in this colony, mainly from West Africa (Castañeda García 2021; Lovejoy 2000; Palmer 1976; Palmer 1993; Palmer 2005). The arrival of these slaves occurred due to the boom in the mining production of silver and gold for the benefit of the Spanish crown, the need to strengthen the public and domestic work in the New Spain cities and, to a lesser extent, although important, in the production of sugar cane and other plantations, including livestock (Montiel 2005). This also inaugurates a new era in which work becomes cheaper and, as will be shown in the next section, nature also becomes cheaper (Moore 2022: 6).

It is also necessary to mention the influx of people from the Philippines who settled in Colima and Guerrero, who played an important role in the trade routes with Asia through the Manila Galleon docking off the coast of Colima and, in terms of land use, in the introduction of coconut palm and coconut distillate, whose plants spread along the Pacific coast. It was not only the introduction of this plant alien to

the Mesoamerican ecosystems, but the knowledge and uses of coconut that to this day are present in the material culture of the region (Machuca 2012).

All the above mentioned would cause, during the three hundred years of the colonial period, a complex network of disputes over land and its uses. However, these tensions worsened at the end of the colonial period in the eighteenth and early nineteenth centuries when the Indigenous population was restored, albeit timidly, and the general population increased in the region. This is also when the hacienda model consolidated. One case is the example of Lake Cuitzeo Basin region in Michoacán, which López Núñez (2009) examines in detail regarding changes in land use reorganization from the sixteenth to the eighteenth century. Her analysis shows how the phase of disarticulation allowed the settlers to take over the area in less than a century and that by the eighteenth century, a new territorial articulation based on the prevalence of three large spatial organizations prevailed: the hacienda, the *pueblos de indios*, and the city. The birth of the hacienda is due to the decline of the population, the new patterns of population (congregations), and the consolidation of property titles that allowed to expand the seized territory, a process in which the church had a significant role in the region and in other parts of Mesoamerica.

In addition to new ownership patterns for agriculture and livestock, the supply economy rearticulated the territories and land uses through new population patterns. Conjointly with the congregations, urbanism served as a tool of power that allowed the deepening of land grab, with the increase in demand for inputs and the concentration of labor, while rearticulating symbolic spaces and imposing new spatial hierarchies. For example, in the case of the Mayan region, García Targa (2006), shows that the foundation of villas, although with many difficulties, formed a pattern of complete settlement with smaller towns and Indigenous villages. This reorganization not only sought to control a population originally organized in scattered patterns, but the objective of the new grids or layouts of the settlements was subjecting the Indigenous to surveillance, imposing new religious and governing patterns. This social and territorial control imposed "new spatial references, [and a] new architectural and visual hierarchy within the settlements" (García Targa 2006: 295). This "struggle against the ancestral" (García Targa 2006: 301) established a new order based on the centralized and reticular layout, a different view of townships that was also evident in the relation with the environment, particularly water.

The most significant example of this ontological difference is the drying process in Mexico City, coupled with the rapid deforestation of the surrounding mountains (Lira 1990). As Montero Rosado et al. (2022) explain, the transformation of the basin hydraulic cycle from the seventeenth century responds to a perception in which the environment is intervened to meet civilizational needs and not an adaptation to existing conditions.

Resistance and Rebellions in the 300 Years of Colonialism in New Spain

As mentioned, the Indigenous population, Afro-descendant people, and other marginalized groups within the racialized structure of the colony were diminished and subjected to a substantial impact on their social fabrics. Even so, multiple and varied resistances were deployed in their territories facing colonial imposition. This not only explains the permanence of cultural and socio-political forms today in Mesoamerica, but the strength with which these resistances and creative pursuits persist today. The purpose is not to highlight the resistance of Indigenous, Afro-descendants, mulattos, mestizos, and Creoles deployed during the 300 years of Novohispanic colonialism but to record that these countercultural manifestations were intense in density and proclamations. Above all, this resulted in the persistence and hybridization of ways of living and using landscapes that were opposed to the disarticulation-articulation-seizing models examined above. The continuity of this "profound" Mesoamerica (Bonfil 1996) also occurred through hidden discourse (Scott 2000) in everyday life, through linguistic, gesture, and practical manifestations that maintained opposition to Spanish rule.

