From Paradise to the Extractive Zone: Anthropogenic Environmental Change and Historical Agency in Antonio de León Pinelo's *El paraíso en el Nuevo Mundo*

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Abstract
This essay provides an interpretation of Antonio León Pinelo's ideas on natural history and anthropogenic environmental change. It is centered on Pinelo's *El Paraíso en el Nuevo Mundo*, a mid-seventeenth-century work that combines narratives regarding the geographical location of the Garden of Eden with theories on the natural history of the Indies. Building on studies that examine narratives on environmental change in the context of European expansion, this article intervenes in a growing academic literature that explores how societies have debated the political imbalances of climate change since the early modern period. In doing so, it highlights the importance of recognizing how discourses on climate and environmental change are forged through evolving conceptions of historical agency. Thus, the article examines Pinelo's work as part of a broader corpus of narratives identifying human-initiated socio-ecological change linked to European colonial expansion. It reveals how writing about anthropogenic environmental-making processes implies generating the historical agent that has the authority to discipline and transform the environment. Here, it shows how Pinelo's work minimizes Indigenous capacities to master the environment by subordinating their historical agency to the history of Nature. Ultimately, the article argues that writing about anthropogenic environmental-making processes reflects specific dynamics of domination that historians grappled with as they negotiated the political terms of Western ecological imperialism.

Keywords: Historical Agency, Anthropogenic Environmental Change, Colonialism, Paradise

> Luego que entraron los españoles sembraron trigo, cevada y otros granos, abriendo para ello con reja no solo las tierras que los Indios labraban, sino muchas más que nunca havian sido cultivadas, hasta llegar casi a las cumbres de aquella serranía que rodea la Laguna. Pues como las lluvias y avenidas hallaron la tierra más blanda y removida, se la fueron y han ido llevando y robando: de que resulta haver labranzas que ya carecen de la fertilidad que tenían, por faltarles la flor, y la tierra jugosa, y quedado en lo que llaman Tepetate, que es la tosca y flaca como dice Torquemada. (2:159)[1]

These words appear in the second volume of Antonio de León Pinelo's *El paraíso en el Nuevo Mundo* (ca. 1645-1650). In this book, Pinelo points to the exportation of grains and farming techniques from Europe to the Americas as the principal cause of an ecological form of degradation that depreciated the fertility of the land. For him, the importation of grains and the expansion of arable agriculture transformed the fertile lands of Mexico into *Tepetates,* which means lands that are not good for agriculture because of their hardness and poor drainage.[2] In other words, Pinelo indicates that the

exportation of European farming techniques accelerated a process of soil erosion in a land described as nurtured and fertile. Written in Madrid in the mid-seventeenth century, *El paraíso en el Nuevo Mundo* exposes Pinelo's ideas about the uses of the land, the location and extraction of natural resources, and the environmental changes taking place in the Americas during the colonial period. Therefore, Pinelo's book reveals how historians were able to evaluate the impact of colonial cultures in an environment theorized by the author as the place of earthly paradise. In suggesting that the importation of grains and farming techniques was at the origin of environmental degradation, Pinelo questions in his work one of the prevailing assumptions of the period, the capacity of colonial societies to improve and discipline the environment by putting nature at work.[3]

In the early modern period, writing about climate and environmental change was a vital activity through which authors legitimized domination in subjugated territories. Although also challenged and contested, the idea that climates and environments could be transformed and improved through colonization by putting nature at work shaped narratives from the early period of transatlantic explorations. However, as evident in Pinelo's work, Spanish discourses also challenged the idea that through colonial techniques, people were able to improve a natural world often described by authors as wild, unspoiled, and undeveloped. In this regard, what Pinelo's narrative shows to the reader is that the fertile properties of the land were better preserved in the pre-colonial period, and that colonial techniques and approaches to nature could also be the cause of an ecological form of degradation.

As Pinelo observes in his work, the circulation and importation of grains and farming techniques from Europe to the Americas could have a negative impact on the environment. In *Ecological Imperialism* (1986), Alfred W. Crosby has shown how the circulation of plants, diseases, and animals played a vital role in consolidating a biological form of domination. As he has argued, the "portmanteau biota" that accompanied Europeans in their wars and settlements all over the world helped them to eradicate whole societies in what he called the Neo-Europes. Although Crosby's book contributed to clarify how the circulation of plant and animal species as well as diseases, grains, and farming techniques participated in the consolidation of a biological form of domination, his analysis does not provide an examination of how authors produced theories on human-initiated environmental change in the early modern period.[4] In contrast to Crosby's examination, this article focuses on how ideas about the environment—which include theories on climates, environmental change, the use of natural resources, agriculture, and natural disasters—were instrumental in shaping ecological imperial-making processes. In this regard, the purpose of this article is to show how Pinelo's theories on human

relationships to nature over time frame narrative operations and notions sustaining the socio-ecological regime inaugurated in the colonial period.

El paraíso en el Nuevo Mundo is part of a broader corpus of early modern histories that were concerned about the authority of colonial societies to master and discipline the environment. The two volume-manuscript belong to a large genealogy of narratives on the tropics in the context of Iberian expansion. As Heidi V. Scott has shown, Pinelo's "representations of a tropical New World Eden were inflected by his Spanish American patriotism as well as by his role as an agent of empire situated in Madrid" (77). Pinelo's ideas about the New World Eden are in dialogue with literature centered on defining an Iberian vision of tropicality. As Nicolás Way Gómez has revealed, the place of the tropics in the history of Iberian colonial expansion was central since Columbus's expeditions. From the early period of exploration, the idea that the tropic was an inhabitable hot zone was gradually replaced in narratives that saw the tropics as a land of great fertility that provided abundant resources. Thus, the regions of the southern hemisphere explored from Columbus's expeditions were increasingly "visualized as a vast geographical system centered on the belt of the tropics and a place that was gradually coming to be perceived as a veritable factory of riches — not in spite of the fact that it stood in the torrid zone but precisely *because* it did so" (338).