In this sense, these resistances led to various forms of ethnogenesis through multiple processes of cultural – and biological – hybridization as the original populations had a more detailed knowledge of the enemy, its ways of living, controlling, exercising repression, and administering. In this way, *mestizajes* with very different features of resistance were materialized to resist or negotiate (Boccara 2002: 47–82; Pérez Gerardo 2021). Learning the Castilian language, the use of European weapons, riding of horses, and the knowledge about the monotheistic religion and the military strategies of the viceroyalty gave subjugated populations new skills and attitudes, which amalgamated cultural elements alien to their own ways of looking at their worlds. This was a multifarious mestizaje in radical resistance or negotiation, for alliances and understanding, in search of agreement or autonomy. These forms of resistance, which were called "rebellions" by the colonial government to reinforce the imagination of savages without political project, were deployed in the various regions of Mesoamerica and on the northern borders of New Spain.

For example, on the northern border of the viceroyalty, the political struggles were emblematic as evidenced by the wars of the Tepehuans who faced colonial vassalage. Through a millennialist political sense, the population struggled against Catholic missionaries' subjection – particularly Jesuits, but also Franciscans – in a context where religious claims were intertwined with a rejection of forms of plunder and oppression carried out through slavery and the reduction of ancestral territories (Giudicelli 2002:105-138; Giudicelli 2005). Such ample spaces existed where resistance by nomadic and semi-nomadic peoples violently plagued the colonial incursion (Amaya Palacios et al. 2016). The war of the Mixton with the presence of emblematic leaders and their proclamations added to the so-called Chichimeca War in the New Galicia and the New Biscay territories (Barral 1992: 89–106; Hernán-

dez Barrón 2021). Both bloody and violently appeased by the viceroyalty. These signify the new mestizajes or ethnogenesis of its proclaimers, and rather than ethnic struggles developed as a complex of alliances between various oppressed communities and people. The same happened since the seventeenth century in the tropical Huasteca region, in the Gulf of Mexico (Olvera Charles 2016; Escobar Ohmstede 2023). Meanwhile, within the Novo-Hispanic borders, the struggles against lands and territories plundering manifested itself through the safeguarding of ancestral properties through negotiations (Castro 1996). To give an account of these resistances – some sublime and others manifest – some twenty-five Indigenous rebellions are recognized in Guatemala between the sixteenth and eighteenth centuries (Aguja 1976; González 1994; Macleod 1991; Zamora 1982; Zamora 1986: 197–214); and the same is true in Nicaragua and Costa Rica (Guido Martínez 2019; Solorzano Fonseca 1996; Ibarra Rojas 1991). This is also the case in the Mayan area of Chiapas and the Yucatec peninsula and in the present state of Oaxaca (Ruz 1992; Vos 1994; García de León 1997; Esponda Jimeno 1992; Barral 1992: 179–188; López Bárcena 2007).

On the other hand, the resistances and rebellions of Africans who had recently been forcibly relocated in New Spain, from 1528 until 1640 (Reynoso 2005; Velázquez Gutiérrez 2021: 48–60), were the result of oppressive forms of slavery on sugar cane plantations (Naveda 1987; Von Wobeser 1983; Mota Sánchez 2001; Valdepeña 2020), on livestock farms (Sluyter 2004; Barrera-Bassols 1995; Barrera-Bassols 1996), in mining enclaves (Navarrete Gómez 2021), on construction sites, and at the domestic level on haciendas, and in cities (Aguirre Beltrán 1972; Martínez Montiel 2005; Viqueira y Urquiola 1990; Velázquez 2011; Masferrer 2011; Guevara 2011). The escape from these bloody situations, through Maroonism, uprisings, and rebellions, advanced forms of autonomous political leadership (Martínez Montiel 1992; Reynoso Medina 2005; Ngou-Mve 1994). An account of these harrowing life experiences is given by Bernand (2002: 83–84), through which various forms of resistance and fighting are clearly evident.

This scenario was crucial when the Bourbon reforms of the Spanish crown were promulgated in 1776, envisioned to tackle the decline of the Spanish economy, promoted by the wars with England and with Europe, causing a series of changes in the colonial economies following a liberal approach, which were resisted locally (Rocha Aponte 2011). The deepening economic and social crisis due to Bourbon reforms, translated into conditions of poverty among Indigenous people and castes and their consequent indebtedness and loss of lands (Humboldt 1953; Villoro 1986; Cue Cánovas 2007; Miranda Juárez 2009) was linked to the significant population growth during this period. Between 1742 and 1810, that is, in sixty-eight years, the estimated population in New Spain went from 3.3 million to 6.1 million people, doubling its number in less than a century (Brading 1971).