In Pinelo's work, references to the abundant natural resources, to wonders of nature, and to the fertile lands of the continent are also central. Yet, in combination with the argument about paradise, Pinelo also includes large sections with observations about the negative impact of colonization on the environment in both the northern and southern regions of the continent. In this respect, this article analyzes Pinelo's theories on long-term historical structures of time as part of the author's intention to highlight a Western form of anthropogenic force that has the authority to possess and transform nature. The notion that through colonization people discipline and improve climate and environmental conditions in colonized territories was a vital component in narratives sustaining European imperialism. As Fabien Locher and Jean-Baptiste Fressoz have argued:

> Anthropogenic climate change has been, over the long term, a framework for thought and action in the service of European imperial expansion. As soon as America was "discovered", the idea took hold that colonization was also a climatic normalization, a way of improving the climate of the continent through clearing and cultivation. It is a promise for the colonists, and a discourse of domination: a way of saying that Indians never really owned the New World. (11)[5]

In the sixteenth-century Spanish world, Fernández de Oviedo and José de Acosta's books on natural history were ideological instruments at the service of Spanish imperialism. In José de Acosta's *Historia natural y moral de las Indias* (1590), the translation of nature into politics generates in the process ideas and techniques to underline the capacity of "moderns" to master, improve, and discipline nature.[6] However, as evident in Pinelo's work, Spanish discourses also identified colonialism as one of the causes of ecological degradation. For Pinelo, the exportation of colonial techniques could also motivate undisciplined responses from Nature.[7] As this article purports, even though the argument about the improvement of nature in colonial territories played undeniably a crucial role in legitimizing domination, the central fact from the point of view of environmental historical writing was the naturalization of a Western form of historical agency associated with the authority to produce and govern the socio-ecological dynamics that emerged from Iberian expansion and imperialism.

Unlike Acosta, whose emphasis on the capacity of moderns to master nature does not intersect with ideas on preservation and ecological degradation, Pinelo frames his observations on Nature's responses to colonialism into a larger historical vision of history that presents the Americas as an environment preserved from the activity of humans. Thus, as this article evidences, Pinelo's argument about paradise involves the construction of a historical framework that emphasizes the capacity of humans to transform nature and the environment. In his work, Pinelo incorporates what he calls a natural history of the Indies, which means a history that provides multiple interpretations about natural resources, environmental change, and the productivity of nature. Pinelo's *El paraíso en el Nuevo Mundo* interrogates the antediluvian landscape as a tool to advance the author's ideas about the evolving character of human agency in relation to nature.

Written between 1645 and 1650, the two-volume work brings together a corpus of ancient and medieval texts on sacred geography, along with the natural histories of the Indies. The manuscript is divided into two volumes. The first part analyzes the divergent views found in sacred scriptures and medieval theories about the Garden of Eden. The first book also theorizes about the archeological ruins discovered in Peru and New Spain, where Pinelo advances the general theory of the work, whereby the events of the first age of the world, including the existence of Eden, took place in Peru. In the second volume, Pinelo focuses on the natural history of the Indies, which he rebaptizes under the name of Iberia. As this article shows, Pinelo's observations on long-term anthropogenic trajectories taking place in the pre-colonial past and in the present were framed upon a historical vision that underlines the capacity of societies that emerged from Europe's westward expansion to transform nature. Therefore, the article examines Pinelo's attempt to reevaluate the history of human

relationships to nature through the lenses of anthropogenic trajectories as observed by the author in the mid-seventeenth century. In the first section, Pinelo focuses on theories about the antiquity of humans through nature in the New World. In the second section, the article concentrates on Pinelo's writing about human relationships to nature in the colonial period. As the article shows, Pinelo's historical narrative and observation of the relationship between humans and the rest of nature in the colonial period are both part of an ecological regime that puts into tension ideas about environmental degradation with the naturalization of the extractive colonial agenda in the present.

Landless Indigenous Subjects in Pinelo's New World Eden

From 1492, the reorientation of European interests toward the western hemisphere made it possible to imagine paradise from an entirely different perspective. Rather than being narrated solely as a prelapsarian existence associated with an irrecuperable first age, paradise became part of the postlapsarian narratives of the early modern period. In this light, Pinelo's *El paraíso en el Nuevo Mundo* is an important piece of a larger corpus of seventeenth-century histories that suggested that paradise was somewhere towards the West. Unlike the histories written by scholars such as the Inca Garcilaso and Guamán Poma de Ayala, *El paraíso en el Nuevo Mundo* does not focus on the historical development of the Inca empire but on the primitive origins of the Americas. In this sense, Pinelo's voluminous work is in dialogue with a different tradition of histories, such as those written by Gregorio García (1556–1627), Fernando de Montesinos (?–1652), and Diego Andrés Rocha (1607–1688). For these chroniclers, theorizing about the primitive past of the Americas was a tool that allowed them to propose a different view of the processual developments of humanity through nature in the world.

In the second book of the first volume, Pinelo examines ancient buildings and ruins in New Spain and Peru. In this book, he advances the argument that the buildings discovered in New Spain and Peru were not made by Indians, but by an ancient civilization of giants:

> Según lo que largamente dejamos probado, aunque los Yndios del Perú tuvieron ingenio para grandes obras, y mucho más los de Nueva España; ni a unos ni a otros se pueden atribuir los Edificios que en sus Provincias se hallan. Resta pues ahora el averiguar ó conjeturar quien los pudo hacer, que gentes inventarían aquellas Fábricas. (1:272) [8]

In his work, Pinelo writes about the primitive past of humanity to emphasize European authority over the history of the New World. Instead of idealizing the primitivism of inhabitants in the Americas, in combination with his positive views about the antiquity and magnificent nature of the continent, Pinelo

imagines a civilization of giants at the origin of humanity in the New World. His vision of history is organized along three distinctive temporalities. For the Spanish historian, Indigenous people did not inhabit the New World during the first age of the world, and the processual developments that took place in that age were all inscribed into a reconstruction of the primitive past that idealized the primeval origins of a "white" ancient society endowed with the capacity of fabricating the great civilizations described in Pinelo's first volume on the antiquities of the Americas. Thus, in Pinelo's work, the exclusion of the Indian from primitive history participates in a narrative that aims at suppressing Indigenous involvement in the New World's civilizational traces (its ruins and ancient constructions).

As in Acosta's *Historia natural y moral de las Indias*, Pinelo places the history of a landless Indigenous subject in connection with the history of Nature and the environment, and at the same time, separates it from the civilizational processes taking place in the Indies. In this regard, the primitive history of the New World, which is fully idealized in Pinelo's account, no longer belongs to the domain of the history of Indigenous people, but to a mythical civilization that Pinelo physically and symbolically associates with the history of Europeans. From this perspective, the interactions of humans with their environment are the basis for Pinelo's narrative, and they shape a theory that emerges in his natural history about the origins and migrations of humans and other animals throughout the world. For Pinelo, the environment in the Americas is the soil upon which a new historical writing begins. As such, the portrait of Indigenous peoples as migrants, close to nature, failing to leave human traces in the environment, participates entirely in an Iberian form of natural history that considers Indigenous people to be a landless historical subject properly belonging to the history of an environment's natural resources and species, which Pinelo surveys in his second volume.