The varied discomfort of a more culturally diverse Novohispanic society, resulting from mestizaje and the emergence of a growing section of its society, namely the Creole persons, gave rise to a growing pro-independence thinking, whose ideology, Creoleism, founded the idea of a republic for Spaniards born in New Spain and their superiority to the rest of the Novohispanic population. This was a period of renewed resistance and rebellion that would come to favor the advent of independent Mexico. During these years, the provinces of Mexico and Oaxaca alone accounted for more than 120 riots, street attacks, and local demonstrations of discontent, allowing Indigenous people to reaffirm their ability to negotiate with the various colonial officials (Ruíz Medrano 2021: 47; Van Young 1992; Van Young 2006).

The implementation of new ownership regimes and population patterns were the pillars of land uses transformation in Mesoamerica, a reconfiguration that benefited the minority of settlers. This section has shown that the mutually constitutive process of disarticulation-articulation was a generalized pattern, albeit with exceptions, that occurred in the central zone from east to west of Mesoamerica, where the most fertile lands and depletion zones were accumulated and which are now categorized as the areas of greatest environmental impact (González-Abraham 2015). The processes outlined here are believed to denote the move towards a land-use organization model that favored accumulation, surpluses, and territorial reorganization based on land ownership and seizing through the dispossession of Indigenous peoples. Thus, in Mesoamerica, the Capitalocene meant an economic reorganization of the landscape, which goes hand in hand with territorial control and without which it would not have taken place. The continuous process of formation of the state, of its territorialization that manifested itself in social and racial centralization and hierarchization, is therefore definitive in the Anthropocene. With the reconfiguration of landscapes, this chapter now looks at the second pillar that underpinned geography's reorganization in this region, the extractivist model, and its systemic and incremental impacts on the process of globalization of the human footprint.

New Productive Geographies: the Extractive Model and New Spatial Configurations

The new land use patterns were based on an organizational model that favored productive enclaves (such as mines, haciendas, and plantations) and economic integration through roads that connected different nodes for supply and commercialization. The rationale behind this land use model was extractivism, that is, the exploitation of landscape elements as commodities for export. This geopolitical and geoeconomic configuration was important so that, towards the end of the eighteenth century, New Spain, with its more than 6 million inhabitants, was Spain's richest colony, granting more than half of the wealth obtained by the Spanish crown of its vast world empire, that is, two thirds of its net income (Brading 1975; Klein 1984). Just

one example, towards the beginning of the nineteenth century, in New Spain silver production accounted for two thirds on a global level (García Guinera 2015).

Thus, the original accumulation process that sustained the colonial economy, with its vicissitudes, throughout the 300 years of the Novohispanic viceroyalty was founded on the implementation of this extractive model. From the disarticulation-articulation process, with changes in land tenure and seizing, this model could be extended with heterogeneous results due to the biocultural diversity of Mesoamerica. In this sense, three aspects are proposed that are key to understanding the shape of new land use patterns: roads and cities, productive enclaves, and dispersed extractive activities. Regarding enclaves, the focus is on haciendas, plantations, and mining, while we place special emphasis on livestock for its role in consolidating extensive haciendas, but also for being one of the biggest, if not the largest, causes of land use patterns changes.

Urban-Rural Rearticulation: Roads and Cities in the Web of New Land Uses

In this reorganization of land uses, the adaptation and expansion of communication routes, superimposed on the networks of Mesoamerican roads, privileging now the articulation between the political center of New Spain – Mexico City – other cities, the mining, agricultural, and livestock enclaves, and the ports of Veracruz, Acapulco, and Campeche, was crucial in exporting goods extracted from the new colonial borders. Nevertheless, territorial expansion was consolidated through stages of appropriation in small and medium properties (ranches) and large haciendas (Von Wobeser 1989). Domestic supply was fundamental to support the extractivist model and the different demographic and economic crises that hit the colony.

The relevance of roads in the conquest of Mesoamerica peoples is evident in the campaign to control the Petén region, in the late seventeenth century that sought to connect the Yucatán region with the Audiencia de Guatemala. As presented in Arias' analysis (2012), it is necessary to denote the different conception of roads by Mayan people, linked to their worldview and structured in terms of their spatiality comprised in the four horizontal headings of the world. Thus, the hierarchy of paths linked to ritualism shows the "symbolic polysemy" that characterized them (Arias 2012: 205). Instead, Spanish roads were imposed not only to connect the aforementioned regions but to "increase trade between both sites and pacify the mountains" as well as break with Mayan territorial and political organization (Arias 2012: 213–215). The roads, which were constructed differently due to the increased traffic and the use of draft animals, were established following supply points (ranches and *estancias*) as nodes and the Royal Road as a structuring axis. The idea of the road reiterates the distinct ways of understanding the environment discussed here and reiterates how Petén remained an illegible space for colonizers, for whom the roads connected empty spaces.

Following the processes of disarticulation-articulation and concentric expansion, one can understand the changes in the valleys of Mexico and Matlatzinco (present-day Mexico State and Mexico City) and Puebla-Tlaxcala valleys and plains. In both regions, the main cities, Mexico City and Puebla, served as nodes within a pattern that reorganized the occupation of urban-rural lands, although the second had a significant role as a bridge in the interoceanic exchange between the port of Veracruz and Mexico City. Following processes similar to those described in eastern Mesoamerica (López Núñez 2009), in the valley of Mexico between 1570 and 1620, seventy-five royal mercedes were awarded, of which 77 percent corresponded to Spaniards, 16 percent to Indigenous nobles, and only 6 percent to Indigenous communities. In the same years, in the valleys of Puebla and Tlaxcala, the rapid occupation of land between 1570 and 1620 was manifested by the sixty royal mercedes granted both in the highlands and in the low and warm lands (Von Wobeser 1989). The former produced cereals such as wheat, maize, and other grains, as well as for livestock farming of various size. The latter produced sugar cane as was the case with Izúcar de Matamoros, south of this enclave (Prem 1978; Prem 1992; Thomson 1978; Tutino 1976; Chance 2003; Dyckerhoff 1990; Gerhard 1993; Howkstra 1993; Martínez 1994; Gibson 1991; Chevalier 1952; Von Wobeser 1983; Von Wobeser 1987; De la Torre 2013).

Thus, a largely dual agricultural occupation pattern was established, i.e. agriculture in Indigenous communities focused on self-sustaining and local market production and agricultural lands occupied by the Iberians were directed to the colonial and interoceanic market. In the case of the viceroyalty center area, that is, the valleys of Mexico and Toluca, Gibson (1964) concludes that the usurpation of the land had the greatest consequences for that society, due to its aggregate character and concomitant with the demographic and cultural impacts derived from the pandemics, since the land represented a way of exploitation for the Spaniards when the tribute and labor decreased. So, by the mid-seventeenth century, two-thirds of the agricultural land in the valley of Mexico belonged to the landowners.

Examples of this region are the Villanueva family (Barrera Gutiérrez, 2017); the Marquesado de Cortés with an area of 11.5 thousand square kilometers and properties scattered discontinuously in the valleys of Mexico, Toluca, Veracruz, Oaxaca, Morelos, Michoacán, and other regions of central New Spain (García Martínez 1969; García Martínez and Ortiz Días 2022; Jarquín Ortega 1994); and the Hacienda Santa Lucia, administered by the Jesuits from 1576 to 1767, which was constituted as a large farm composed of eight haciendas and already by 1739 had two *estancias de ganado mayor*, 178 sites of *estancias de ganado menor* and 170 *caballerías*, occupying an area of 150,000 hectares (Riley 1973; Konrad 1980; Von Wobeser 1989: 60).

Mining and Forestry

Mining enclaves were one of the main nodes in the reconfiguration of land use in Mesoamerica. They not only disrupted and rearticulated the uses of land adjacent to mines but also generated interregional changes, promoting the intensification and densification of modifications, becoming one of the most important agents of biomass consumption (Studnicki-Gizbert and Schecter 2010) and, therefore, of landscape transformation.

Undoubtedly, one of the most important factors in the extraordinary economic growth of New Spain was mining (Klein 1984). Despite this, agriculture and manufacturing, mainly dedicated to domestic supply, were economic triggers for the livelihood of the Novohispanic population from the seventeenth century. Humboldt notes that the annual volume of agricultural production (approximately 29 million pesos) was higher than mining (23 million pesos). Agriculture, which provided work and food to the majority of the local population, was responsible for most of the viceregal product oriented towards the domestic market, except for the export to Europe of commercial dyes, sugar, cotton, seasonings, and species, which accounted for 20 percent of total exports. While mining – gold and silver – was mainly export-oriented, it accounted for up to 80 percent of the total value of exports in peacetime, or, together with other precious metals, two-thirds of world production (Klein 1984).