According to Pinelo, the Mexicas and the Incas were the last in a series of previous civilizations that inhabited the New World. Here Pinelo follows Juan de Torquemada, who argued that other civilizations had preceded the migrations of the people whom the Spaniards found in Mexico. For Torquemada, the Mexica, Tlaxcalan, and Texcocan peoples arrived relatively recently in a region that had already been inhabited by different cultures for centuries. According to Torquemada, Toltecs and other cultures dominated before other Mesoamerican groups and created magnificent civilizations. Torquemada reconstructed a series of cycles of civilization in central Mexico by emphasizing the vital role that Toltec culture played in the region. However, Pinelo, who extensively quotes from Torquemada's *Monarchia Indiana* (1615), borrowed the author's cycles of civilization model in order to recreate his own theory about the primitive origins of the inhabitants of Mesoamerica: "Mas en particular escrive el alegado Torquemada, Autor único de los Pobladores de la Nueva España, que la

primera Nación que entró en ella fué la de los Tuñecas, luego la de los Ghichimecas, Aculhuas y Mexicas" (1:288).[9] After calculating ages and cycles of these civilizations in New Spain and Peru, Pinelo suggests that "es opinión mui probable y bien fundada que quando Crissto S. N. vino al Mundo, ni el Perú ni la Nueva España estaban habitados" (v. 1:290).[10] Moreover, instead of claiming that the arrival of Indigenous Americans occurred right after the universal flood, as authors such as Guamán Poma wrote, Pinelo focuses on developing an order of ages based on his theory of the primitive past of humans in the New World.

Besides referring to authors such as Cieza de León, Inca Garcilaso, Torquemada, Acosta, and Juan de Solórzano Pereira, Pinelo built this antediluvian theory from his observations of ancient buildings and ruins, and the plausible interactions of humans in the environment of the New World. Antiquity and Nature are two interrelated discursive formations that allowed Pinelo to shape his new theory on the origins of humanity. In this theory, the ancient buildings found in the New World were not made by Indians, but rather by white and bearded people who looked more like "us":

> Pedro Cieza tratando de los Edificios de Vinaque dice que preguntando a los Yndios quien había echo aquella antigualla, respondieron que otras Gentes barbadas y blancas como nosotros, que mucho antes que los Yngas reynasen se decía haber ido a aquellas partes, y echo allí su morada. (1: 272)[11]

According to Pinelo, the first generation of inhabitants in the New World were giants who ruled in the pre-flood era and built great buildings and temples there. Furthermore, following the theories of Acosta and his friend Solórzano Pereira, Pinelo argues that Indians may have arrived in the Americas from the strait of Anian (today's Bering Strait), and that they were barbarians who evolved to the stage of advancement developed by the Incas and Mexicas. Moreover, Pinelo recognizes that his purpose is not to explain the origins of Indigenous peoples, and he invites the reader to consult the works by Solórzano Pereira and Gregorio García. Thus, Pinelo's observations about the primitive history of the Indian aim at consolidating an Ibero-American form of antiquity rooted in natural history. Rather than reconstructing the history of an idealized Indian in the primitive ages of the New World, he dehistoricizes the history of Indigenous people by silencing their role as the original makers of the buildings found in the Americas. Yet, Pinelo's suppression of Indigenous historical agency does not prevent him from offering an interpretation of the different methods for calculating time. When writing about Indigenous temporalities, he incorporates observations about the Mexican calendar and Peruvian quipu and includes a drawing of the Mexican calendar.

Pinelo includes a map of the New World with paradise at the center of today's South America, surrounded by mountain ranges. Noah's Ark is depicted close to the Pacific coast of Peru, as well as a path indicating the ship's route throughout the Pacific Ocean. He describes Noah's itinerary in detail, indicating that he crossed the Pacific Ocean and then turned to the north, entering Asia between China and Korea, and finally landing on the mountain of Naugracot (Nagarkot) in the Himalayas. In addition, he describes Noah's ark and its impressive capacity to transport material, people, and animals, and he provides a chronological table of the Flood. According to him, it was 1656 years after the creation of the world that Noah's transpacific journey took place. Pinelo thus offers an interpretation of the origins of humanity that, beginning with the Garden of Eden in the south of the continent, adopts a transpacific western-oriented itinerary. Thus, whereas the migrations that symbolize the civilizing movement of the Iberian expansion have in Pinelo's history a western-oriented itinerary, Indigenous people are portrayed in *El paraíso en el Nuevo Mundo* as a later addition, one that refers to the eastward movement of humans that, described as part of nature, were unable to possess and transform the environment.

As in previous histories, the Iberian transpacific perspective redefines the temporal experience to break with ancient and traditional modes of writing the history of the world. Pinelo even rebaptizes the New World as Iberia, "a continent" that he claimed was divided in two distinctive environmental zones: Meridional and Septentrional Iberia. In the second volume of *El paraíso en el Nuevo Mundo*, Pinelo defines what he calls the *historia natural y peregrina de las Indias* as the driving force of historical writing. His argument is clear when describing his work—natural history represents the "cuerpo de esta alma, o adorno de este cuerpo"(2:125).[12] Instead of simply focusing on the description of nature as object, natural history is for Pinelo a narrative instrument that makes it possible to theorize the impact that humans have in the environment over time. In other words, he connects the past of the New World to the colonial present through his Westernized history of Nature. This reconceptualization of natural history defines not just the study of nature but proposes an entire framework to reorganize the history of human relationships to nature over time. In other words, it is natural history that allows Pinelo to generate a Western-orientated anthropogenic perspective.

When defining his approach to the study of the origins and evolution of humans through nature in the Americas, Pinelo refers to what he calls *huellas* and *signos* ("traces" and "signs") of the antediluvian age, and among these traces and signs, he describes huge bones and other remains. These signs and traces represent the material markers of an environmental way of writing that privileges observations of the ecological signature of various human collectivities over the interpretation of

"authoritative" writings by ancient thinkers. From a methodological perspective, Pinelo thus places natural history in dialogue with a "material culture" that focuses on tracing the remains and instruments that vestigially preserve the ancient relationship between humans and the rest of nature. Thus, the ancient cultures of the New World figure in Pinelo's work through an anthropogenic lens that aims to reconstruct past ways of life through the material vestiges of the ancients.