In this significant relationship between supplying and commercializing, mines played a significant role in the reorganization of intra- and interregional spaces (Brading 1975; Barrera de la Torre 2013; Sánchez-Crispín 1994). Although mining began in the first decades of colonization (Richard 2003), for example, around Mexico City, Guadalajara, Michoacán, and then in Zacatecas, the significant increase in exploitation occurred in the northern areas, i.e. outside Mesoamerica and in the eighteenth century. However, the continuous increase in mining activity in the north resulted in the intensification of multiple activities in Mesoamerica. For example, supplying food and livestock products connected the Bajío area with northern farms such as Zacatecas or Real de Catorce (Gómez Murillo 2020). Mining enclaves had three main consequences in terms of land use and environmental impacts. The first was the reorganization of land use around mining centers in terms of population through congregations and urban tracing (Covarrubias 2019; Blackwell 1976; Brading 1975), as well as the establishment of agricultural, livestock, and *haciendas de beneficio* (smelter). The second was the intensification of supply chains from distant production centers that used roads networks, such as the Camino a Tierra Adentro, hence these enclaves were not isolated "but formed networks of complementary socioeconomic relations, coupled with a relative productive specialization that was integrated through inter- and intraregional exchanges" (Barrera de la Torre 2013: 119).

Finally, one of the most significant landscape transformations due to mining was deforestation. It is considered that between 1558 and 1804, 315,642 km² were

deforested for silver mining. However, it was during the seventeenth century, the most important in volume and intensity, that 70 percent of this area (223,765 km²) was cleared (Studnicki-Gizbert and Schecter 2010). These areas close to mining complexes should include land clearing for coal extraction for daily use by the populations and other activities not directly associated with mining, which have been calculated in an area of 76,000 km² (Studnicki-Gizbert and Schecter 2010). The calculation is higher if we associate other types of mining such as copper, which focused on the current state of Michoacán, which increased the population of smaller livestock in the forests, as well as extensive logging (Covarrubias 2019). However, it is important to consider that such deforestation was selective, that is, defined by factors such as proximity to mines and its impact depended on the characteristics of each place (Barrera de la Torre y De la Torre Villalpando 2022). In addition to deforestation, soil contamination has been reported in the surrounding mining areas that have rendered them barren (Avalos-Lozano and Aguilar-Robledo 2017), and air pollution caused by the dissipation of mercury used in the amalgamation process has been calculated, between 1568 and 1816, in 38,882 tons released into the atmosphere (Studnicki-Gizbert and Schecter 2010: 372).

Mining was the main factor in transforming the vegetation cover in Mesoamerica, but it was not the only activity that put significant pressure on forests. Numerous activities such as the distillation of alcohol, *trapiches* (mills) in the processing of sugar, land clearing for livestock, and the construction of cities were highlighted by colonial officials responsible for enforcing related forest conservation laws (Barrera de la Torre and De la Torre Villalpando 2022). These legal instruments were variously implemented and underwent many modifications throughout the colonial period, with regional expressions differentiated because of the diverse Novo-Hispanic geography. During the colonial period, the first steps were taken towards forest plantations, for example, the dye stick on Cozumel Island.

On the other hand, one of the areas of important forest exploitation due to the type and volume of trees required was carried out by the Royal Navy which, in Mesoamerica, focused its exploitation on the mountainous areas of the Gulf of Mexico and the Isthmus of Tehuantepec for the construction of ships, especially for masts (Reicher 2019; Valdez-Bubnov 2012).

Finance and Livestock: Consolidating Land Grabbing in Mesoamerica

Haciendas as a production model for supplying and commercializing reorganized large-scale land use in Mesoamerica. The productive specialization of this type of property, with similar features inherited from feudal Iberian property systems and introduced by settlers (Chevalier 1952; Von Wobeser 1989; Nickel 1978; García Martínez 1994; Florescano 1975; Nickel 1988; Simpson 1952; Semo 1977; Van Young 1981; Menegus 2015) has been characterized by Gisela von Wobeser (1980), according to its productive, sociotechnological, and spatial distribution in the viceroyalty. She

builds on the work of Nickel (1978) to define the characteristics of this productive economic model, whose structural uniqueness was the result of, first: 1) domination or seizing of natural assets (water and land primarily); 2) domination over the labor force (Indigenous and Black primarily); and 3) domination over local and regional markets. And, in the second, the hacienda (a) specialized (according to its geoecological location) in products (technotasking); (b) in the amount of its production; (c) in the origin of capital; (d) in the lease; (d) in the absenteeism of its owners; (e) in the degree of its economic self-sufficiency; (f) in self-consumption; (g) in the division of labor; (h) physical infrastructure; and (i) in agricultural techniques.