The anthropogenic dimension of Pinelo's narrative begins with observations on those signs and traces that allow the historian to imagine a new theory of the primitive past of humanity. These signs and traces have the capacity to entirely oppose a historical model based on authoritative textual sources inherited from antiquity. As Pinelo repeatedly observes, one of the goals of *El paraíso en el Nuevo Mundo* is to compare the nature of the Orient to that of the New World or the West (*Indias Occidentales*). Developed by Pinelo in his bibliography of texts about the East and West Indies published in 1629, the difference between the East and the West does not refer narrowly to geographical distinctions; rather, it distinguishes between two different approaches associated with the activity of writing natural histories. Whereas Pinelo considers the history of the New World as fundamentally connected to the writing of natural histories, he see the history of the East as linked to ancient texts and literary traditions. As he argues, the *Indias Occidentales* lack the authoritative voice that ancient texts have given to the East Indies, and this is the reason why the *Indias Orientales* are "preferida[s] a las Occidentales, mas por antiguedad que por meritos" (2:3).[13]

However, Pinelo does not base his work only upon observations from nature, but he also incorporates multiple references to natural historians of the period: Gonzalo Fernández de Oviedo, Francisco Hernández, José de Acosta, Carolus Clusius, Ulisse Adlrovandi, Juan Eusebio Nieremberg, and European authors and groups such as the naturalists of the Accademia dei Lincei. In this genealogy, Nature is not a stable reality that the historian describes as immovable and separated from humans, but it is an agent subordinated to the Western historical scope of humanity. Indeed, it is through the subordination of nature to the historical movement of the West that Pinelo silences in his work the capacity of Indigenous people to possess and transform the environment over time. In *El paraíso en el Nuevo Mundo*, natural history is defined as a narrative tool that makes it possible to give to the Indies of the West (*Indias Occidentales*) an authoritative historical voice. Following Acosta, who included the history of migrations of the Indian in his book of natural history, Pinelo understands natural history as a method entailing a hierarchized structure that silences the historical agency of Indigenous peoples as well as their capacity to master and transform nature. In this method, the Indian is not the anthropogenic force at the origin of the archeological traces and signs "discovered" in the

New World, but a landless human group regarded as part of nature. As Jason W. Moore has argued in relation to the historical separation of humans from nature:

> From the perspective of imperial administrators, merchants, planters, and conquistadores, these humans [Indigenous peoples, enslaved Africans, and women] were not Human at all. They were regarded as part of Nature, along with trees and soils and rivers – and treated accordingly. (2016, 2)

Here, while the history of Indigenous populations is included by Pinelo in the volume of natural history, the origin of humanity is traced back to a mythical generation of giants who traveled westward from the Americas to Asia after the deluge, onward to Europe, and finally to the Americas by way of European explorers. In this regard, natural history is a heuristic device that allowed Pinelo to consolidate a well-established historical framework that glorifies the Western-orientated movements of history while, at the same time, silencing the historical agency of Indigenous populations. Whereas the inclusion of the Indian in the natural history of the Indies implied their exclusion from human history, the arrival of Spaniards in the Western Hemisphere represents the episode that opens the lost land to the present and future of a westernized history of humanity.

Anthropogenic Forces in the Extractive Zone

From the fifteenth century, the process of Iberian expansion is associated with an awareness of the capacity to change climates through the reproduction of socio-environmental techniques developed in Madeira and the Canary Islands. The collective awareness of the capacity to change climates was shaped by the consequences of the intensive deforestation and the importation of sugar plantations in Madeira. As Jason W. Moore has noted, "Madeira's deforestation was registered not only in the physical landscape; it was also inscribed in the collective memory of how this landscape was formed" (2009, 351). This colonial memory allowed Christopher Columbus to imagine the transformation of climates in the Caribbean after colonization. According to his son Ferdinand, Columbus knew "from experience" that deforestation in the Canary Islands, Madeira, and the Azores reduced the frequency of mist and rain:

> Porque en esta parte occidental de Jamaica, todas las tardes había lluvia, que duraba una hora, poco más o menos, lo cual atribuía el Almirante a las grandes selvas y arboles de este país, y se veía por la experiencia, que al principio sucedió lo mismo en las islas de Canaria, la Madera; y las Azores donde ahora, que han allanado muchas selvas y cortado

> muchos árboles que les hacían sombra, no hay tantos aguaceros como había antes. (260)[14]

As Ferdinand Columbus's observation shows, from the late fifteenth century people knew that deforestation and the importation of grains and colonial methods of cultivation rooted in the nexus sugar-slavery was an instrument that made it possible to change climates and reduce rainfall. Included in a series of chapters in which the author describes how difficult navigation in the Caribbean region was because of the frequent and great rainstorms, Ferdinand Columbus's reference demonstrates that the capacity and intention to transform the climate and environmental conditions of islands and territories in the West Indies was a vital component that defined the Iberian transatlantic expansion.

Explorers and agents of the Spanish empire were not only attracted to the hope of finding a paradise made of pristine landscapes and worldly richness in their expeditions, but they were also moved by their knowledge and capacity to transform climates through the reproduction of socio-ecological colonial techniques. In this regard, whereas narratives emphasizing the desirable and pristine characteristics of islands in the New World inspired conquest and possession, references to unfavorable climatic and environmental conditions—as is the case in Ferdinand Columbus's and Pinelo's writings—stimulated in the writing of explorers and historians an approach that emphasizes human capacities to discipline climates and environments described as hostile and undeveloped. Therefore, writing about the capacity to master undisciplined environments in colonized territories is at the origin of a form of agency that underlines the authority of Europe's westward expansion to possess and transform Nature.

In *Green Imperialism* (1995), Richard Grove has argued that early modern narratives of climate change and tropical island Edens, in the context of European colonial expansion, attest to the emergence of "early preservationist notions" (33). After examining Pinelo's New World Eden, this article develops a different interpretation of early modern narratives situating the paradise in tropical latitudes. Rather than an early preservationist awareness, what we can trace in Pinelo's work is the naturalization of a historical agency with authority to discipline and transform nature and the environment. In Pinelo's *El paraíso en el Nuevo Mundo*, paradise is not a place to recover and preserve, but the historical scene of Western giants shaping the environment over time. Thus, what we find at the center of Pinelo's New World Eden is a narrative-historical composition that, rooted in the notion of pristine origins, allowed the author to highlight the Western capacity to discipline and transform the environment through colonization.

In *El paraíso en el Nuevo Mundo*, Pinelo combines theories on the location of the paradise in the New World with observations on how colonization shaped the environment. If, moreover, his interventions regarding the primitive past of humanity emphasize a Western-oriented perspective centered in an Iberianized New World, references to environmental changes show that Pinelo was also aware of the negative impacts that the Columbian exchange could have on the environment. When he writes about flooding and dryness in Mexico, he observes how arable agricultures imported during colonization transformed the climatic and environmental conditions of the region:

> La verdadera causa de ser mayores las inundaciones, y demás efecto la seca del verano, es que en tiempo de los Indios, las sementeras de todas aquellas vertientes y alrededores de la Laguna, eran de maizales, y magueyes, y de otras plantas, para las quales apenas se mueve ni levanta la tierra, porque no usaban arado. (2:159)[15]

In other words, prior to the Spanish conquest, Indigenous peoples used the land without significantly transforming the soil, and once "the Spanish entered" with their wheat and with other grains and techniques, the fields began to lose the fertility that they had before. After observing that the European grains and methods of cultivation changed the property of the soil and degraded the land's fertility, Pinelo indicates that this was not only a process taking place in Mexico, but in all the Indies:

> Reparo es de Enrico Martínez, que le pone por general para todas las Indias y le verifica en ciénegas y pantanos que se han consumido, y son hoy tierras sólidas, y que se siembran, por lo que de otras partes han traído las aguas, hallando removidos los campos de las sementeras y ganados, de que los Indios carecieron, como advierte Torquemada. (2: 159)[16]

In these passages, Pinelo details how the decreasing water level in lakes and swamps in the Americas is related to soil erosion and the deterioration of the fertility in the land. In sum, Pinelo's idealization of the past in the New World as a pristine natural landscape is followed by observations about ecological degradation in the colonial period.

In his chapter devoted to the lake of Mexico, Pinelo provides different theories about the possible causes of flooding before concluding that the main reason was due to the importation of new methods of farming in the Americas. Pinelo's observation on the new methods of cultivating the land brings an unusual colonial perspective that unexpectedly points to the Columbian exchange as the basis for the degradation of the environment. In suggesting that the expansion of colonial arable agricultures lies at the origin of floods, Pinelo inscribed his work a genealogy of histories since the seventeenth century about the negative effects of human activities on the environment.

Written fifteen years before John Evelyn's work on the negative effects of deforestation in England, Pinelo's work offers an acute historical perspective about the impact that intensive methods of cultivation had on the environment. However, unlike European authors such as John Evelyn, whose work warned about the impact of glassworks and iron industries on timber resources and advocated for an extensive reforestation program, Pinelo's observations pointed to the impact of what Alfred W. Crosby has called the Columbian exchange, which refers to the circulation and transfer of plants, animals, metals, technology, and diseases between the Americas and Afro-Eurasia since the late fifteenth century onwards. For Pinelo, the turning point at the origin of human-initiated environmental change in the American continent was not the growing maritime industry, but the arrival of Spaniards with their different grains and methods of cultivation. In this respect, Pinelo's views about the transformation of the environment through Spanish colonization converged with an ecological awareness of the increasing number of floods and natural disasters in the region. In his discussion of the lake of the city of Mexico, he enumerates the multiple floods that occurred in the pre-Hispanic and colonial periods and mentions the different ways through which viceroys tried to face the increasing risk of floods in the city of Mexico:

> Después que entraron los Españoles, y dieron principio a la cultura de los campos, como para regarlos fueron dividiendo, y gastando algunos ríos o arroyos que entran en la laguna mexicana, no solo no creció, sino que menguó y baxó mucho, y tanto que la mayor parte de la Dulce por el Norte y Poniente faltó, y quedó por allí la ciudad al parecer unida a la Tierra firme, y con algunas calzadas, que ya corrían sobre seco. La Salada se recogió y estrechó mucho, y esto se fue continuando hasta el año de quinientos cincuenta y tres, que haviendo sido grandes las aguas del invierno, y caudalosas las avenidas de los contornos se vio la primera creciente: aunque como la laguna estaba antes tan baxa, no subieron demasiado sus aguas. En aquella ocasión el Virrey Don Luis de Velasco, que governaba, mandó levantar y fabricar la famosa Albarrada de San Lazaro, conque pareció haver puesto reparo bastante, como escribe Torquemada (a). (2:159)[17]

In this passage, Pinelo refers to the recurrent floods in the city of Mexico and to the construction of the Albarrada of San Lázaro in 1555. His account appeared fifteen years after the devastating flood of 1629, which destroyed the sixteenth century Albarrada.[18] The flood swept away a huge part of the city, killed more than 30,000 Indigenous people, and reduced the number of Spanish families from 20,000 to only 400.[19] The city of Mexico remained flooded from September 1629 to

1634, generating an intense debate regarding the flood's causes, which Pinelo incorporates into the chapter on the lake of Mexico. He enumerates the numerous floods from the pre-Hispanic period until the flood of 1629, which he describes as the "mayor y más larga que ha tenido México, y que causó tanto daño en los Edificios que se apreció en dos millones" (2:157).[20] As he observes, it is because of changes associated with imported methods of cultivation that the authorities saw an increased risk of floods in the city. In Pinelo's account, floods are a natural disaster examined and recounted from a historical and political perspective conditioned by the anthropogenic lenses developed through colonialism. As Françoise Lavocat has shown for the case of Italy beginning in the 1630s, explanations for natural disasters focus more on historical narratives: "the interpretation of catastrophes no longer relies solely on religious explanations, but political and polemical ones are also starting to be considered" (253). In Pinelo's account, the most important shift in his narrative is not that he adopts a political and historical perspective to explain floods; it rather lies in the production of an anthropogenic perspective that identifies the arrival of Spaniards in the continent as at the origin of a Western historical agency that accelerates environmental change in the Americas.

Consequently, Pinelo suggests that superior fertility of the land and the ideal environmental conditions of the Americas are not the products of colonization, but the original characteristics of the New World, which are presented as having the properties of the paradise only before the arrival of Indigenous populations. In this regard, Pinelo does not see the colonial period as an opportunity to improve nature, but as a period in which a historical agent emerged from the process of colonization to acquire the authority of transforming the environment. According to Jean-Baptiste Fressoz and Fabien Locher, the idea that nature was improved through colonization was one of the fundamental instruments through which Europeans naturalized domination in subjugated colonial territories:

> Sixteenth century Spanish discourses on the climate of the New World are almost always linked to questions of sovereignty and law. They are in fact less about the nature of the conquered places than about the legality of their conquest; they seek less to describe exotic natures than to naturalize their subjugated place within Spanish imperial geopolitics. Also, the foundation of the climatic improvement according to Oviedo is political: the drying and cooling are due to the Spanish sovereignty that makes docile (*domar*) and softens (*aplacar*) regions and their rigor, just as it makes docile the Indians and the animals that inhabit them. (25-26)[21]

However, as evident in Pinelo's work, Spanish discourses did not necessarily naturalize domination through ideas about the improvement of Nature; they could also point to a form of

ecological degradation that motivated undisciplined and unmanageable responses from Nature. Pinelo's narrative thus projects a different political and historical view. Instead of simply arguing that colonization improves the environment and softens climates, he also points to processes of ecological degradation because what is at stake in *El paraíso en el Nuevo Mundo* is not just the legitimization of colonial domination through notions centered on the improvement of nature. In its place, the main goal of Pinelo's work is to underline the Spanish authority to possess and discipline an environment that can eventually generate instable and insubordinate responses. In other words, Pinelo's identification of a variety of Nature's responses to anthropogenic trajectories developed through colonization emphasized the historical agency and force of a Western-orientated historical perspective that has the legitimacy to discipline and transform colonized territories.