Within the great variety of ways in which haciendas manifested this chapter is interested in highlighting some of its characteristics, included in the following table (Table 1), that resulted in the reorganization of land use patterns. It must be considered that the consolidation of this productive model occurs in the eighteenth century, but as we have mentioned, it was part of a concomitant process of disarticulation-rearticulation and concentric expansion in the region.

One of the most significant environmental phenomena since the conquest of New Spain and the colonial period, especially during its first 100 years, was the exceptional arrival of livestock, both large (cows and oxen, horses, mules, and donkeys) and small (pigs, sheep, sheep, and goats), which had explosive population growth, epidemically, in "virgin" territory (*virgin soils)* (Crosby 1976) due to 1) the absence of predatory mammals, massively extinct during the Pleistocene (Crosby 1991; Barker 2006), 2) the emptying of landscapes due to the demographic collapse of the Mesoamerican population, 3) the abundance of food (grasses, forests and jungles, water and salt) (Butzer and Butzer 1993), and 4) the long history of Iberian transhumance (Jordan 1989), and the animals adaptation in the Antilles for almost thirty years, starting in 1492, before its arrival in New Spain (García Martínez 1994; Perezgrovas 2020). Since their arrival and during the sixteenth century, the growth of these herbivores was inversely proportional to the Mesoamerican holocaust, colonizing the landscapes in an accelerated manner, both in the tropical lowlands and in the highlands and mountains (Barrera-Bassols 1995; Aguilar-Robledo 2001). Thus, cattle raising was the main trigger for rural reorganization during the colonial period, as Chevalier (1952) points out, and the consolidation of the hacienda as a socioeconomic model in New Spain.

Tab. 1: Haciendas: Reorganizing Land-Use Patterns

Type of Hacienda	Physical Conditions	Location	Water and Land Requirements	Investment	Type of Infrastructure	Supply and/or Export
Sugar	Tropical lands, mainly in the lowlands, but also in the central highlands	Current state of Morelos, in the center of Veracruz, in Michoacán, Oaxaca, and in enclaves of Jalisco and Puebla. Yucatan Peninsula	High	High	Hydraulic works (aqueducts, canals, ditches, and ships), churches, the factory itself or mills, and trapiches, offices, the hacienda, bedrooms for peonage and the corrals.	For much of the sixteenth century production was exported, but at the end of the century, such exports were banned, and their production was restricted to the demand of the viceroyalty itself
Cereals	Temperate climate of the central and southern highlands of Mesoamerica	Mexico and in the Toluca Valley, around the city of Puebla-Tlaxcala, later in the Bajío and in Oaxaca	High	High	Church, bedrooms for peonage, silage, pens, and company store	Supply for the main cities of New Spain
Livestock	From tropical lowlands, to temperate mountains and semi-desert areas	Lands surrounding the Gulf of Mexico with some enclaves in the Yucatan Peninsula, Chiapas, and all of Central America, and in the central highlands, around the cities of Novohispanica	High	Low		Internal supply of the colony in mines, in construction sites in addition to the export of fur to Spain
Pulquera	Semi-arid areas of the highlands	Surrounding cities of Mexico, Puebla, Queretaro, and Tlaxcala	Low	Low	Hacienda, bedrooms for the peonage, a company store, pulque barrels, and a parish	Supply for the main cities of New Spain.

Source: Authors' own elaboration.

In summary, this unusual ecological phenomenon had important consequences on the occupation of rural and even urban space (Aguilar-Robledo 2001; Chevalier 1952), on land grabbing (García Martínez 1994), on the reorganization of land uses, on forms of property and the agrarian structure (Chevalier 1952; Matesanz 1965), on Novohispanic legislation (Ruiz 1991; Miranda 1944), and on accelerating disputes between farmers, the viceregal government and Indigenous peoples (Melville 1990; García Castro 1999, Matazens 1965: Martinez 1994). The most significant consequence of cattle raising and pastureland expansion in New Spain was its role in the origin of haciendas and *latifundios*, together with the enclaves of sugar and cereals, causing localized ecological degradation, in some cases, severe (Simpson 1952; Von Wobeser 1989; Butzer 1992; Melville 1997; Butzer and Butzer 1997; Brand 1961), and promoting land grabbing, cheap work, and monetary gains.