Furthermore, Pinelo's observations about the undisciplined character of Nature went hand in hand with detailed descriptions of the accessibility and exploitation of resources in the New World. Indeed, *El paraíso en el Nuevo Mundo* provides long sections that can be defined as narratives about the extractive zone.[22] In these sections, Pinelo details the material richness and productivity of the American soil. He points to the presence of resources such as water, salts, sugar, sulfur, iron, steel, lead, woods, silver, and gold in specific locations and comments on the accessibility to those resources, modes of production and extraction, and the uses and applications of those natural resources. When describing the presence of sulfur, he notes:

> Azufre se saca en muchas partes, y le hay en infinitas, que es la causa de ser tantos los volcanes, y aguas calientes, como queda visto. En la provincia de Quito se saca el que es necesario para la pólvora que alli se hace, de que se proveé Tierrafirme, Nuevo Reyno, y el Perú. (2:265)[23]

As in many other sections, Pinelo combines descriptions about how things are extracted and produced with supplementary commentary on the specific characteristics and value of plants, minerals, and natural resources. In this way, he offers a report that links observations about the properties of natural resources to the extraction of resources in order to produce a full overview of the profitable potential of Nature in the New World. Nature's ultimate goal is commodification, but the process begins with the identification and description of extractive zones of the New World, which Pinelo describes as very important and much better than those of Asia:

> Hemos llegado a la mayor grandeza y riqueza de las Indias, que es la abundancia, por no decir inmensidad, de los insignes y estimados Metales: Plata y Oro. En la India

> Oriental ponen minas de ella Plinio, Solino, y Diodoro. Pero o fueron imaginadas o tan pobres, que nunca dieron cantidad que importase. (2:311)[24]

Here, Pinelo's observations of the extractive zones and the acclamation of the superiority of American silver in the world are not in contradiction with his apprehensions about the undisciplined character of Nature. In his work, the identification of undisciplined responses from Nature to colonial dynamics never contradicts a historical vision that underlines the authority of the Western historical subject to discipline and possess the environment. In the end, the vital component in Pinelo's narrative is not that the author identifies undisciplined responses from Nature, but that he frames these same undisciplined responses in a historical framework that naturalizes the authority of a Western-orientated historical subject over Nature.

The extractive agenda of the colonial enterprise is particularly celebrated by Pinelo in his descriptions of silver. Pinelo defines silver as the most abundant and important mineral in terms of its aggregate value. He provides information about methods of extraction and mentions the trade that silver generates all over the world. Pinelo observes that the final port of the silver trade is always China, and when it arrives there, it has enhanced its value:

> Demás que todos los que entienden la disposición universal del comercio, son de parecer que toda la Plata, que corre por Europa y Asia, y parte de Africa, tiene su ultimo y único paradero en la China. Y es la razón por que de todas las Provincias y Reynos hasta que llega a aquel va siempre ganando, y aumentando el valor; y como si saliese alguna es forzoso que salga perdiendo; se sigue que siempre entra, y que nunca sale. (2:312)[25]

In this description, Pinelo traces the silver roads from the extractive zones of the Americas to the global markets of the period, which were highly dependent on the Chinese capacity to import silver. Rather than describing extractive zones in the continent as locations disconnected from other parts in the world, Pinelo explains the extraction and the modes of production of natural resources from colonial sites of exploitation to the dynamics of a world-market increasingly rooted in the expanding logics of commodity frontiers — "processes and sites of the incorporation of resources from colonial peripheries into the expanding world economy" —.[26] From a self-enclosed paradise situated in the past, Pinelo moves to a colonial present marked by an opening that connects the extractive zones of the New World to the rest of the planet.

Conclusion

Originally imagined as an inaccessible location preserved from the activities of humans, the paradise becomes in Pinelo's work a reachable environment that is put at work through colonial cultivations, the extraction of natural resources, and the trades of an increasingly globalized socio-ecological order. By theorizing that the extractive zones of the Indies were the original location of the Garden of Eden, Pinelo does not suggest a need to preserve nature as it was; he rather highlights a Western anthropogenic force that has the capacity to discipline and transform nature. In other words, paradise is not a place to recover and preserve, but the historical scene of Pinelo's Western giants. In this Western-orientated history, Indigenous populations are not just described as being part of Nature, but they are introduced in the narrative as an actor unable to possess and discipline the environment. Pinelo follows the traces of previous colonial narratives recounting the Western capacity and intention to transform climates and environments. However, unlike in the expansion of environmental frontiers from Madeira to the Caribbean, where explorers and colonizers saw deforestation and the reproduction of colonial socio-environmental techniques as an instrument to appease and normalize climates, Pinelo drew his ideas on environmental change through the contrast between the experience of Indigenous peoples and the environmental-making dynamics and interactions that emerged from Europe's westward expansion.

In his work, Pinelo points to the transformation of the environment in the colonial period by using Indigenous knowledge and words—such as the term *Tepetate*—that allowed him to identify a process of ecological degradation. This awareness of anthropogenic climate and environmental change in Pinelo's work is made through the contrast between pre-colonial and colonial experiences, memories, and words. However, this contrast is never neutral, as Pinelo's histories superimpose multiple perspectives, memories, and words to underline the transformative capacity of a Western-orientated anthropogenic force. In doing so, he subordinates Nature, Indigenous labor, and Indigenous-environment interactions to the historical agency and authority of the West. In the long historical run that separates Humans from Nature, theorizing the historical evolution of Indigenous populations through nature represents a crucial vehicle through which authors such as Antonio de León Pinelo naturalized a Western form of authority over nature. From paradise to the extractive zone, his narrative is thus part of a broader corpus of sources, histories, and images that shaped the ecological imperialism-making of the early modern world.

Notes

[1] Pinelo, *El paraíso en el Nuevo Mundo* (Comité del IV Centenario del Descubrimiento del Amazonas, 1943) 2:159: "After the Spanish entered [in the Indies] they grew wheat, barley, and other grains. To do so, they plowed not only the lands labored by the Indians, but also much more lands that had never been cultivated, reaching almost to the summit of the mountain range that surrounds the lake. Therefore, as the rains and gutters find the land softer and more stirred, they move it away, and broke it apart, and continue to do so. As a result, the fields lack the fertility they had before, because they lack flowers and nurtured land. These lands have become what people call *Tepetate*, a harsh and flimsy soil, as Torquemada says." All translations of Pinelos' work are my own.

[2] The Nahuatl word *Tepetate* refers to lands and surfaces that are usually in volcanic regions and are not appropriate for agriculture.

[3] The original manuscript of Antonio de León Pinelo's *El paraíso en el Nuevo Mundo* is housed in the section *Société de Géographie* (*Cartes et plans*) of the BnF Richelieu Library in Paris. Written between 1645 and 1650, the two-volume manuscript contains title pages and an index printed in 1656, which indicates Pinelo's failed intention to publish his work. Although the original manuscript has been considered lost by modern commentators and editors, the manuscript was sold in Paris in 1894 by the conde de Benahavís, Ricardo Heredia, to the Prince Roland Bonaparte, president of the *Société de Géographie* between 1910 and 1924. As part of the collection of the Prince Roland Bonaparte, the manuscript ended up in the section *Société de Géographie* of the BnF Richelieu Library. The modern edition was made from a late eighteenth century copy of the original housed today in the library of the Palacio Real in Madrid. In this article, I follow the modern edition published in Lima in 1943 by Raúl Porras Barrenechea: Antonio León Pinelo, *El paraíso en el Nuevo Mundo, Comentario Apologético, Historia Natural y Peregrina de las Indias Occidentales Islas de Tierra Firme del Mar Occeano*, ed. Raúl Porras Barrenechea, vols. 1 and 2. (Comité del IV Centenario del Descubrimiento del Amazonas, 1943)

[4] Crosby's definition of *Ecological Imperialism* focuses on explaining a form of "biological expansion" through a methodological approach that inversed the old question of natural—or rather ecological—determinism. For a criticism of Crosby's notion of ecological imperialism, see Jason W. Moore (Verso, 2015), p. 80. For an interpretation of how Crosby's vision of environmental history has evolved in the age of the Anthropocene, see Dipesh Chakrabarty, "The Climate of History: Four Theses" *Critical Inquiry*, Vol. 35, No. 2 (2009): 197-222.

[5] Jean-Baptiste Fressoz ; Fabien Locher. *Les Révoltes du ciel : Une histoire du changement climatique XVe-XXe siècle.* (Paris: Seuil, 2020), 11. My own translation of the original in French: "La troisième thèse de ce livre est que le changement anthropique des climats a été, sur la longue durée, un cadre de pensée et d'action au service de l'expansion impériale européenne. Dès la « découverte » de l'Amérique, l'idée s'impose que la colonisation est aussi une normalisation climatique, une manière d'améliorer le climat du continent par le défrichement et la mise en culture. C'est une promesse pour les colons, et un discours de domination : une façon de dire que les Indiens n'ont jamais vraiment possédé le Nouveau Monde."

[6] See Orlando Bentancor's chapter on José de Acosta, in *The Matter of Empire: Metaphysics and Mining in Colonial Peru* (University of Pittsburgh Press, 2017)

[7] The article capitalizes the word Indigenous when referring to the inhabitants of the Americas. It uses the lower-case letter when the word applies to the idea of local or native. The article includes the word 'Indian' when referring to the notion as used by early modern Iberian and Indigenous authors. It capitalizes the word Nature when the meaning explicitly refers to the historical agency of Nature, as in the cases the "history of Nature" and "undisciplined responses from Nature."

[8] Pinelo, *El paraíso en el Nuevo Mundo*, 1:272. "According to what we have proved, although the Indians of Peru had the ingenuity for accomplishing great works, and much more those of New Spain, we can attribute neither to the one nor to the other the buildings found in their provinces. It remains to find out and conjecture who could have done them, which kind of peoples invented these constructions."

[9] Pinelo, *El paraíso en el Nuevo Mundo*, 1:288. "And more in detail wrote the aforementioned Torquemada, a unique Author of the inhabitants of New Spain, that the first Nation who entered in there was that of the Toltecs, and then the Chichimecas, Aculhuas, and Mexicas." My own translation.

[10] Pinelo, *El paraíso en el Nuevo Mundo* 2.19, 1:290. "it is opinion very plausible and well-founded that when Christ Our Lord came to the World, neither Peru nor New Spain were inhabited."

[11] Pinelo, *El paraíso en el Nuevo Mundo* 2.18, 1:272. "Pedro Cieza says about the buildings of Vinaque [in today's Huari archaeological site] that when he asked the Indians who made that ancient building, they answered that it was made by some other white and bearded people like us, who much earlier than the Incas went to those parts and established there their home."

[12] Pinelo, *El paraíso en el Nuevo Mundo*, 2:125: "natural history is the body of this soul, and the ornament of this body"

[13] Pinelo, *El paraíso en el Nuevo Mundo*, 2:3: "preferred to the *Indias Occidentales*, more for antiquity than for merits."

[14] Fernando Colón, *Historia del almirante Don Cristóbal Colón* (Imprenta Tomás Minuesa 1892), 260 "In this western part of Jamaica it rains every afternoon, roughly for one hour. The Almirante attributed it to the great rain forest and trees of this

country. This was known from experience, because it initially happened in the Canary Islands, Madeira, and the Azores. Now that rainforests have been cleared and many shade trees were cut down, there are not as many downpours as there were before."

[15] Pinelo, *El paraíso en el Nuevo Mundo*, 2:159: "The true reason that the flooding is greater, as well as the effects of dryness in summer, is that in the time of the Indians [the precolonial period], the sowing of all the fields and areas around the lake (in Mexico city) were with cornfields, *Magueyes* (agave), and other plants for which the soil does not need to be moved and the land does not lift, because they did not use the plough."

[16] Pinelo, *El paraíso en el Nuevo Mundo*, 2:159: "This applies to all the Indies, as Enrico Martínez verified, as seen in swamps and lakes that have decreased, leaving today solid soils that have been seeded, having introduced fields of sowing and cattle that were not there in the time of Indians."