Due to the transhumance nature of livestock herds (Jordan 1989), measures were required to curb the destruction it caused in urban and rural areas. For example, in the central valleys of Mexico and Toluca, there are records of destruction caused by cattle, mares, and pigs in cornfields and, in general, in agricultural fields and even in the houses of Indigenous peoples since the mid-sixteenth century (García Martínez 1969: 140; Matesanz 1965: 561; Chevalier 1952; Gerhard 1992: 158, Martínez 1992: 263; Perezgrovas 2020: 205). Also, Melville (1990; 1997), demonstrates the socioecological impacts due to the growth of an extensive number of sheep in the Mezquital Valley, north of the current state of Hidalgo, causing the overexploitation of their pastures and generating a severe soil erosion. Although the results of this study have been discussed considering other factors such as droughts (Hunt 2009; Hunt and Sluyter 2011; Sluyter 2015), similar impacts caused by overgrazing in other regions of the state of Hidalgo during the eighteenth century have been noted (Riley 1976: 248). Finally, in 1609, a Dominican friar who visited the town of Cempoala, north of the port of Veracruz, wrote about the effects of cattle. Overgrazing and the excessive use of burning or arson for the regeneration of pastures had degraded the landscape, which the friar described as "lost" (Barrera-Bassols 1995: 57).

Discussion and Conclusions

What has been outlined here, summarizes, in a general, yet still provisional way, what happened in terms of land use changes during the colonial period in Mesoamerica. The Spanish conquest, in this case, brought about a radical transformation not only in this region but throughout the world and imprinted as a result new ways of ordering the world, both geopolitically and ecologically.

These colonial structures translated into ruptures that are still debated today. On the one hand, given the demographic holocaust resulting from the military conquest and as an epidemiological consequence, a climatic change was initiated that man-

ifested in Europe as the "Little Ice Age" and generated a unique increase in deaths for a short period. All this is caused by vegetation cover regeneration in the absence of human work and, consequently, an increase of CO_2 sequestration from the atmosphere and reduction in average temperatures in Europe. Fewer humans, increased forest cover, and, as a result, another demographic holocaust. A planetary demographic history. Some die in the face of war, epidemics, and the drastic breakdown of forms of human existence, and others die far away due to the emptying of populations in the "New World." This inaugurates the ecological impacts of the human footprint caused by the emergence of the Anthropocene. That is why humans become a physio-biological force that will ultimately determine and transform the planet's metabolism, and the emergence of the ecological and civilizational crisis being experienced today.

But from another spectrum, the "encounter" produced and has produced another world, another planet. A place where emerging social and geopolitical relations became a new ecological world focused on widening inequalities to favor the needs of empire. Resulting in the advent of a new world-ecology focused on the accumulation by plunder of these other truncated realities, namely the Capitalocene. For this transformation to accelerate with the Industrial Revolution, the necessary resources, energy, accumulated wealth, and labor were extracted from the colonized territories. Land use changes in colonial Mesoamerica reflect this. On the one hand, ethno-historical evidence in the region refutes the sudden regeneration of vegetation caused by the Indigenous holocaust due to the sudden colonization of the lands. The colonial need to supply goods to the crown and the establishment of a new geoeconomic order demonstrate that the sudden regeneration of the natural conditions of landscapes and territories was neither homogeneous nor lasting, in the face of African slaves' arrival to make up for the absence of Indigenous labor and the presence of millions of native inhabitants scattered in the various geographies of New Spain. The process of deforestation of thousands of square kilometers to supply energy to the mines, trapiches, and the new towns energy needs signals a diverse process of plant regeneration and deforestation, depending on each location and throughout the 300 years of colonial life.

How much did New Spain contribute in its Mesoamerican area to CO_2 sequestration and average temperatures decrease in Europe? It is still difficult to verify, but the sudden demographic decline of Mesoamericans in the region and its ecological, cultural, economic, and political consequences during the first 100 years of colonialism are already more precisely known. One can synthesize land use changes from diametrically opposed ontological, epistemological, and practical points of view. First, the conquest and colonial time as an imperial project involved the historical breakdown of relational ontologies, which organized the Mesoamerican world under assumptions of interrelationship between humans, non-humans, and more-than-humans. For the polytheistic societies governed by sacred and material criteria there

was no such separation between the profane and the sacred. These symbolic frameworks – as diverse as cultures deployed geographically and historically – organized culture-nature relations as a single ontological dimension, linking the sacred with the profane.