[17] Pinelo, *El paraíso en el Nuevo Mundo*, 2:159: "After the Spanish entered and initiated the cultivation of fields, they divided and depleted some of the rivers or streams that enter the Mexican Lake in order to water the land. In doing so, the lake not only did not grow, but it dwindled and decreased so much that the greater part of the *Dulce* [fresh-water lake] to the North and West disappeared, and the city was then apparently joined to the mainland, with some walkways, which already ran through dry land. The Salt Lake (*La salada*) decreased and narrowed considerably, and this continued until the year of 1553, when since the waters of winter were great and overflowed the roads around the city, the first swelling of the lake was seen: but as the waters of the lake had been before so low, its waters did not rise too much. On that occasion, the Viceroy Don Luis de Velasco, who ruled, ordered the construction and erection of the famous Albarrada de San Lazaro, which people thought had provided enough security, as Torquemada (a) writes."

[18] *Albarradas* are a pre-Hispanic dike that continue to be built in the colonial period and today in the Americas to protect zones from being flooded by direct waters to cultivation fields.

[19] For the flood of 1629,, see Louisa Hoberman, "Bureaucracy and Disaster: Mexico City and the Flood of 1629," *Journal of Latin American Studies* 6 (1974): 211–30.

[20] Pinelo, *El paraíso en el Nuevo Mundo*, 2:157. "The greatest and largest [flood] that Mexico ever had."

[21] Fressoz and Locher, *Les Révoltes du ciel*, 25-26. My own translation: "Les discours espagnols du XVIème siècle sur le climat du Nouveau Monde sont presque toujours liés à des questions de souveraineté et de droit. Ils portent en fait moins sur la nature des lieux conquis que sur la légalité de leur conquête ; ils cherchent moins à décrire des natures exotiques qu'a naturaliser leur place subjuguée au sein de la géopolitique impériale espagnole. Aussi, le fondement de l'amélioration climatique selon Oviedo est politique : l'assèchement et le refroidissement sont dus à la souveraineté espagnole qui rend docile (domar) et adoucit (aplacar) des régions et leur rigueur, tout comme elle rend dociles les indiens et les animaux qui les habitent."

[22] This article borrows the concept "extractive zone" from Macarena Gómez-Barris, *The Extractive Zone: Social Ecologies and Decolonial Perspectives* (Duke University Press, 2017). Gómez-Barris argues that extractive zones cannot be reduced to passive subjections, but instead encompass diverse forms of "submerged perspectives" that represent the foundation of a decolonial critique that targets the multiple imbrications of colonial violence.

[23] Pinelo, *El paraíso en el Nuevo Mundo*, vol. 2: 265: "It is extracted from many different places, and you can find it in infinite locations, because there are many volcanos and hot waters, as we have seen. In the province of Quito, people take the quantity that is necessary for the powder that is made there, from which they supply *Tierrafirme*, *Nuevo Reyno*, and Peru"

[24] Pinelo, *El paraíso en el Nuevo Mundo*, 2:311: "We have reached the greatest greatness and wealth of the Indies, which is the abundance, if not immensity, of the distinguished and esteemed metals: silver and gold. … In the Oriental Indies Pliny, Solinus, and Diodorus identify mines, but they were imagined so poor that they never produced an important quantity."

[25] Pinelo, *El paraíso en el Nuevo Mundo*, vol. 2: 312. "all those who understand the universal disposition of trade have the opinion that all the silver that runs through Europe, Asia, and parts of Africa has China as the last and unique final location. This is the reason why silver runs from all provinces and kingdoms to China and is always increasing its value … and everything goes to China while any Spanish *real* (Spanish currency) goes to other places."

[26] For the notion of commodity frontier, see Beckert, Sven, et al. (2021). See also Jason W. Moore (2009, 2010, and 2015)

Works Cited

Acosta, José de. *Historia Natural y Moral de las Indias*. Juan de León, 1590.

Bentancor, Orlando. *The Matter of Empire: Metaphysics and Mining in Colonial Peru*. University of Pittsburgh Press, 2017.

Beckert, Sven, et al. "Commodity Frontiers and the Transformation of the Global Countryside : A Research Agenda." *Journal of Global History*, vol. 16, no. 3, 2021, pp. 435–50.

Chakrabarty, Dipesh. "The Climate of History: Four Theses." *Critical Inquiry*, vol. 35, no. 2, 2009, pp. 197-222.

Colón, Fernando. *Historia del almirante Don Cristóbal Colón*. Imprenta Tomás Minuesa 1892.

Crosby, Alfred W. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. Cambridge University Press, 1986.

---. *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Greenwood, 1972.

Evelyn, John. *Sylva, or A Discourse of Forest-Trees and the Propagation of Timber, Paper Presented to the Royal Society in 1662*, published by John Martyn for the Royal Society, 1664.

Fressoz, Jean-Baptiste and Fabien Locher. *Les Révoltes du ciel : Une histoire du changement climatique XVe-XXe siècle*. Seuil, 2020.

Gómez-Barris, Macarena. *The Extractive Zone: Social Ecologies and Decolonial Perspectives*. Duke University Press, 2017.

Grove, Richard. *Green Imperialism*, *Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860*. Cambridge University Press, 1995.

Hoberman, Louisa. "Bureaucracy and Disaster: Mexico City and the Flood of 1629," Journal of Latin American Studies 6, 1974, PP 211–30.

Lavocat, Françoise. "Narratives of Catastrophe in the Early Modern Period: Awareness of Historicity and Emergence of Interpretative Viewpoints," *Poetics Today: International Journal for Theory and Analysis of Literature and Communication*, 33 (3-4), 2012, pp. 254–99.

León Pinelo, Antonio de. *El paraíso en el Nuevo Mundo: comentario apologético: historia natural, y peregrina de las Indias Occidentales i Tierra-Firme del Mar Océano*, edición de Raúl Porras Barrenechea. Comité del IV centenario del descubrimiento del río Amazonas, Lima: Imprenta Torres Aguirre, 1943.

---. *Epitome de la bibliotheca oriental, y occidental, nautica, y geografica*. Juan González, 1629.

Moore, Jason W. *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. Verso, 2015.

---. "The Rise of Cheap Nature." *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*, edited by Jason W. Moore, Kairos, PM Press, 2016.

---. "Madeira, Sugar, and the Conquest of Nature in the First Sixteenth Century, Part I: From "Island of Timber." *Review* (*Fernand Braudel Center*) 32, no. 4, 2009, pp. 345-90.

---. "Madeira, Sugar, and the Conquest of Nature in the 'First' Sixteenth Century, Part II: From Regional Crisis to Commodity Frontier, 1506—1530." *Review* (*Fernand Braudel Center*) 33, no. 1, 2010, pp. 1–24.

Scott, Heidi V. "Paradise in the New World: An Iberian Vision of Tropicality." *Cultural Geographies* 17, no. 1, 2010, pp. 77–101.

Wey-Gómez, Nicolás. *The Tropics of Empire. Why Columbus Sailed South to the Indies*. The MIT Press, 2008.