In contrast to those ways of world making by the "savages," a dualistic ontology focused on the superiority of the human (the white and Christian man) was imposed, under an ideology that separated (human) subjects from nature as an inanimate object, in the service of the empire for exploitation. This fragmentation became a way of operating the symbolic and material assumptions to organize colonial life, extractivism, and dispossession. This dualistic ontology allowed the normalization of looting and original accumulation through the legalization of property titles and the Catholic and monotheistic religion imposition that had consequences on the ways land use changes were conceived and deployed. There are two crucial aspects we have noted in this regard. The imposition of an engineering and technocratic gaze (technotasking), in the face of the dense and prolonged shaping of the landscape through human labor (labortasking), which had allowed the maintenance of agrodiversity (biocultural diversity) through sophisticated agricultural and agroforestry systems for the daily livelihood of its sculptors. Regardless of this, the engineering vision, imposed sugar cane plantations, monoculture, extensive livestock, lake drying, mining, and deforestation as ways of obtaining goods for the gain of a few.

The arrival of new crops and animals, together with their associated techniques, seeds, and knowledge, undoubtedly enriched the already vast Mesoamerican agrodiversity. But this also generated impacts on the landscape, as mentioned in several studies about soil erosion caused by goat and cattle farming, mainly. The demographic holocaust during the first 60–100 years of the colonial period, land grabs by landowners and mining companies promoted by various colonial institutions such as encomienda, reductions, and tributes, undoubtedly reduced and eroded Mesoamerican agrodiversity by widening monocultures, deforestation, and livestock activities. Still, the cultivation of milpa and the genetic stock of its main cultivars survived, especially the maize-bean-squash triad in the Indian towns and republics. This is due to a regional economy that required these products to cope with supply needs, impossible to reach through overseas import of goods and products.

As it is referred to here, the intensification of land use changes allowed the rapid colonization of lands surrounding new towns according to the nutritional requirements of Spaniards, Indigenous slaves, and Africans in plantations, mines, cities, and livestock farms. In this way, this intensification took the form of rings starting from the cities or towns and going to the peripheries, thus extending the borders through land grabbing and promoting the reorganization of extensive livestock to these peripheries, and stimulating intensive agricultural enclaves near urban or

mining centers. This process reorganized the Mesoamerican territories in a complex and varied process of deterritorialization, now in the hands of the new occupants with the benefit of the vice royal administrations, the administrative organization of the provinces, the establishment of Indians and Spaniards republics for the purposes of population control and tribute, and with the support of the Spanish crown, in need of resources in the context of a beleaguered and contentious European theater.

Indigenous and African revolts, rebellions, and wars escalated after the Bourbon reforms, beginning in the last third of the eighteenth century, and increased their virulence until independence in the early nineteenth century. These resistances and wars expanded beyond the old Mesoamerican borders, both in the northern provinces of New Spain and in Central America. The resurgence of these political demonstrations was because these reforms entailed the end of the Indian republics, accelerated tax growth, the increase of latifundios via the consolidation of the hacienda, the arrival of foreign companies and the expansion of mining, and new taxes on the church that were accompanied by recurrent droughts in a territory with a growing and mostly dispossessed population.

Thus, the change of land use in New Spain during its 300 years of colonial existence is a reflection, a symptom, of the radical transformations that occurred during the ontological, epistemological, and material breaks. This chapter has synthesized here the symbolic and material bases of accumulation processes through plunder, dispossession, and extractivism, which elucidate the Anthropocene emergence, and the socio-ecological consequences of the Capitalocene's abrupt establishment.

Reading land use changes in New Spain's Mesoamerican area, allows one to debate whether it is humans in general, as a physical-global force, that have led to the breakdown of planetary metabolism, or whether, on the contrary, it is the socio-ecological systems imposed by minority groups of global society, that have imposed the metabolic breakdowns deployed during the last 500 years. Humanity or some humans? This chapter has shown how changes in land use are inherent in this metabolic breakdown, which focuses on making resources and labor cheap and advancing accumulation. This has also had indelible effects on the landscapes of the region to this day. However, from the historic and densely shaped landscapes of age-old Mesoamerica, communities struggle to find new ways to reinterpret Capitalocene's heritage.

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